

A Review of Science Diplomacy: Theoretical Evolution to a Post-Naïve Approach and Its Relevance for the Czech Republic

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ABSTRACT

The paper critically reviews the evolution of the concept of science diplomacy and sheds light on the lack of theoretical reflection on the role of science diplomacy in the Czech context. The idealistic vision of science diplomacy presented by the AAAS and the Royal Society in 2010 has recently been replaced by a more constructivist vision that acknowledges the vulnerability of science and emphasises the political and international implications of S&T diplomacy by pointing to clashes between national interests and those of scientific communities. This post-naïve vision relies on the growing strategic value of science and technology, which may lead to the acceptance of new policies regulating the inputs and outputs of scientific systems. The paper briefly outlines the current strategy of the Czech Republic within the EU, highlighting its geostrategic dimension and identifying relevant challenges for the future agenda.

KEYWORDS

science diplomacy, Czech Republic, science, technology, innovation, globalisation, national interests, European Union

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INTRODUCTION

Science diplomacy has long been intertwined with the field of international affairs, and practices of what would now be labelled science diplomacy in international affairs can be traced back to the 18th Century (TUREKIAN 2018: 5–7). Until recently, it has been seen more narrowly as a part of cultural diplomacy (TOMALOVÁ 2008; PETERKOVÁ 2016), despite its widespread and growing importance since the Second World War.

The changing understanding of science diplomacy over the last seventy years suggests that science and research are becoming politically relevant as globalisation progresses (ROBINSON ET AL. 2023). The transformation of international relations and science policy is driving these changes. Intergovernmental bodies such as the Intergovernmental Panel on Climate Change (IPCC), transnational organisations such as the Pugwash Conferences on Science and World Affairs, globalisation, which has spurred big data science, large infrastructures such as CERN (Conseil Européen pour la recherche nucléaire) and others, have made science one of the geopolitical and geo-economic priorities of state diplomacy (KURBALIJA 2022).

The theoretical concept and framework of science diplomacy are thus relatively new. In a collaboration between the Royal Society's Science Policy Centre and the American Association for the Advancement of Science (AAAS), a policy paper entitled "New Frontiers in Science Diplomacy: Navigating the Changing Balance of Power" was produced in 2010 (KOPPELMAN ET AL. 2010). This policy paper is the first comprehensive exposition of the concept of science diplomacy, suggesting its place and role in diplomacy and international relations, and introducing science diplomacy as an analytical category. The report was published in 2010, one year after Barack Obama's speech in Cairo in 2009. His speech has been interpreted as the beginning of a new American strategy towards the Muslim world after the events of 11 September 2001. It emphasised the importance of scientific and technological cooperation as a means of progress where traditional political and diplomatic channels are absent or limited.

The theoretical framework of science diplomacy is currently under critical debate (RUFFINI – KRASNYAK 2023), as it is caught between idealistic aspirations and realistic needs in an era of new wars and international crises.

Most critics of the original concept ^(COPELAND 2016; FLINK 2020; PENCA 2018) point out that science as a public good is highly vulnerable, as Jacques Salomon and others have argued ^(SALOMON 2006: 13). The idealist vision is therefore being replaced in analytical circles by more constructivist approaches that, while not denying science as a highly vulnerable phenomenon, can socially anchor it in real politics ^(KARACAN – RUFFINI 2023), which most critics counter by highlighting conflicts between state interests and those of epistemic communities ^(FLINK 2020; RUNGUIS – FLINK 2020).

In line with the 2010 report, Vaughan Turekian and his colleagues ^(TUREKIAN ET AL. 2015: 4) contend that science diplomacy is a “*process by which states represent themselves and their interests in the international arena when it comes to the areas of knowledge – their acquisition, utilization, and communication – acquired by scientific method.*” The definition presented here by prominent contemporary scholars of science diplomacy is derived from their examination of science and diplomacy, according to which science uses a universal language that transcends ideological or political prejudices and embodies principles of transparency, ethical conduct, excellence and civic virtues. Diplomacy, in its conventional definition ^(DAVIS – PATMAN 2015), is commonly interpreted as a non-violent instrument of international affairs, characterised by efforts to achieve compromise, foster communication and facilitate peaceful negotiations.

The aim of this paper is to clarify the concept of science diplomacy in the Czech context, to briefly present its history and background, and shed light on the lack of theoretical reflection on the role of science diplomacy in the Czech milieu and its consequences. The paper aims to evaluate the Czech approach to science diplomacy against the so-called idealistic version of science diplomacy and open a discussion on the current post-naïve understanding of science diplomacy. I point out a certain discrepancy in the Czech context, where scholars tend to associate science diplomacy with the traditional concept of science as part of cultural diplomacy, while practitioners at the Ministry of Foreign Affairs of the Czech Republic promote their science diplomacy as part of economic or innovation diplomacy. I argue that the vagueness of the first concept of science diplomacy in Czech foreign policy is confusing and may send confusing messages to our partners.

In the first part of the text, which is more narrative and informative in nature, I therefore focus on the basic milestones used by contemporary theorists of science diplomacy to contextualise the role of science diplomacy in international relations. This is followed by a basic division and introduction of the three dimensions of science diplomacy. The first critique, namely that of the tendency to idealise science diplomacy by viewing it almost exclusively as a means of peace and stability, is presented in the next section. The risk inherent in an undefined concept of Czech science diplomacy is then discussed in the final section, in which the text focuses on the Czech approach to science diplomacy, where the consequences of the related vagueness are immediately apparent.

The text presents examples of both the roles of large research infrastructures and the implementation of the Czech concept of “science diplomacy” in practice. It is thus primarily a review article, but it also highlights the dynamics of the field and the implications of its vague definition for the practical agenda of the Czech Republic’s foreign policy.

THE THREE DIMENSIONS OF SCIENCE DIPLOMACY

The link between science diplomacy and national interests and objectives distinguishes it from cultural diplomacy, academic exchanges, and other forms of scientific cooperation, as was stated in Obama’s speech “A New Beginning,” delivered in Cairo on 4 June 2009. In this emotionally charged speech, Barack Obama outlined for the first time since 9/11 his broad and ambitious initiative for cooperation with the Muslim world and he promised to support educational, scientific, and technological activities based on the premise of American science diplomacy: “*But we must all recognize that education and innovation will be the currency of the 21st century*” (OBAMA 2009). The speech was preceded by the establishment of the Centre for Science Diplomacy by the American Association for the Advancement of Science (AAAS) in 2008 and the celebration of the 50th anniversary of the Antarctic Treaty in Washington, DC, in 2009 (KARACAN – RUFFINI 2023).

The report “New Frontiers in Science Diplomacy” that followed, was initiated in the latter year by the American Association for the Advancement of Science (AAAS) and the Science Policy Centre of the Royal Society, and published in 2010 (KOPPELMAN ET AL. 2010). It explains the post-Cold War world

order that has facilitated the expansion of science diplomacy and its role. It defines science in the international context as a result of increasing globalisation that is challenged by global issues such as the environment, health and security, which require global cooperation.

The authors define the following dimensions of science diplomacy: 1) science in diplomacy, which aims to “*inform foreign policy objectives with scientific advice*”; 2) diplomacy for science, which facilitates international scientific cooperation; and 3) science for diplomacy, which uses scientific cooperation to improve international relations between countries (KOPPELMAN ET AL 2010: VI). Although this simplistic division is now criticised mainly for the vagueness of its definition (COPELAND 2016; FLINK 2020; PENCA 2018), it is a functional terminological tool that has been very well accepted and adopted globally.

Science in diplomacy points to the fact that science is capable of recording, measuring and analysing. The model of future development thus becomes the basis for action, setting agendas, and ranking the priorities of politicians and diplomats. Peter D. Gluckman, the President of the International Science Council, the former President of the International Network for Government Science Advice, and the former Chief Science Advisor to the Prime Ministers of New Zealand, distinguishes between the following types of input that scientists and the scientific community can provide to politicians and diplomats: (1) technical advice, (2) regulatory advice, (3) deliberative advice, (4) informal advice, and (5) scientific advice in crises and emergencies (GLUCKMAN 2016).

In this context, the report “New Frontiers in Science Diplomacy” mentions the Intergovernmental Panel on Climate Change (IPCC). This panel was set up in 1988 by a decision of the UN General Assembly in cooperation with the World Meteorological Organisation (WMO) and the UN Environment Programme (UNEP) (RISPOLI – OLŠÁKOVÁ 2020) to objectively and regularly analyse data on climate change and, on the basis of these results, inform policymakers about forecasts of climate change, its further development and possible recommendations. Nevertheless, critical voices raise the issue of the problematic relationship between science and politics within the IPCC’s operation in terms of the superiority of politics over science (LIDSKOG – SUNDQVIST 2015).

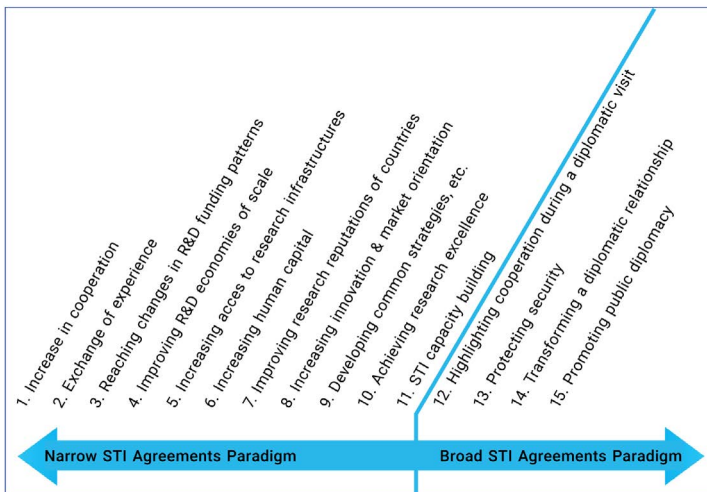
The second dimension, *diplomacy for science*, invites researchers and scientists to provide and obtain the support of diplomats and the international commitments of their governments in order to create new networks, implement large-scale projects, or establish new contacts. Diplomacy for science means using science to promote a national agenda or one of its priorities at the international level. A typical example is the creation of large infrastructures, which require not only huge investments but also a broad network of international experts. In Europe, three such large infrastructures have required the involvement of diplomats: Conseil Européen pour la recherche nucléaire (CERN) (KRIGE 1996), the Joint Institute for Nuclear Research in Dubna (JINR) (TĚŠÍNSKÁ 2019) and the International Thermonuclear Experimental Reactor (ITER) (EUROPEAN COMMISSION 2006). All three institutions reflect different tactics in achieving political and diplomatic goals: CERN is an exemplary case of political attempts at closer integration of EU science policy, where science diplomacy served as a platform for building a supranational research infrastructure; JINR Dubna is a typical Soviet product of the Cold War, as the international nuclear institute was built as a primarily Soviet institution with international participation; ITER, which aims to demonstrate the scientific and technological feasibility of fusion as a future energy source, is a de facto global project, the second of its kind after the International Space Station, which aims to stimulate research and monitor progress in the field of thermonuclear fusion. While CERN in many ways serves as an incubator for new projects with a strong international and global impact, such as the successful World Wide Web communication tool that is now standard on the Internet, Dubna was born out of the USSR's colonial attitude to gathering new knowledge from the Soviet bloc, and ITER has become a new challenge for cooperation in the post-Cold War world (BARBARINO 2021).

Bilateral negotiations on science and the use of its potential play an important role here, and the examples I have listed above are typical examples of multilateral agreements (with the exception of Dubna, which arose in the specific environment of the Sovietisation of Central and Eastern European states); nevertheless, national interests take the lead in science diplomacy. This is one of the reasons why the approach to science diplomacy and the support for its objectives vary so much from one country to another. For example, the UK has regular science and innovation meetings with Brazil, China, India, Russia, South Africa and South Korea (KOPPELMAN

ET AL. 2010: 9). In Central Europe, the Visegrad Four (V4) have had the ambition to create a similar platform for science and innovation meetings in the past, but their political potential has been more erratic recently and has not led to a strong strengthening of their position in this area.

The final dimension is *science for diplomacy*, which uses science to build cooperation between countries. This dimension is represented by scientific cooperation agreements, the success and benefits of which are often determined by the geopolitical interests of the countries and organisations involved. In most cases, these agreements are very specific and cover 11 of the 15 reasons for signing bilateral STI agreements identified by Derek Jan Fikkers and Manfred Horvat in their *Basic Principles for Effective International Science, Technology and Innovation Agreements* (see Table 1) (FIKKERS – HORVAT 2014: 3). Specific agreements with these 11 reasons fall under the ‘narrow STI paradigm’, while the remaining four reasons fall under the so-called ‘broad STI agreement paradigm’ and could be considered as proper ‘science diplomacy’ or ‘high-level policy’ (IBID.).

TABLE 1: FIFTEEN REASONS FOR SIGNING BILATERAL STI AGREEMENTS



However, the paradigms of ‘narrow’ and ‘broad’ STI agreements are irrelevant if we approach STI agreements from the perspective of traditional diplomacy. STI agreements can be divided into symmetrical and asymmetrical agreements. The former are those created with the aim of gradually improving existing mutual relations. Their dynamics are

balanced, proportionate, and linked to the current level of international cooperation. The asymmetrical approach means that science serves as a starting point for a new international cooperation. Its dynamic is not proportional, because the weaker the existing international relations between the two given countries have been in the past, the greater the political interest in influencing the relations between these countries will be in the future. A typical example, also cited by “New Frontiers,” is the 2004 scientific cooperation agreement between the US and Libya, which was the first agreement signed between these two countries after Libya abandoned its biological, chemical, and nuclear weapons programmes

(KOPPELMAN ET AL. 2010: 11).

This dimension of science diplomacy also includes the sensitive issues of nuclear proliferation, disarmament, environmental risks and environmental security, which are now attracting a great deal of attention. Historically, nuclear weapons have clearly been the main driving force and reason for science to move from a purely national framework to the field of international relations in the course of the 20th century (TURCHETTI 2020; KRAFT – SACHSE 2019). The responsibility of scientists for the advancement of humanity has become part of the integrity of research and the social responsibility of scientists (KRAFT 2022; KRAFT – SACHSE 2019; OLŠÁKOVÁ 2018).

THE POST-NAÏVE APPROACH TO SCIENCE DIPLOMACY

The division of science diplomacy into three dimensions was criticised almost immediately. In particular, academics found it too vague. Simone Turchetti and Roberto Lalli point out in their paper from 2020 that *“the underlying assumption in the literature is that all the stakeholders involved will benefit from science diplomacy initiatives; countries will produce relations that are more cordial, science will advance and through that advancement, the society at large will benefit too”* (TURCHETTI – LALLI 2020). Such an idealistic concept assumes that science diplomacy should remain outside the realm of political or other interests, and that scientists themselves should distance themselves from diplomatic and political games (FLINK 2020). Diplomacy should also uphold the scientific ethic, according to which the transfer of knowledge aims to improve the quality of life and society, not to create a relationship of dependency in the name of colonial expansion.

The 2010 report established science diplomacy as one of the analytical categories of contemporary history and international relations. According to the idealistic vision of the 2010 report, science can influence state-nation relations because of its universal values. These are rationality, transparency, and universality. They provide a non-ideological climate that allows successful relations between two or more countries on neutral ground. Science diplomacy can bridge cultures and values through scientific internationalism (SOMSEN 2008). Obama's speech, however, shows that the role of science and its relevance to society is a two-way street, both externally (TURCHETTI ET AL. 2008) and internally. Science is reflected by the state in different ways in all the major components of identity, i.e. self-identification, prioritisation, and cultural framework, making its role distinctive (KOLMAŠ 2017).

On the one hand, the idealistic vision of science diplomacy is the main reason why the concept has become so attractive and popular in the last decade. On the other hand, this idealism is also the main point of contemporary criticism. The "Dickensian" image of science diplomacy, however, makes us forget the historical experience of authoritarian regimes that were able to use science diplomacy within their political agenda under socialist internationalism, both in the sense of consolidating peace and cooperation and in the sense of limiting cooperation through colonisation or direct control (JACOBSEN – OLŠÁKOVÁ 2020), which is how globalisation took the form of "red globalisation" in the Communist bloc (SANCHEZ-SIBONY 2016).

Rungius and Flink point out that the notion of science diplomacy has been closely linked to the narrative of crisis, albeit in times of peace rather than war (RUNGIUS – FLINK 2020). The idealistic vision of science diplomacy as a quick, peaceful solution that creates synergy through cooperation overrides existing antagonisms. Such an image has led to the emergence of a "pervasive trust" in science diplomacy (LIDSKOG – SUNDQVIST 2015), which, however, ignores the serious fact that science is a social process driven by the concept of national interests. The "soft power paradox" thus arises: *"While science is cherished for being non-political, this property was to be instrumentalized as a form of ersatz diplomacy, i.e., it is being used for political purposes that essentially revolve around interests and power"* (RUNGIUS – FLINK 2020: 8).

Science provides a neutral background, but it is still a “state-funded” activity, and therefore it is a reflection of national or state interests. Over the past decade, the relationship between science diplomacy and national interests has come to the fore. The potential to use science to promote state or national interests is based on the following principles: 1) the importance of science for diplomacy is growing along with the possibility of redirecting it to the sphere of implementation; 2) the funding of science always stems from national priorities; 3) scientists in international relations are specific actors bound by the principles of scientific ethics and scientific internationalism, but dependent on their own country in both an emotional and a material/financial sense (RUFFINI 2018: 55).

For some authors (E.G. RUNGIUS – FLINK 2020) the concept of science diplomacy has gained remarkable ground in public policy. Calling for closer cooperation between actors from science and foreign policy, it is often being promulgated as a hitherto neglected catalyst for international understanding and global change. On what grounds science diplomacy entertains these high hopes, however, has remained unclear, and—as a blind spot—unaddressed in a discourse mostly shaped by policy practitioners. Recognizing that the discourse on science diplomacy is still unspecific about how its means and ends should fit together and be comprehended, we reconstruct the concept and its discourse as a materialization of actors’ interpretative schemas and shared assumptions about the social world they constantly need to make sense of. Science diplomacy is presented as a panacea against looming threats and grand challenges in a world facing deterioration. The prerequisite for such a solutionistic narrative is a simplified portrait of diplomacy in need of help from science that—romanticized in this discourse—bears but positive properties and exerts rationalizing, collaborative and even pacifying effects on a generic international community in its collective efforts to tackle global challenges. We conclude that these interpretative schemas that idealize and mythify science as overall collaborative, rationalizing and complexity-reducing are problematic. First, because the discourse misconceives ideals and norms for real and will therefore disappoint social expectations, and second, because science is likely to be instrumentalised for political purposes. The Authors are therefore critical of the ‘dual identity’ of the scientist, both national and scientific.

The revised definition of science diplomacy, as provided by Gluckman et al. in 2017, focuses on the benefits of science diplomacy for national interests, and also for cross-border and global cooperation in addressing global challenges. Science diplomacy thus encompasses 1) “actions designed to directly advance a country’s national needs” (...“from exercising soft power to serving economic interests to promoting innovation”); 2) “actions designed to address cross-border interests” (regarding, e.g., “matters relating to transborder shared resources”); and 3) “actions primarily designed to meet global needs and challenges” (addressing the “global interest” regarding shared challenges across borders and spaces beyond national jurisdictions) (RUFFINI 2020). P. B. Ruffini and D. B. Karacan consider the potential of science diplomacy to find solutions to common global problems as part of its “universalist” approach (KARACAN – RUFFINI 2023: 1). L. S. Davis and R. G. Patman argue that two conditions must be met in order to promote science diplomacy: The first is the need to improve the flow of information and communication between scientists and diplomats, but not only them – society also plays an important role. The second, and more long-term, requirement is for states to accept the assumption that “at least some issues are so global in their reach and consequences that states must sacrifice their perceived self-interest for the common good” (DAVIS – PATMAN 2015: 273).

In contrast to the previously preferred framework of defining science diplomacy as a tool for maintaining cooperation and closer integration, science diplomacy is increasingly becoming a tool for promoting national or supranational interests and strengthening one’s own influence. The “statist” approach thus focuses on the state and its interests, which are articulated at the international level through diplomatic channels (KARACAN – RUFFINI 2023: 1). Increased international competition could inevitably lead to increased tensions in strategic research areas and, ultimately, to the most likely case of a renewal of stricter controls on the free movement of scientists (KRIGE 2019). This is so because the regulatory means that any state could use to maintain or protect its own policy on the flow of knowledge are based on the control of the free movement of scientists, and include, for example, visa policy (KRIGE – BARTH 2006).

The reassessment of the idealistic approach to science diplomacy has been interrupted by the Russia-Ukraine war, which has fundamentally shaped not only the functioning of individual scientific institutions

and communities, but also the mechanism and principles of international cooperation in general. The war stands at the beginning of the post-naïve approach to science diplomacy (OLŠÁKOVÁ – ROBINSON 2022A, 2022B), as in the near future I can anticipate a re-evaluation of existing principles and the mechanism of scientific cooperation in a new, polarised environment, while the main premises of science, technology and scientific ethics will be preserved. In view of the growing strategic value of science and technology, I expect a closer cooperation or an increasing overlap between secret and civilian research, which would lead to the acceptance of new strict measures regulating the inputs and outputs of the scientific system.

THE CZECH REPUBLIC AND THE DAWN OF SCIENCE DIPLOMACY

In the Czech environment, the popular image of scholars as Czech revivalists reviving the Czech language or lonely geniuses living in isolated ivory towers has never really corresponded to reality (VÁCHA 2012). In the years right after the establishment of an independent Czechoslovak state, the cultural and science diplomacy of the newly formed country was defined as pro-active, expansive, and quite generous in terms of financial funding (OLŠÁKOVÁ 2023). Cultural diplomacy supported the political goals of Czechoslovak foreign policy and significantly shaped the image of the new Czechoslovak state abroad. In the post-war period, Czechoslovak science policy went through several distinct phases, from being a passive part of ideological propaganda during the harsh sovietisation of Czechoslovakia to a great boom in the 1960s (MÁLEK 1968), when, for example, Czechoslovak members of Pugwash created a strong international network closely linked to the group of Harvard professors working in close contact with the US State Department (OLŠÁKOVÁ 2018). The golden 1960s were later interrupted by the occupation of Czechoslovakia in 1968 (JANÁČ – OLŠÁKOVÁ 2021), and the emigration or expulsion of prominent researchers from active academic life put an end to the period of rich international activities of Czech and Slovak scientists (ŠTRBÁŇOVÁ – KOSTLÁN 2011). The policy of ‘normalisation’, i.e. the post-1968 policy based on Brezhnev’s neo-Stalinism, dealt a severe blow to independent Czechoslovak science diplomacy, and even the great wave of interest in Eastern and Central Europe in the 1990s was unable to remedy this situation.

At present, the Czech Republic is one of the countries that are aware of the growing importance of science diplomacy, but continue to adhere to more traditional practices. The Ministry of Foreign Affairs of the Czech Republic has established a special department for science diplomacy, the aim of which is not only to strengthen this distinctive and new area of foreign policy, but also to create new conditions for the development of so-called “innovation diplomacy” (GRISSET 2020), a specific subdivision focused on innovation and technology transfer. Its role is thus defined as both science for diplomacy and science in diplomacy.

The definition of science diplomacy developed by the Czech Ministry of Foreign Affairs (MFA) is theoretically derived from the AAAS concept. However, the influence of the EU and its current priorities is very evident in it. The EU has been developing the concept of science diplomacy since 2010, which led to the linking of EU science policy with the European External Action Service (EEAS), which, in 2016, openly declared science policy to be an EU ‘soft power’ (RUNGIUS – FLINK 2020). Since then, the EU Commission’s Directorate-General for Research has used science to achieve “geopolitical goals and strategic research and development goals” (RUNGIUS – FLINK 2020: 3).

Nevertheless, the position and concept of ‘science diplomacy’ in the Czech Republic have been weakened by its vague understanding and definition. The numerous analyses of Czech foreign policy since 2015 include science, research, and education under cultural diplomacy. The *Foreign Policy Concept of the Czech Republic* then sees the main contribution of science diplomacy in promoting the good reputation of the Czech Republic abroad (PETERKOVÁ – TOMALOVÁ 2016: 399–400; 2017: 407–408).

The Minister of Foreign Affairs at the time of writing (2023) Jan Lipavský sees Czech science diplomacy as a component of economic diplomacy, which further complicates the vagueness of the Czech term and concept. This attitude is clearly expressed in his statement of April 2022: “Economic and science diplomats have a shared goal: to support the export of Czech products, services, and technologies with the greatest possible added value abroad and establish cooperation with foreign partners. The well-tested tools of economic diplomacy are available for the further development of science diplomacy” (LIPAVSKÝ 2022). One of his priorities, he says, is to increase the involvement

of economic diplomats in the science and technology agendas of individual embassies (ZÍŽKA 2022). However, his speech reveals another characteristic feature of Czech diplomacy, which is the absence of the term ‘innovation diplomacy’. In general, the Czech Foreign Ministry emphasises the “science in policy” dimension, which is based on “evidence-based policy”. The role of science is to provide quantified data on the basis of which analyses are made and used to define foreign policy priorities.

The structure of science diplomacy in the Czech Republic is hierarchical, but it operates both vertically, as part of the structure of the Ministry of Foreign Affairs, and horizontally, as an inter-ministerial steering group. Currently, there is an inter-ministerial steering group established within the Czech Council for Research, Development and Innovation, which includes representatives of all the relevant state scientific authorities, i.e. the Czech Council for Research, Development and Innovation, the Ministry of Education, Youth and Sports, the Ministry of Industry and Trade, the Ministry of Foreign Affairs, the Czech Science Foundation, the Czech Technology Agency and the Czech Academy of Sciences. The Ministry of Foreign Affairs itself has its own science diplomacy coordination structure and it is headed by a Special Envoy for Science and Technology. Petr Kaiser, who served as the Special Envoy for Science and Technology at the Czech MFA from 2010 to 2014, has held this position again since 2019. So far, cooperation between the Ministry of Foreign Affairs and inter-ministerial steering group has worked well, and in the spring of 2023, a special science diplomacy unit was approved and launched as part of the revised structure of the Foreign Ministry.

The Czech Republic has so far appointed four science diplomats, making it one of the countries with the lowest representation in this regard. For example, Pierre-Bruno Ruffini claims that in 2015, Hungary had a total of 11 science advisors in nine countries (RUFFINI 2018). The oldest Czech science diplomat position was created at the embassy in Israel in 2015, when Delana Mikolášová was appointed the first Czech science diplomat (LIDOVÉ NOVINY 2015: 4; MAŠÍNOVÁ 2022). The Czech science diplomats’ concept of science diplomacy is derived from the dimensions of science for diplomacy and diplomacy for science; in the case of Israel, the science in diplomacy dimension is, at first sight, unclear. Science diplomacy activities in Israel are based on three areas of interest to the Czech Republic: academic communities

(i.e. universities and research institutions), cooperation and partnerships in the field of research and development, and innovative R&D companies. There is a clear emphasis on hard data and implementation in this case. The focus is on innovation potential, applied R&D and the ability to create start-ups and national innovation ecosystems. Israel is the only country for which the Czech government possesses a carefully prepared analysis for developing further scientific cooperation activities (KOSTIĆ ET AL. 2022). As the Czech science diplomacy agenda is still under review, the question arises as to whether the low number of science diplomats is really the result of limited funding, or if it is the result of a highly targeted science diplomacy focused on specific areas in specific regions of the world.

The most recent Czech science diplomacy post was established in Taipei to coordinate science diplomacy across South East Asia. From 2020 until the time of writing (2023), the post has been held by Marie Leflerová, whose priorities are very similar to the Czech approach in Israel, namely innovation and implementation (LEFLEROVÁ 2022).

A science diplomat post has also been created at the Permanent Representation of the Czech Republic to the EU in Brussels and is currently, at the time of writing (2023), held by Hana Vlčková. Her position is somewhat different from those of the other three Czech science diplomats, as she has been dealing with science and research issues, including the space agenda, within the EU's Framework Programmes since 2008. Although her work is not well documented in accessible sources and analyses, the fact remains that four years after she took up her post, the European Space Agency (EUSPA) began operating in the Czech Republic, at that time under the official name of the European Global Navigation Satellite System Agency (GSA). This is undoubtedly the greatest success of Czech foreign diplomacy within the framework of "diplomacy for science".

For the time being, the only Czech science diplomat post that represents all three dimensions of science diplomacy is the one created at the Czech Embassy in the US (ŽIŽKA 2017), which was held by Luděk Moravec until 2022 (vacant at the time of writing). The embassy's priorities are much narrower, focusing on AI, nanotechnology, plasma physics and, exceptionally, even the social sciences. The embassy's cooperation in defence research also deserves special attention. Here the emphasis is on personal

contacts, networking of and with Czech scientists, etc. A strong emphasis on technology transfer and innovation is not evident from the available sources, as is the case for the Asian regions; on the contrary, the description of the post makes it clear that efforts are being made to strengthen the science dimension in diplomacy, primarily through personal contacts and networking.

From the geostrategic perspective of its location and the nature of its priorities, as currently listed in the official communication channels of the Czech Foreign Ministry, the Czech Republic's science diplomacy in the East seems to be based on the dimension of diplomacy for science, with a focus on technology transfer. In the West and in the Euro-Atlantic context, there is an obvious tendency to see science diplomacy in the context of science for diplomacy; however, I also see here a possible overlap with science in diplomacy. In practice, these different approaches can be characterised by a strong emphasis of science for diplomacy on technology transfer and innovation, while science in diplomacy in the traditional sense emphasises the circulation of knowledge and its controlled migration between actors and communities.

The Czech Republic shows signs of proactive behaviour in its attitude to science diplomacy, but it is somewhat limited to a neutral policy, i.e. it sees its role in this field only in the context of mediation and facilitation, with an overriding focus on economic diplomacy. On the one hand, the geostrategic dimension is very well worked out and shows a clear ambition to keep the Czech Republic within the sphere of scientific interest of the major scientific concentrations in the West, with interesting openings toward the Middle East and East Asia, though the partnerships have been chosen in a way that may prevent the formation of broader alliances and clusters. On the other hand, it seems that the Czech Republic does not properly take into account the potential of S&T cooperation and common policy in this field, as it tends to adhere to ad hoc decision-making processes. In our view, this is a consequence of the non-political or apolitical understanding of science and technology, its idealistic depoliticisation and its limitation to economic effects. At a time when international law and politics are eroding, the Czech Republic is depriving itself of an important pillar of multilateral relations that would significantly shape the roles of individual countries in the new global agenda.

It is difficult to find a comprehensive concept of Czech science diplomacy that would take into account the political potential of its dimensions. In its ideal assumptions, the Czech approach is inspired by contemporary trends in the promotion of science diplomacy as a part of the diplomatic agenda, but in practice it is dominated by economic diplomacy and is currently under strong pressure from the application sphere. This dichotomy is derived from the National Priorities of Oriented Research, which are the main priority of the current Czech government in this regard. This fragmentation of Czech science diplomacy has already been criticised in 2017 by Vladimír Majer (MAJER 2017), a former French science diplomat of Czech origin. However, there seems to have been no fundamental re-assessment of this agenda; on the contrary, as the statement by Foreign Minister Jan Lipavský makes clear, science diplomacy is seen primarily as an instrument for economic expansion, rather than as an active tool for promoting the wide range of national interests in various fields and international institutions.

As the country is a member of the European Union, the Ministry of Foreign Affairs of the Czech Republic is well aware that the importance of science diplomacy is likely to grow in the future. This prediction is based on the observation that most of the major players in international relations are currently tending to emphasise and develop their “smart power”. The EU’s largest and most important member, Germany, has also commissioned its own strategy for the development of science diplomacy in 2020: *“German science diplomacy has always been understood as part of European relations and also as a national contribution to supporting European sovereignty and solidarity, both geostrategically and as an actor, but also as a tool for shaping identity internally and externally”* (AUSWÄRTIGES AMT 2020). Thus, in contrast to the Czech science diplomacy, it focuses on all three spheres of influence for the development of science diplomacy, i.e. diplomacy for science, science for diplomacy and science in diplomacy.

In a situation where the EU has no EU hard power, but has long been strategically and very intensively working to create a common and strong EU soft power, it would very likely tend to replace the non-existent technological-military hard power with smart power, in which science and technology diplomacy would play an important, if not decisive, role.

Recommendations from various analyses emphasise the role of the foreign ministry, which should place greater emphasis on science and technology and their role in diplomacy in its strategy and agenda. Geopolitical interests, the influence of science and the impact of politics on scientific priorities (and vice versa) must be demonstrably and continuously taken into account in the implementation of the state's foreign policy, while maintaining the vision of science as a bridge for cooperation between nations. While the role of EU science diplomacy is clear both inside and outside the EU, national policies vary considerably. Despite the fact that there are some restrictive regulations based on the principles of due diligence, such as the recent termination of cooperation with Russia, there is still enough room for independent science diplomacy, as the potential of science diplomacy far exceeds that of cultural diplomacy, and in certain areas, such as security policy, it plays an even more important role than public diplomacy.

CONCLUSION

For a long time, science diplomacy fell into the category of “cultural” and “Track II” diplomacy (MONTVILLE 1991; VOLKAN – MONTVILLE – JULIUS 1991; MAPENDERE 2000: 68–69; DIAMOND – MCDONALD 1996; MELISSEN 2005A, 2005B: 34). The dynamic development of science diplomacy has led more and more states to actively separate it from cultural diplomacy. I have shown that around 2010, the close link between science and politics began to be emphasised much more than it was at the beginning.

Science diplomacy has received a major boost in the new world order following the dissolution of the bipolar worldview. But another main impetus has been the emergence of new transnational actors and movements, including transnational terrorism. With the emergence of new actors in international relations, new forms of diplomacy are emerging, such as public diplomacy, environmental diplomacy, etc. The emergence of transnational actors was one of the factors that led to the division between science diplomacy and cultural diplomacy (MAPENDERE 2000; TURCHETTI – HERRAN – BOUDIA 2012). Under these circumstances, it was necessary to find a sufficiently strong counterweight, one with sufficient importance and weight to play a similar role on the international scene, but with the opposite label: peaceful cooperation instead of violence; science diplomacy is always constructive instead of destructive. Science has a lot to offer, which

is why it is naturally at the centre of the attention of politicians, diplomats, analysts and, last but not least, scientists.

The shift in the understanding of science and technology in international relations is now evident in contemporary literature, where science diplomacy has gradually emancipated itself from cultural diplomacy and is now interpreted primarily from a realist position, i.e. as a tool to fulfil national interests (RUFFINI 2018, 2020; DAVIS – PATMAN 2015; MELISSEN 2005A, 2005B; RUNGIUS – FLINK 2020; SALOMON 2006; NYE 2021).

Until the Russian-Ukrainian war, there was a general consensus at EU level that science is impartial and provides an ideal atmosphere for building relations and trust between two or more states, even those with different regimes (RUFFINI 2020; COPELAND 2016; PENCA 2018; FLINK 2020). States can use science to promote their own national interests and to implement their own foreign policy agendas in places where cultural, social, religious, or ideological barriers are difficult to overcome. Especially during the Cold War, science also became a matter of national prestige, and scientific internationalism, driven by idealistic approaches to international scientific cooperation, strengthened the positions of the two opposing blocs in scientific and technological relations (KRIGE 2006A; KRIGE 2006B).

Nowadays, however, few countries realise the potential of S&T cooperation in foreign policy, although the trend to create new posts of science diplomats or science attachés has been growing recently, at least until the outbreak of the Russian-Ukrainian war, after which states reassessed their political and economic priorities (OLŠÁKOVÁ – ROBINSON 2022A, 2022B). As a result of the Russia-Ukraine war, a fundamental reassessment of the existing idealistic view of science diplomacy is taking place not only in the Czech Republic, but in Europe as a whole. The concept of science diplomacy as it was created in 2010, mainly in the context of efforts to establish a cooperation with the Muslim world, is undergoing a revision characterised by a shift from an idealistic vision of science diplomacy as a diplomacy promoting peace and cooperation to a post-naïve, realistic and statist approach. Given its geopolitical context and its potential for cooperation with different political regimes, science diplomacy represents a fundamental impulse for a state's security policy.

As part of a rethinking of the existing vision of an idealistic approach to S&T diplomacy, new venues for further research are emerging alongside the classic issues of global cooperation on global challenges, which are likely to focus on issues that reflect developments over the past decade. Thanks to the recent global experience of the Covid-19 pandemic, the international community has identified strengths and weaknesses in ‘health diplomacy’ that will be of interest to individual states and stakeholders in order to optimise relevant agendas in the future. Newly unleashed wars, international crises and local conflicts raise issues of international cooperation and competition in science and technology, where cooperation will always be measured in terms of keeping one’s strategic and technological sovereignty, and the goal will be to balance national and global interests. The potential misuse of technology and vulnerabilities will raise the big issue of global governance and global multi-stakeholder structures. Further studies should analyse the changing geopolitical strategy of individual actors, which will most likely also lead to a shift of some geopolitical activities into the digital environment due to the digitalisation and globalisation of society and information flows. Thus, on the one hand, we should focus on cooperation for peaceful solutions, while, on the other hand, we should not neglect the study of similar cooperation with opposite goals. Further, the research agenda is likely to be more complex than in the past because of the fragmentation of the international scene due to the unstable international environment. Non-state actors will come to the fore, but at the same time smaller actors and stakeholders such as regions or cities will appear on the stage of science and technology diplomacy due to decentralisation tendencies of the state structure. Thus, the main directions of science diplomacy will continue to be defined by issues closely related to democracy and security, the very values that brought science diplomacy into the spotlight after the second Gulf War.

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