Space and spillover: a neofunctionalist analysis of European space policy's impact on EU security and defence

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Acronyms and abbreviations

CFSP	Common Foreign and Security Policy
CSDP	Common Security and Defence Policy
EGNOS	European Geostationary Navigation Overlay Service
ELDO	European Launch Development Organisation
ESA	European Space Agency
ESOC	European Space Operations Centre
ESRO	European Space Research Organisation
EU	European Union
GLONASS	Russian Global Navigation Satellite System
GMES	Global Monitoring for Environment and Security
GNSS	European Global Navigation Satellite System
GPS	United States' Global Positioning System
HR/VP	High Representative of the Union for Foreign Affairs and Security Policy/Vice-President
SatCen	European Union Satellite Centre
SSN	Space Surveillance Network
SST	Space Surveillance and Tracking
TFEU	Treaty on the Functioning of the European Union

Introduction

> *"[A space policy] is not a luxury toy. It is essential to our own security and to our policy making, for us Europeans and that of our partners".*
> High Representative of the Union for Foreign Affairs and Security Policy/Vice-President (HR/VP) Federica Mogherini, 23 January 2018.

Federica Morgherini emphasises two overlooked characteristics of the European space policy: the new focus on security and its importance for the European Union (EU) foreign affairs and relations with external partners.

The 21st century has seen a growing number of players in space, including emerging powers such as India and powerful private companies. Elon Musk, CEO of the American company SpaceX, stated on 6 February 2018 that aerospace companies "want a new space race, space races are exciting."[1] In this new global framework, the EU is a "real but unusual [space] power"[2] that HR/VP Federica Morgherini did not hesitate to describe as a "world superpower."[3] Indeed, Europe represents the second largest public space budget in the world[4] and, between 2014 and 2020, the EU alone will invest over than 12 billion euros in space activities.[5] Twenty-seven satellites were launched from the European space port in French Guiana in 2016.[6]Finally, three major EU space programs stand out today, namely Galileo, the

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[1]E. Musk, *Press Conference video* (2018); A. Yuhas, 'The new space race: how billionaires launched the next era of exploration' (2018).

[2]B. de Montluc, 'What is the state of play in European governance of space policy?' (2012) 28 *Space Policy* 74–76 at 74.

[3] "Opening Speech by High Representative/Vice-President Federica Mogherini at the 10th Conference on European Space – 'More Space for More Europe.'"

[4]European Commission, 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Space Strategy for Europe', COM(2016) 705 (2016) p. 2.

[5]European Commission, 'Space Strategy for Europe', p. 2.

[6]'Space Strategy for Europe: the road ahead' (Brussels: European Space Policy Institute, 2017) p. 9.

European Geostationary Navigation Overlay Service (EGNOS) and Copernicus. Europe has been an important player in this field quite early in the history of space, with the integration of Member States' policies via civil, scientific, application an launcher programmes. As highlighted by Federica Morgherini, space policy is now seen as an essential EU policy. However, while other powers such as the United States, Russia and China have developed political strategic approaches to space policy, Europe has not yet truly integrated programmes considered strategic for sovereignty and security.[7]Furthermore, the security aspect of space policy that Federica Morgherini highlighted in her speech in January 2018 only recently became a concern for the EU, although space has always been of strategic importance for security and defence. The 2016 Space Strategy for Europe marks a turning point in the European space history as it recognises for the first time that "[s]pace is also of strategic importance for Europe. It reinforces Europe's role as a global player and is an asset for its security and defence."[8]

1. Research question

Space policy is closely intertwined with defence and security issues. Using European integration theories, and more particularly neofunctionalism, this thesis will answer the research question: What is the impact of the European space policy on the Common Foreign and Security Policy (CFSP) and the Common Security and Defence Policy (CSDP)?

Ernst Haas defines integration as the process "whereby political actors in several, distinct national settings are persuaded to shift their loyalties, expectations and political activities toward a new centre, whose institutions possess or demand jurisdiction over the pre-existing national states."[9] Based on this definition, Thomas Diez and Antje Wiener conceptualise European integration theories as "the field of systemic reflection on the process of intensifying political cooperation in Europe and the development of common political institutions as well as its outcome. It also includes the theorization of changing constructions

[7]Montluc, 'What is the state of play in European governance of space policy?', at 74.

[8]European Commission, 'Space Strategy for Europe', p. 2.

[9]E. B. Haas, *The Uniting of Europe: Political, Social and Economic Forces 1950-57* (1958) p. 16.

of identities and interests of social actors in the context of this process."[10]

The contribution of a specific policy to the European integration process is a classical question in European studies.[11] In this light , this thesis aims at analysing the role played by the European space policy in the integration process and more particularly in the development of an integrated European defence. It will show evidence that EU policy makers envisioned the EU space policy as a mean to enlarge and strengthen EU competencies and as a tool for developing the CFSP and the controversial CSDP. As a competence that has been added lately in the EU infrastructure and that is increasingly growing, space policy seems like an excellent case study of European integration. Touching upon the sovereignty of EU member states, it provides an illustration of the EU motto "united in diversity".This thesis aims at contributing on the one hand to broaden the knowledge on European space policy and, on the other, to the debates on European integration with regard to the CFSP and CSDP.

2. Literature review

According to Emmanuel Sigalas, "the European Union space policy is one of the lesser known and, consequently, little understood policies of the European Union."[12]Literature on European space policy is relatively limited, with the exception of multiple publications on the Galileo program since the beginning of the 2000s.Among other reasons, some scholars deplore not only the declining interest in the EU but also the lack of public interest in outer space.[13] Yet in our sense this affirmation must be balanced with the remarkable media attention and public support for space-related events such as the launch of a Falcon Heavy rocket, the most powerful operational rocket in the world, into deep space by the American company SpaceX on 6 February 2018.[14]

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[10]A. Wiener and T. Diez (eds.), *European Integration Theory* (2009) p. 4.

[11]T. Hoerber, 'Introduction: A Theoretical Perspective on European Space Policy' in T. C. Hoerber, E. Sigalas (eds.), Theorizing European Space Policy, (2017), pp. xi–xxiv.

[12]E. Sigalas, 'The European Union Space Policy' (2017) Oxford Research Encyclopedia of Politics at 1.

[13]Sigalas, 'The European Union Space Policy', at 2.

[14]E. Shanklin, 'Falcon Heavy Test Launch' (February 2018).

Existing literature remains highly technical and out of reach for non-experts.It is noteworthy that academic papers on space issues are confined to space-related periodical publications and have not yet found their way to more general EU studies journals. However, scholars have recently started a movement to conceptualise the European space policy in which"the technical aspects are rather less important than providing academic consideration of space policy in the discipline of European studies."[15]

In 2003, Kazuto Suzuki[16] was first to break away from international relations theory and apply specific European integration theories to the European space policy.[17] Yet, it is only in 2015 that, for the first time, a monograph focused on the theoretical framework of the EU space policy.[18] Two years later was published *Theorizing European Space Policy*,[19] co-edited by Thomas Hoerber and Emmanuel Sigalas. This book explicitly aims at filling the "theory gap" of space policy in European studies[20] and applies European integration theories to the European space policy. Discourse theory received increased attention in the past months,[21] a recurring emphasis being put on the idea that space policy benefits European citizens in their everyday life. In August 2017, an entire volume of the journal *Space Policy* focused on the popularisation of space.[22] This idea that European identity is reinforced by

[15]T. Hoerber, 'New horizons for Europe – A European Studies perspective on European space policy' (2012) 28 *Space Policy* 77–80 at 77.

[16]K. Suzuki, *Policy Logics and Institutions of European Space Collaboration* (2003).

[17]Sigalas, 'The European Union Space Policy', at 7.

[18]T. Hoerber and P. Stephenson (eds.), *European Space Policy – European integration and the final frontier* (2015).

[19]T. C. Hoerber and E. Sigalas (eds.), *Theorizing European Space Policy* (2017).

[20]Hoerber, 'Introduction: A Theoretical Perspective on European Space Policy'.

[21]T. C. Hoerber, 'The development of European space policy through the lenses of discourse theory' in T. C. Hoerber, E. Sigalas (eds.), Theorizing European Space Policy, (2017), pp. 59–78.

[22]T. Hoerber and H. KöppingAthanasopoulos (eds.), 'The Popularisation of Space Policy' (2017) 41 *Space Policy* 1–82.

space activities is shared by social constructivists.[23]Traditional integration theories are also used to explain how the EU itself projected the development of a European space policy that would consolidate its institutions. Paul Stephenson does so by deconstructing EU official documents and applying framing theory.[24] Building on the work of Kazuto Suzuki, Emmanuel Sigalas used the premises of historical institutionalism to show that the EU space policy is the result of a long developmental process aiming at expanding the EU's competences.[25] In the same vein, Harald KöppingAthanasopoulos seeks to apply the theory of neofunctionalism in order to argue that the EU institutions played an active role in promoting and developing an EU space policy.[26]On the contrary, authors such as Christina Giannopapa, Maarten Adriaensen, Christopher Lehnert and Daniel Sagath chose to analyse the EU space policy through the lens of liberal-intergovernmentalism.[27] They argue that the real power behind the development of the EU space policy lays in the hands of the EU national governments rather than in those of the EU institutions.Finally, the place of the European space policy in international relations has been mostly studied by neorealists[28] or

[23]F. Kienzler, 'Social Constructivism and Integration: Re-igniting European Identity – A Common Ground in Space?' in T. C. Hoerber, E. Sigalas (eds.), Theorizing European Space Policy, (2017), pp. 105–26.

[24]P. Stephenson, T. C. Hoerber, and E. Sigalas, 'Framing Theory' Theorizing European Space Policy, (2017), pp. 1–20.

[25]E. Sigalas, 'The rise of the EU as a space power: A historical institutionalist explanation' in T. C. Hoerber, E. Sigalas (eds.), Theorizing European Space Policy, (2017), pp. 159–76.

[26]H. Koepping-Athanasopoulos, 'Spillover to space: A critical investigation into neofunctionalist EU space policy' in T. C. Hoerber, E. Sigalas (eds.), Theorizing European Space Policy, (2017), pp. 21–36.

[27]M. Adriaensen, C. Giannopapa, D. Sagath, and A. Papastefanou, 'Priorities in national space strategies and governance of the member states of the European Space Agency' (2015) 117 *Acta Astronautica* 356–67; C. Giannopapa and M. Adriaensen, 'The member states of the European Space Agency: National governance structures, priorities and motivations for engaging in space' in T. Hoerber, P. Stephenson (eds.), European Space Policy – European Integration and the Final Frontier, (2015), pp. 173–90; C. Giannopapa, M. Adriaensen, and C. Lehnert, 'Theorizing European space policy: Liberal Intergovernmentalism' in T. C. Hoerber, Sigalas (eds.), Theorizing European Space Policy, (2017), pp. 177–96.

[28]M. Leissle, 'Power Politics and the Formation of International Law: A Historical Comparison' in T.

through imperial theories.[29]

In the 2000s, academic publications focusing on the strategic importance of space policy in international relations arose but did not touch upon European specificities.[30] In the context of the EU, contributions on European security studies mentioned the growing importance of space policy.[31] Closely linked to security, independence in space is a redundant issue in European space policy literature. According to Emmanuel Sigalas, "there is an interinstitutional agreement, first, that having independent access to space is important and, second, that it is necessary to use this argument publicly, to justify the EU's space activities and ambitions."[32] Yet, it is only in 2015 that the first book focusing on space strategies in Europe was published. *European Autonomy in Space*,[33] edited by Cenan Al-Ekabi, investigates why it is strategically important for Europe to establish an autonomous space policy.[34]On another level, the European Defence Agency is relatively absent in the academic debate on the European space policy, despite the increasing interrelationship between space and the military sector.[35]The search for European independence in space as well as the links between the European space policy and defence will be discussed in more details in the last chapter of the thesis.

C. Hoerber, E. Sigalas (eds.), Theorizing European Space Policy, (2017), pp. 91–105.

[29]M. Kenneder, 'Imperial Space?: Theories of Empire and the Space Policy of the European Union' in T. C. Hoerber, E. Sigalas (eds.), Theorizing European Space Policy, (2017), pp. 79–90.

[30] See e.g. M. J. Peterson, *International Regimes for the Final Frontier* (2005); M. Sheehan, *The International Politics of Space* (2007); B. D. Montluc, *A New International Strategic Context for Space Policies* (2011).

[31] See e.g. R. Yakemtchouk, *La politique étrangère de l'Union Européenne* (2005); M. Telò, *Europe: A Civilian Power? - European Union, Global Governance, World Order* (2006).

[32]Sigalas, 'The European Union Space Policy', at 10.

[33]C. Al-Ekabi (ed.), *European Autonomy in Space* (2015).

[34]J. Wouters and R. Hansen, 'Strategic Autonomy in EU Space Policy: A Conceptual and Practical Exploration' in C. Al-Ekabi (ed.), European Autonomy in Space, (2015), pp. 49–61 p. 49.

[35]I. Oikonomou, 'The European Defence Agency and EU military space policy: Whose space odyssey?' (2012) 28 *Space Policy* 102–9 at 102.

3. Theory and Hypotheses

According to Emmanuel Sigalas, "the development of the European Union space policy is an almost ideal case study of European integration by stealth."[36] Other authors have raised that the European space policy has "the potential to become a new guiding ideal of the European integration process."[37]This thesis is grounded on this premise and seeks to show that the integration of a space policy impacts the EU's external action through both the CFSP and the CSDP.

An integrated space policy at the European level means greater independence of the EU, in particular vis-à-vis the United States. It reinforces the EU as a global actor and increases its power.

While space assets were only regarded through their civilian use, the attention of the EU is now turning to the potential of the dual-use aspects of European space capacities. Their military potential creates new bridges between the space policy and the development of an envisioned European defence.

This thesis aims at contributing on the one hand to broaden the knowledge on the European space policy and, on the other, to the debates on European integration with regard to the CFSP/CSDP.

4. Research design

To a large extent, this thesis is grounded on traditional theories of political science such as institutional and historical approaches. Studying the formal structures of the European space policy, as well as their history and the political context in which they were created, will allow the reader to gain a deep understanding of the peculiar governance of the European

[36]Sigalas, 'The European Union Space Policy', 1.

[37]T. Hoerber and H. Koepping-Athanasopoulos, 'Popularising European space policy: Introduction' (2017) 41 *Space Policy* 1–4 at 3.

space policy and more particularly the relationship between, and specific role of, the European Space Agency (ESA), its Member States and the EU. More specifically, a structural-functional approach emphasises inputs and outputs of the space policy in the integration process and the EU's external action. The core of the dissertation rests on an application of the neofunctionalist theory to the European space policy. Neofunctionalism fits particularly well the purpose of the thesis to define the interdependency between the European space policy and the EU security and defence.

This thesis uses a mix of different political science methodologies. Besides analysing scholar literature and official documents from the states, the EU and ESA, discourse analysis will allow us to bring the institutions' real will to the foreground and explain how they foresee – and have foreseen – the development of the European space policy as a factor of European integration and expansion of the EU competences in the security and defence arena.

The first chapter of the thesis provides an overview of the European space policy (I), insisting on its historical development, institutional structure and the challenges it currently faces. The neofunctionalist theory will be examined in chapter 2 (II) and will then be applied to explain the relevance of space policy in the CFSP and the CSDP (III) in the third and last chapter.

I. Historical and institutional overview of the European space policy

As the European space policy is a particularly complex and technical issue, it is not unnecessary to provide the reader with an overview of its historical background (1) and institutional architecture (2) before delving into a deeper analysis. Furthermore, it is interesting to take into consideration the challenges that the European space governance currently faces (3), as those might impact the future of the space policy and notably with regard to security and defence areas.

1. Historical overview of European space activities

The history of world space activitiescan be divided in three phases, as theorised by Nicolas Peter.[38] It started in the 20th century and before the Second World War with the 'Proto-Space Age'. Visionary individuals led major advancements in the field of rocketry and astronautics, notably in the United States, Germany and the Soviet Union. The second phase, often referred in the literature as 'Space 1.0', refers to the Cold War that took place between the 1950s and the end of the 1980s. Space wasregarded as one of the main areas of peaceful competition between the United States and the Soviet Union as a substitute to armed conflict. Only a small number of states had access to space and their activities were structured in an intra-bloc cooperation. The international space context changed dramatically in the 1990s with the end of the Cold War and the globalisation of space activities. It evolved towards 'Space 2.0',a multipolar space context characterised with the rise of new actors with increasing technical capabilities. Space is seen as a necessary element to become a regional or continental power, therefore countries with this ambition start to develop dedicated space strategies.[39]

A quick look at the history of the European space policy reveals a series of successive waves of integration that can be superposed to the three above-mentioned phases of space history. In the 1950s, individual Member States such as France, Italy and the United

[38]N. Peter, 'Space power and its implications—The case of Europe' (2010) 66 *Acta Astronautica* 348–54 at 349.

[39]Peter, 'Space power and its implications—The case of Europe', at 349.

Kingdom started to invest in the space sector. This period of time corresponds to the second phase in the space history, where space activities were still taking place within an intra-bloc landscape but were not solely in the hands of the United States and the Soviet Union anymore.As national projects proved unable to compete with the major space superpowers, the question of a form of European cooperation soon arose. Two organisations were established at a European level during the 1960s – the European Launch Development Organisation (ELDO) and the European Space Research Organisation (ESRO). The first European Space Conference was held in 1966 and the European Space Operations Centre(ESOC, which remains ESA's main mission control centre to date), was created a year later.[40] Finally, it was decided that ELDO and ESRO would merge into a single intergovernmental organisation and became ESA. The convention establishing the agency was signed by ten Member States on 30 May 1975.[41]

It is only later that the European institutions, led by the European Parliament, showed interest in space activities. In 1979, the latter adopted a first resolution on European Community participation in space research, stressing "the importance of the benefits which the Community could derive in the short term from space activities" in a great variety of scientific and economic sectors.[42] In the same document, the European Parliament encouraged the Community to draw up a comprehensive European space policy setting out long-term objectives, ensuring necessary funds and the participation of all Member States.[43] While ESA started to develop such a coherent plan in the 1980s, the European Parliament recalled in its 1987 resolution on European space policy that the European Community itself should get involved.[44] The Commission eventually issued a first communication on space policy in 1988. This document highlights that "Europe is still without a cogent overall [space] policy" and that "Community action in space is both possible and desirable."[45] To this end, it

[40]European Space Agency, 'History of Europe in space'.

[41]V. Reillon and European Parliamentary Research Service, 'European space policy – Historical perspective, specific aspects and key challenges : in-depth analysis' (2017) p. 3.

[42]European Parliament, 'Resolution on Community participation in space research', OJ C/42 (1979).

[43]European Parliament, 'Resolution on Community participation in space research'.

[44]European Parliament, 'Resolution on European space policy', OJ C/78 (1987).

[45]Commission of the European Communities, 'Communication from the Commission on the

proposes “six action lines for the future”.[46]

The beginning of the 1990s, reflecting the entry into the “Space 2.0” era, witnessed dramatic changes in Europe. Emerging space actors, the dissolution of the Soviet Union, the development of the single market and the new institutional structure of the European Union necessarily modified the context in which European space actors navigated. The European Commission energetically increased its involvement in space activities, realising that Europe was “at a stage where there is both an opportunity and a need for the Community to contribute more towards the successful further development of the European space effort” and insisting on the importance of defining and implementing a European space policy.[47]ESA had so far an almost exclusive role in defining space policies because the latter aimed at developing technological and industrial capacity. However, the Commission emphasises that Europe must now progress towards a new phase where space applications should be oriented in accordance with objectives outside the space sector.[48] This new vision implies that the responsibility to define and implement space programmes goes beyond ESA’s mandate and that the European Community now has a clear role to play.

With the Commission entering the space arena,better coordination between the different European space actors was necessary. In 1993, the Commission set up an ad hoc space advisory group composed of representatives of the Member States, ESA and the Western European Union.[49] ESA, for its part, engaged in a process of adapting its policy and future programmes to the new European space context.[50]A 1996 communication of the Commission

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Community and space: a coherent approach’, COM(88) 417 final (1988) p. 2.

[46]Commission of the European Communities, ‘Communication from the Commission on the Community and space: a coherent approach’, pp. 26–35.

[47]Commission of the European Communities, ‘Communication from the Commission to the Council and the European Parliament on “The European Community and space: Challenges, opportunities and new actions”’, COM(92) 360 final (1992) p. 2.

[48]Commission of the European Communities, ‘The European Community and space: Challenges, opportunities and new actions’, p. 2.

[49]Reillon and European Parliamentary Research Service, ‘European space policy’, p. 7.

[50]ESA Council, ‘Resolution on Directions for the Agency’s Policy and Future Programmes’, ESA/C-

marked the shift from research and development to a more transversal policy.[51]For the first time, the Commission definedstrategic areas for space applications programmes, namely telecommunications, satellite navigation, earth observation, space launch services, and defence and dual use space technologies.[52]The above-mentioned developments set the ground forthe European institutions to implement their own satellite navigation and earth observation systems thatwould become the two flagship space programmes – and great successes – of the EU.

The discussion on a European Global Navigation Satellite System (GNSS) dates back to 1994. The Commission developed a dual approach, which was adopted by a Council resolution in December 1994.[53] Firstly, in the medium term, the EU will develop a GNSS first generation based on the Global Positioning System (GPS) of the United States and the Russian Global Navigation Satellite System (GLONASS) constellations and improving their accuracy. Next, in the long term, the EU will develop its own independent satellite infrastructure, the GNSS second generation.[54]The first step took the form EGNOS, a pan-European system that is dependent on GPS. The system was created in 1998 by an agreement[55] between the European Community, ESA and Eurocontrol. It is operational since 1 October 2009.[56] The second phase, implementing a European independent infrastructure for

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M/CXXII/Res.2 (Final) (1995).

[51]Reillon and European Parliamentary Research Service, 'European space policy', p. 8.

[52]Commission of the European Communities, 'Communication from the Commission to the Council and European Parliament on the European Union and Space: fostering applications, markets and industrial competitiveness', COM(96) 617 final (1996) pp. 11–25.

[53]Council of the European Union, 'Council resolution of 19 December 1994 on the European contribution to the development of a Global Navigation Satellite System (GNSS)', OJ C 379 (1994) pp. 2–3.

[54]Commission of the European Communities, 'Communication from the Commission on the satellites navigation services: a European approach', COM(94) 248 final (1994) p. 8.

[55]'Agreement between the European Community, the European Space Agency and the European Organisation for the Safety of Air Navigation on a European Contribution to the development of a global navigation satellite system (GNSS)', OJ L 194 (1998) pp. 16–24.

[56]European Space Agency, *EGNOS: European Geostationary Navigation Overlay Service – Europe's*

satellite navigation, brought to light Galileo. This project was an important step for the integration of space policy in the EU, as it involved developing a common infrastructure associating the EU, ESA and the Member States.Moreover, the decision to cover Galileo in the EU budget is an unequivocal illustration of the increasing interest of the EU in space.[57]Galileo's funding should have been ensured by a public-private partnership that eventually collapsed and led to a ground-breaking move by the EU towards the integration of the European space policy. As the programme was deemed too important to let it collapse, in 2008, the Commission and the European Parliament did not hesitate to secure it through their own funding, including it in the EU budget.[58] This operation created considerable delays but led to a "shift of power"[59] towards the Commission and the European Parliament, reshaping the European space institutional dynamics.The fully-deployed Galileo system will consist of 24 operational satellites plus 6 in-orbit spares.[60] While Galileo satellites' launches began in 2011, initial services became available in 2016 and system completion is scheduled for 2020.[61]

The second EU space flagship programme takes the form of a European earth monitoring programme. The EU was involved in space policy long before the Lisbon Treaty. Indeed, the first space program involving the EU, called Vegetation, was launched in 1992 in cooperation with the French Space Agency. On the basis of EU competencies in environmental affairs, it aimed at developing a satellite sensor to monitor crop

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first contribution to satellite navigation (2009) p. 3.

[57]T. Hoerber, 'Framing in European space policy' (2018) *Space Policy* at 3.

[58]'Regulation (EC) No 683/2008 of the European Parliament and of the Council of 9 July 2008 on the further implementation of the European satellite navigation programmes (EGNOS and Galileo)', OJ L 196 (2008).

[59]Hoerber, 'Framing in European space policy', at 3.

[60]'What is Galileo?'

[61]'What is Galileo?'

development.[62] At this occasion the European Commission highlighted that it envisioned more future space missions and encouraged a European space strategy in cooperation with ESA.[63] Soon, the 1993 Treaty of Maastricht and the 1999 Treaty of Amsterdam implemented the CFSP. When ESA and the EU adopted a common strategy for space in 2000, they called for an observation programme that aimed to tackle not only environmental but also security challenges.[64] It is on this ground that the Global Monitoring for Environment and Security (GMES) and then Copernicus succeeded to Vegetation. In 2001, a Council resolution "urges the Commission to start, in close coordination with the ESA, the initial period of […] GMES."[65]The initial operations were programmed in 2011-2013[66] and the GMES was renamed the Copernicus programme in 2014.[67] Copernicus coordinates the delivery of data from satellites developed specifically for the operational needs of the programme, the Sentinels. It aims at providing "accurate, timely and easily accessible information to improve the management of the environment, understand and mitigate the effects of climate change and ensure civil society."[68] Copernicus services collect and process data from six thematic streams: atmosphere monitoring, marine environment monitoring, land monitoring, climate change, emergency management and security. Nevertheless, many other sectors benefit

[62]Suzuki, *Policy Logics and Institutions of European Space Collaboration*; Commission of the European Communities, 'The European Community and space: Challenges, opportunities and new actions'.

[63]Commission of the European Communities, 'The European Community and space: Challenges, opportunities and new actions', p. 18.

[64]Sigalas, 'The European Union Space Policy', 5.

[65]Council of the European Union, 'Council Resolution of 13 November 2001 on the launch of the initial period of global monitoring for environment and security (GMES)', OJ C 350 (2001) p. 4.

[66]'Regulation (EU) No 911/2010 of the European Parliament and of the Council of 22 September 2010 on the European earth monitoring programme (GMES) and its initial operations (2011 to 2013)', OJ L 276 (2010).

[67]'Regulation (EU) No 377/2014 of the European Parliament and of the Council of 3 April 2014 establishing the Copernicus Programme and repealing Regulation (EU) No 911/2010', OJ L 122 (2014) pp. 44–66.

[68]'Observing the Earth: Copernicus: Overview'.

directly or indirectly from the programme.[69]

[69]European Commission, *Copernicus – Europe's eyes on Earth* (2015) p. 6.

2. Institutional architecture of the European space governance

It is important to understand the structure of governance of the European space policy in order to properly identify its role in the EU foreign affairs and security policy. In their analysis of the Galileo program, AmielSitruk and Serge Plattard define the concept of governance as follows: "Governance can be defined as the combination of norms, rules, adjudication procedures, and enforcement mechanisms set up in order to frame the interaction and decision-making processes among the different stakeholders involved in a collective problem. Thus, there is a need for governance when there are different actors, with potentially different broader objectives, that need to be coordinated in a proper way to achieve to the best extent their common goals."[70]

The complex institutional architecture of the European space policy is built on three levels of governance: supranational (EU), intergovernmental (mostly via ESA) and national. The EU as a supranational entity is a newcomer in the governance system of the European space policy. It was not involved in the decision-making process until 2004 and space has only been formally integrated to the competences of the EU with the ratification of the Lisbon Treaty on 1 December 2009.

ESA, the European research and development space agency, is not an organ of the EU but an intergovernmental organisation composed of 22 member states. The Council of Member States (ESA Council) is the governing body of the agency. The Director General is elected by the ESA Council for four years and implements the Council's decisions. ESA's activities are divided between a mandatory programme, that used to be the main body of activities of the agency butcurrently onlyrepresents around 15% of its budget,[71] and optional programmes. It is also in charge of implementing EU space programmes.

The first joint resolution between the Council of the EU and the ESA Council was

[70]'Regulation (EU) No 911/2010 of the European Parliament and of the Council of 22 September 2010 on the European earth monitoring programme (GMES) and its initial operations (2011 to 2013)', p. 12.

[71]Reillon and European Parliamentary Research Service, 'European space policy', p. 4.

adopted in 1998.[72] It recognisedthat ESA was responsible for elaborating and implementing a long-term European space policy, activities, programmes and the industrial policy appropriates to these programmes, while the European Community had competences in legal, economic and social fields which affect the regulation of space-related markets. ESA quickly stressed the need to adapt the agency's legal framework to take into account the severe changes in the European space governance.[73]

By the end of the 1990s, a joint task force between the Commission and ESA was established at the request of the Council of the EU.[74]In parallel, the French presidency of the EU set up the principle of regular joint meetings between the ESA ministerial council and the Competitiveness Council of Ministers. This 'Space Council' would deal with high level arbitration cases and address the need for a framework agreement between the EU and ESA.[75]Four years later, a Framework Agreement between the EU and ESA entered into force and provided a common basis to develop a European space policy,[76] unifying the approach of ESA with those of the EU and its Member States.[77] The agreement sets up on the one hand a Space Council, bringing together the Competitiveness Council of the EU and the ESA Council and, on the other, different kinds of cooperation models between the two organisations. Such cooperation may take the form of "coordinated cofounded activities, EU participation in ESA optional programs and ESA management of EU space-related activities

[72]Council of the European Union, 'Council resolution of 22 June 1998 on the reinforcement of the synergy between th European Sace Agency and the European Community', OJ C 224 (1998) pp. 1–2; ESA Council, 'Resolution on the reinforcement of the synergy between the European Space Agency and the European Community', ESA/C/CXXXVI/Res. 1 (Final) (1998).

[73]ESA Council, 'Resolution on the Agency's evolution and programmes', ESA/C-M/CXLII/Res. 2 (Final) (1999).

[74]Council of the European Union, 'Council resolution of 16 November 2000 on a European space strategy', OJ C 371 (2000) p. 3.

[75]Montluc, 'What is the state of play in European governance of space policy?', at 75.

[76]Framework Agreement between the European Community and the European Space Agency, OJ L-261, August 6, 2004.

[77]'ESA and the EU'.

in accordance with EU rules."[78]

The document entitled'European Space Policy'was adopted by 29 European states by a resolution of the Space Council on 21 May 2007.[79]This agreement was jointly drafted by ESA and the European Commission in the dedicated High-level Space Policy Group. This first political document is important in many regards. It noticeably established for the first time a connection between space policy and European security and defence. This aspect will be developed more thoroughly in the third and last chapter of the thesis. However, the European Space Policy adopted in 2007 did not foresee the evolution of the EU space policy and especially the inclusion of space as a shared competency in the Lisbon Treaty in 2009.

Article 189 of the Treaty on the functioning of the EU (TFEU) expressly mentions EU's partnership with ESA: "The Union shall establish any appropriate relations with the European Space Agency."[80]This article provides the EU with the ability to develop and run space programs. Since 2009, a series of communications of the Commission developed a policy insisting on the necessity of creating a competitive space industry in Europe.[81] In 2016, the Space Strategy for Europe offered a comprehensive approach to space based on five main objectives: 1) maximising the benefits of space for society and the EU economy; 2) fostering a globally competitive and innovative European space sector; 3) reinforcing Europe's autonomy in accessing and using space in a secure and safe environment; 4) strengthening Europe's role as a global actor and promoting international cooperation; and 5) ensuring effective delivery.

In 2011, the European Commission published the Space Strategy for Europe ("Towards a space strategy for the European Union that benefits its citizens").[82] The communication, however, fails to address the challenges related to the governance of European space activities.Indeed, the final document does not contain any reference to a greater financial and

[78]A. Sitruk and S. Plattard, *The Governance of Galileo* (2017) p. 17.

[79]Council Resolution of 21 May 2007 on the European Space Policy, OJ 2007/C 136/01.

[80]Article 189-3 TFEU.

[81]Sitruk and Plattard, *The Governance of Galileo*, p. 17.

[82]European Commission, 'Space Strategy for Europe'.

political capacity of the EU, nor does it mention the industrial and competitiveness policy.[83] The result is far from the integration of space in the EU institutions envisioned by the French presidency in 2000.

3. Challenges and alternatives to the current governance structure

The European space governance reflects the fact that "Europe differs from other space powers [and] does not pretend to form a uniform bloc."[84] A complex and multi-layered structure seems inevitable as European states do not always share the same priorities. Yet this system of governance has been severely criticised.

The ongoing debate on the institutional structure for the European space sector can be tracked back at least to 2003 with the Green Paper on European Space Policy introduced byEuropean Research Commissioner Philippe Busquin.[85] It remains a recurring object of reflection both in literature and within the EU. Indeed, the exploitation of the European space capacity is built on structures that were born 50 years ago,[86] during a different phase of space history and thus in a radically different context. Many weaknesses can be identified in the efficacy of the current structures governing European space activities: the lack of a European military space programme, the difficulty to maintain operational service continuity, and the opposition to change,[87] to name just a few. Furthermore, the EU being a member of ESA is questionable as it is by far its main funding body but sits at the same level as the other members.[88]Indeed, up to 25% of ESA's budget comes from the EU itself.[89]These issues raise the question of the degree of integration of space policy in the EU. However, one of the

[83]Montluc, 'What is the state of play in European governance of space policy?', at 76.

[84]Montluc, 'What is the state of play in European governance of space policy?', at 75.

[85]European Commission, 'Green Paper on European Space Policy', COM/2003/0017 final (2003).

[86]A. Gaubert and A. Lebeau, 'Reforming European space governance' (2009) 25 *Space Policy* 37–44 at 37.

[87]Gaubert and Lebeau, 'Reforming European space governance', at 37.

[88]S. Hobe, 'Prospects for a European space administration' (2004) 20 *Space Policy* 25–29 at 27.

[89]'ESA budget 2016'.

persisting problems of the European space policy is the lack of political consensus among EU Member States regarding the integration of space. While France seems to assume that the EU will take over the policy of ESA and those of the Member States, this is hardly consistent with the approach of other EU Member States such as Germany, Italy and the United Kingdom.[90]

Until now, relations between the EU and ESA are mainly defined through arrangements related to the specific phases of each programmes.[91] The Space Strategy for Europe did not solve the challenges related to the European space policy's current governance. Each level of governance has its own culture, its own agenda and priorities. Furthermore, the cooperation must be in accordance with EU general rules and regulations, creating additional constraints.[92]The Commission already addressed these issues in a communication released in 2014.[93] It pointed out the "disparities in financial rules, the asymmetric membership […], the lack of policy coordination mechanisms and the lack of political accountability of ESA."[94] It is noteworthy that all these challenges will become even more strenuous with the Brexit, that will eventually severs British contribution to European space programs.[95]

In its 2014 communication, the Commission identified four options "for further evolution of the EU-ESA relations towards an ultimate goal of rapprochement."[96]The first option is to keep the system as it is now. The second involves an improved cooperation under the status quo. Establishing a programmatic structure solely dedicated to the management of

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[90]Montluc, 'What is the state of play in European governance of space policy?', at 76.

[91]Sitruk and Plattard, *The Governance of Galileo,* p. 20.

[92]Sitruk and Plattard, *The Governance of Galileo,* p. 12.

[93] See e.g. European Commission, 'Report from the Commission – Progress report on establishing appropriate relations between the European Union and the European Space Agency (ESA)', COM(2014) 56 final (2014).

[94]Sitruk and Plattard, *The Governance of Galileo,* p. 18.

[95]'Space Strategy for Europe: the road ahead', pp. 12–14; Sitruk and Plattard, *The Governance of Galileo,* p. 18.

[96]European Commission, 'Report from the Commission', p. 5.

EU space programme is another alternative. Finally, ESA could become an EU agency while preserving some of its intergovernmental features. The Commission highlights that only the two last options solve the current structural limitations. It strongly advocates in favour of the third one, creating an "EU pillar" hosted within ESA which would operate as an "EU-like environment".[97]Each of the last two options resembles a first step to move towards a space policy that would be overtaken by the EU in the future.

A strong argument in favour of bringing ESA in the political framework of the EU is one of democratic legitimacy, illustrated with the possibility of financial sanction by the European Parliament.[98]Several authors have compared the integration of space in the EU with the evolution of a European defence. They emphasise that ESA could become the EU space agency, mirroring the process that transferred the institutions of the Western European Union to the EU[99] and eventually created the CSDP. However, this solution seems politically sensitive. On the one hand, it entails a loss of independence of ESA. On the other, it collides with a growing resistance to EU tendencies of expansion that also compromises the development of a European defence.[100] The alternative that has been chosen, and that was foreseen by Frans von der Dunk in 2003,[101] rests on the EU membership in ESA. This solution allowed to achieve a concerted European space policy without hurting political sensitivities.[102]

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[97]European Commission, 'Report from the Commission', pp. 6–8.

[98]T. Hoerber, 'ESA+EU: Ideology or pragmatic task sharing?' (2009) 25 *Space Policy* 206–8 at 206–7.

[99] See F. von der Dunk, 'Towards one captain on the European spaceship—why the EU should join ESA' (2003) 19 *Space Policy* 83–86 at 84.

[100]Hoerber, 'ESA+EU: Ideology or pragmatic task sharing?', at 206–7.

[101]von der Dunk, 'Towards one captain on the European spaceship—why the EU should join ESA'.

[102]von der Dunk, 'Towards one captain on the European spaceship—why the EU should join ESA', at 84.

II. The European Space Policy through the lens of neofunctionalism

Analysing the European space policy's impact on the development of theCFSP/CSDP amounts to applying integration theories to the development of the European space policy with a particular focus on security and defence aspects. Introducing the relevance of integration theories in conceptualising the European space policy, Thomas Hoerber emphasises that classical European studies questions can – and must – be applied to the European space policy. These questions include: "What contribution can space policy make to the European integration process? How is space policy perceived by European institutions? How do they handle it? And for what purpose are they engaging in it? Could a European space policy even become an element of European identity?"[103]

This thesis analyses the impact of one policy, space, on another one, security and defence, and aims at highlighting the dynamics and constraints shaping it. Among traditional integration theories, neofunctionalism fits particularly well this purpose. Although it has been the subject of severe criticism, it remains one of the most important integration theories as of today. Moreover, it is undeniably a relevant tool to analyse policy-making processes and aims at explaining the impact of integrating one sector on other policy areas, which is precisely this thesis' objectives. This chapter will define the European space policy (1) and draw an overview of neofunctionalism's main features (2) before applying neofunctionalism to the European space policy (3).

1. The European space policy

In 1998, the European Parliament emphasised "the urgent need for reshaping the European Union's space policy."[104] The first joint resolution between the EU and ESA was

[103]Hoerber, 'Introduction: A Theoretical Perspective on European Space Policy', at xv.

[104]European Parliament, 'Resolution on the European Union and space', OJ C 34 (1998) p. 28.

released a few months later.[105] As mentioned in the previous chapter, this resolution recognised that ESA is competent to adopt and implement a long-term European space policy. It is striking, however, that it is the Commission, although in coordination with ESA, that was requested by the Council of the EU to prepare European space strategy.[106]

The importance of adopting a coherent European space policy is based on the observation that, by contrast to the Unites States and their National Space Policy, "Europe shows a lack of consensus amongst the main actors in the space sector […]. Such consensus would help Europe to come to the definition of a more coherent policy as regards to space, thus creating the conditions necessary to take advantage of an increasing number of commercial opportunities in this field."[107] As a result, a first joint Commission-ESA space strategy was included in a communication of the Commission in 2000.[108] It was decided that a fully developed European space strategy would be presented at the Space Council at the end of 2003. In January 2003, the Commission and ESA presented a Green Paper on a European space policy that opened a consultation process.[109] During the discussion, the European Parliament called on the Commission to fully recognise the horizontal nature of space policy.[110] In November 2003, the White Paper on the European space policy took this remark into account while developing an implementation action plan. It insisted on putting space in Europe's policy toolbox, expressly defining space as a horizontal policy that is "especially

[105]Council of the European Union, 'Council resolution of 22 June 1998 on the reinforcement of the synergy between the European Space Agency and the European Community', pp. 1–2; ESA Council, 'Resolution on the reinforcement of the synergy between the European Space Agency and the European Community'.

[106]Council of the European Union, 'Council resolution of 2 December 1999 on developing a coherent European space strategy', OJ C 375 (1999) p. 1.

[107]Commission of the European Communities, 'Commission working document, "Towards a coherent European approach for space"', SEC (1999) 789 final (1999) p. 4.

[108]Commission of the European Communities, 'Communication from the Commission to the Council and the European Parliament on Europe and Space: Turning to a new chapter', COM(2000) 597 final (2000).

[109]European Commission, 'Green Paper on European Space Policy'.

[110]Reillon and European Parliamentary Research Service, 'European space policy', p. 14.

relevant for supporting Europe's economic prospects, agriculture policy goals, levels of employment, its management of the environment and its foreign and security policies."[111] In 2005, a communication of the Commission on the preliminary elements of the European space policy indicated that this policy will consist of a strategy outlining the objectives, the definition of the roles and responsibilities of the main actors in delivering those objectives, a European Space Programme and a set of implementing principles.[112]

The new European Space Policy was finally adopted by the Commission in April 2007[113] and by the Space Council the following month.[114] According to this document, "the strategic mission of a European space policy will be based on the peaceful exploitation of Outer Space by all states."[115] It will seek:

- to develop and exploit space applications, including in the field of environment, development and global climate change;
- to meet Europe's security and defence needs as regards space;
- to ensure a strong and competitive space industry;
- to contribute to the knowledge-based society by investing strongly in space-based science, and playing a significant role in the international exploration endeavour; and
- to secure unrestricted access to new and critical technologies, systems and capabilities in order to ensure independent European space applications.

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[111]Commission of the European Communities, 'White Paper: "Space: a new European frontier for an expanding Union. An action plan for implementing the European Space policy"', COM(2003) 673 final (2003) p. 8.

[112]Commission of the European Communities, 'Communication from the Commission to the Council and the European Parliament on the European Space Policy – Preliminary Elements', COM(2005) 208 final (2005) p. 3.

[113]Commission of the European Communities, 'Communication from the Commission to the Council and the European Parliament on the European Space Policy', COM(2007) 212 final (2007).

[114]Council of the European Union, 'Council Resolution of 21 May 2007 on the European Space Policy'.

[115]Commission of the European Communities, 'Communication from the Commission to the Council and the European Parliament on the European Space Policy', p. 4.

Moreover, the European Space Policy emphasised that achieving this strategic mission will require the EU, ESA and the Member States to take "significant new steps in:

- establishing a European Space Programme and the coordination of national and European level space activities, with a user-led focus;
- increasing synergy between defence and civil space programmes and technologies, having regard to institutional competencies; and
- developing a joint international relations strategy in space."[116]

It is noteworthy that European foreign affairs, security and defence undeniably take an important place in the strategic mission of the European Space Policy. And indeed, as early as 2008, the Commission developed elements for a 'European Strategy for International Relations in Space' in the first progress report discussing the implementation of the European Space Policy.[117]

Finally, after the entry into force of the Lisbon Treaty came the time to equip the European Space Policy with an overall European space strategy. In 2011, the communication of the Commission 'Towards a space strategy for the European Union that benefits its citizens' highlights that "Europe needs to keep independent access to space."[118] Although the European Parliament declared that some priority areas identified in the document "remain in part somewhat vague,"[119] both the Parliament and the Council of the EU welcomed positively the communication, and in 2015 the Commission presented a roadmap for the adoption of a

[116]Commission of the European Communities, 'Communication from the Commission to the Council and the European Parliament on the European Space Policy', p. 5.

[117]Commission of the European Communities, 'Commission working document: "European Space Policy progress report"', COM(2008) 561 final (2009) p. 14.

[118]European Commission, 'Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions on "Towards a space strategy for the European Union that benefits its citizens"', COM(2011) 152 final (2011) p. 3.

[119]European Parliament, 'European Parliament resolution of 19 January 2012 on a space strategy for the European Union that benefits its citizens', P7_TA(2012) 0013 p. 4.

space strategy for Europe.[120] The Space Strategy for Europe was adopted in October 2016.[121] Centred on the activities of the European Union in space, and leaving aside ESA's, the document is more explicit on autonomy in space and the defence dimensions of space activities than the previous communications of the Commission.[122]

2. Main features of the neofunctionalist theory

"We cannot think about the analysis of European integration without confronting neofunctionalism."[123] This theory was formulated as early as the end of the 1950s, notably by Ernst Haas who is commonly referred as one of the most influential neofunctionalist integration theorists.[124] Despite heavy criticism that led Haas himself to declare the theory to be obsolete in the mid-1970s, neofunctionalism made a substantial come back with the revitalisation of the integration process in the 1980s.[125] Ben Rosamond emphasises that neofunctionalism and European integration are virtual synonyms and goes as far as describing the theory as "the authorized version of European integration."[126]

Neofunctionalism seeks to answer the question: "Why do states voluntarily surrender their sovereignty to a supranational institution?"[127] The theory is rooted in David Mitrany's functionalist theory of international relations and his idea that governments are technocratic and normative, in the sense that their actions are mainly managerial as opposed as actions

[120]European Commission, 'Roadmap for a Space strategy for Europe', 2016/GROW/007 (2015).

[121]European Commission, 'Space Strategy for Europe'.

[122]Reillon and European Parliamentary Research Service, 'European space policy', p. 22.

[123]B. Rosamond, *Theories of European Integration* (2000) p. 50.

[124]Wiener and Diez, *European Integration Theory*, p. 3.

[125]A. Niemann and P. C. Schmitter, 'Neofunctionalism' in A. Wiener, T. Diez (eds.), European Integration Theory, (2009), pp. 45–66 p. 45.

[126]Rosamond, *Theories of European Integration*, p. 51.

[127]D. Mitrany, *The functional theory of politics* (Robertson for the London School of Economics and Political Science, 1975) p. 22.

driven by ideological narratives.[128]The architects of European unity, more particularly Jean Monnet and Robert Schuman, opposed the idealist/federalist approach with the 'small steps' method.The latter is adequately summarised in the famous 1950 Schuman Declaration:

> "*Europe will not be made all at once or according to a single plan. It will be built through concrete achievements which first create a de facto solidarity. […] The pooling of coal and steel production should immediately provide for the setting up of common foundations for economic development as a first step in the federation of Europe*."[129]

Neofunctionalism theorises the strategies of the founding fathers as processes and puts an emphasis on their outcomes. It is based on the assumption that integration processes evolve over time and possess their own dynamic.[130] The neofunctionalist reasoning can be summarised as follows: as a starting point, two or morestates decide to integrate a given economic sector. They set up a supranational entity in charge of accomplishing this task more effectively. With time however, the benefits of integrating the sector will not be complete unless other related economic sectors are integrated. This integration process generates increased transactions between actors in the integrated region and new interest groups are formed at the regional level. Meanwhile, the supranational authority develops its own strategies and becomes a key sponsor of further integration.[131]

The key conceptemerging from the neofunctionalist reasoning is the ideaof 'spillover.' Spillover is defined as the process "in which the creation and deepening of integration in one economic sector would create pressures for further economic integration within and beyond that sector, and greater authoritative capacity at the European level."[132]In other words, integration processes in 'low politics' fields will then create a dynamic of their own and

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[128]Rosamond, *Theories of European Integration*, p. 57.

[129]'The Schuman Declaration' (May 1950).

[130]A. Niemann and D. Ioannou, 'European economic integration in times of crisis: a case of neofunctionalism?' (2015) 22 *Journal of European Public Policy* 196–218 at 197.

[131]Rosamond, *Theories of European Integration*, p. 58.

[132]Rosamond, *Theories of European Integration*, p. 60.

eventually affect other policy areas.[133]Jeppe Tranholm-Mikkelsen identifies three kinds of spillover: functional, political and cultivated. 'Functional spillover' refers to the hypothesis in which some economic sectors are so interdependent that the integration of one sector at the regional level can be only achieved in combination with the integration of other sectors.[134] Governments are therefore pushed to integrate more and more areas of their economy. 'Political spillover' arise when governments and political elites perceive that policies cannot be effectively addressed at the domestic level. We witness a shift of their expectations, loyalties and activities towards the regional centre. While governments and non-governmental elites are firstly leading the integration process, Ernst Haas insists on the importance of supranational institutions possessing a certain degree of autonomy in this process.[135]Finally, the last category, 'cultivated spillover', refers to the high authority's political activism towards further integration.[136]

According to neofunctionalism, European integration is greatly shaped by transnational links between multiple and varying actors. Governmental and non-governmental elites play an important role in the neofunctionalist integration process as their interest and loyalties shift toward the new regional centre. Peter Haas built on the work of his father, Ernst Haas, and developed the concept of 'epistemic communities.' He defines them as "network[s] of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue area."[137]Another important theme in the neofunctionalist theory is the idea of depoliticization. Integration is more likely to occur when in policy areas where the potential for political controversy is low.

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[133]T. Diez, 'Speaking "Europe": the politics of integration discourse' (1999) 6 *Journal of European Public Policy* 598–613 at 605.

[134]Niemann and Schmitter, 'Neofunctionalism', p. 49.

[135]E. B. Haas, 'International Integration: the European and the Universal Process' (1961) 15 *International Organization* 366–92 at 376.

[136]J. Tranholm-Mikkelsen, 'Neofunctionalism: Obstinate or Obsolete? A Reappraisal in the Light of the New Dynamism of the European Community' (1991) 20 *Millennium: Journal of International Studies* 1–22 at 5.

[137]P. Haas, 'Epistemic Communities and International Policy Coordination' (1992) 46 *International Organization* 1–35 at 3.

These two characteristics, as well as the core concept of spillover, can be applied to the development of the European space policy.

3. A neofunctionalist assessment of the European space policy

The increasing involvement of the EU in the European space policy is a good case study of the application of neofunctionalism in practice.

Thomas Diez highlights the instrumentation of the neofunctionalist technocratic vision of government and the idea of spillover in the European Commission's discourse, in order to overcome intergovernmentalism and increase its competences. This is evident, for example, in the choice of the name given to the supranational authority – the 'European Commission' does not refer in any way to a European government – and the means of governance that are employed – the term 'laws' is replace by 'directives' and 'regulations'.[138]

In the same line, EU institutions have used the neofunctionalist rhetoric to justify their space ambitions. In a 2003 Green Paper on Space Policy, the European Commission intentionally used the concept of spillover, although it called it 'demand pull': "The Union […] has recourse to space as a generic tool when it provides useful support for various Community policies ("demand pull")."[139] The commission first used this idea in a 1992 Communication, highlighting that Europe must move from a technology-push to a demand-pull approach in order to integrate space activities into the broader European socio-economy.[140]In its foreword, the Green Paper insists on the point that space represents a unique tool at the service of numerous objectives and policies, and cites these policies: transport and mobility, information society, environmental protection, land use planning, agriculture, fisheries and sustainable development. In the next paragraph, it mentions that special attention must be drawn to the rapid development of the CFSP and the CSDP, and that space can be used to solve security challenges faced in Europe.[141]Harald Köpping-Athanasopoulos lists other EU documents justifying the need for a common European space policy to support other areas where integration is already in place. The Commission's

[138]Diez, 'Speaking 'Europe'', at 605–6.

[139]European Commission, 'Green Paper on European Space Policy, COM/2003/0017 final', p. 26.

[140]Commission of the European Communities, 'The European Community and space: Challenges, opportunities and new actions', p. 2.

[141]European Commission, 'Green Paper on European Space Policy', p. 4.

discourse on Galileo, in particular, tends to present the programme as a result of spillover from existing EU policies.[142]

Space is a highly specialised and technical sector where only highly specialised entities and individual possess critical knowledge on the issue. It is therefore not surprising that epistemic communities, as defined by Peter Haas,[143] play an important role in integrating space in the EU framework as policy-makers are dependent on their expertise.[144]ESA fills the criteria to be an epistemic community, according to Harald KöppingAthanopoulos.[145] As neofunctionalist theorists predict, ESA as an epistemic community has undoubtedly greatly influenced the Commission in its formulation of a space policy and the Galileo programme.[146]This aspect is linked to another element of neofunctionalism that can be applied to the European space policy, namely depoliticization. EU institutions focus on technical issues to avoid politically sensitive aspects of the space programmes, such as the potential dual-use application of Galileo and Copernicus for military purposes and the impact of Galileo on the EU foreign policy.[147] This aspect will be developed further in the following chapter.

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[142]H. KöppingAthanasopoulos, 'Spillover to Space: A Critical Investigation into Neofunctionalist EU Space Policy' in T. C. Hoerber, E. Sigalas (eds.), Theorizing European Space Policy, (2017), pp. 21–36 p. 29.

[143]Haas, 'Epistemic Communities and International Policy Coordination'.

[144]KöppingAthanasopoulos, 'Spillover to Space: A Critical Investigation into Neofunctionalist EU Space Policy', p. 25.

[145]KöppingAthanasopoulos, 'Spillover to Space: A Critical Investigation into Neofunctionalist EU Space Policy', p. 30.

[146]KöppingAthanasopoulos, 'Spillover to Space: A Critical Investigation into Neofunctionalist EU Space Policy', p. 31. The author noticeably refers to a 1999 Report of the European Commission explicitly saying that ESA's findings have particularly contributed in shaping the recommendations of the Commission with regard to the establishment of an EU satellite navigation capacity, that will later take the form of the Galileo programme.

[147]KöppingAthanasopoulos, 'Spillover to Space: A Critical Investigation into Neofunctionalist EU Space Policy', pp. 31–32.

On the other side of the spillover coin, space policy has been deliberately taken over by the Commission with the views to increase its competence into other policy areas. This is particularly striking with regard to the field of security and defence, as the following chapter will highlight. Thomas Hoerber emphasises that, in his views, it is not unreasonable to envisage the idea to bring ESA under the EU roof, as a next political step and spillover result.[148]

In conclusion, according to Harald KöppingAthanasopoulos, three tendencies can be underlined. Firstly, the Commission uses the neofunctionalist rhetoric of spillover to justify its space ambitions and, in turn, these ambitions have led to further involvement of the Commission in security and defence policy through further spillover. Secondly, the Commission attempts to increase the likelihood of integration in space policy through epistemic communities. Finally, the Commission depoliticises space programmes in order to reduce the impact of national sovereignty considerations in of the Member States.[149]

[148]Hoerber, 'ESA+EU: Ideology or pragmatic task sharing?', at 208.

[149]KöppingAthanasopoulos, 'Spillover to Space: A Critical Investigation into Neofunctionalist EU Space Policy', p. 22.

III. Integration of space and its impact on EU security and defence

There is a close link between the development of the EU space policy and the CFSP/CSDP. The Space Strategy for Europe emphasises the strategic importance of space. It is an asset for the EU security and defence and reinforces its independence and role as a global player.[150] Space assets are important to tackle common threats such as international terrorism, cyber and hybrid threats by state and non-state actors and illicit trafficking and smuggling.[151]Nowadays the EU embraces security aspects of the European space policy that were mostly overlooked until recently. However, commentators regret that there is no cohesive approach to European space and security.[152]

Using neofunctionalism as a theoretical framework,this chapter analyses the impact of the European space policy and EU space activities on EU security and defence. A first section will study the synergies between space and security and defence that have been raised by EU institutions to justify that the European space policy impacts the EU foreign and security policy (1). Special attention will then be drawn on the importance of dual use application of space technologies (2). This chapter will then analyse how the neofunctionalist concepts can explain how the European space policy generates spillover and affects the EU security and defence policy (3).

1. Synergies between space, security and defence activities

The Commission mentioned space application in defence for the first time in its 1996 communication.[153]However, it is only with the adoption of the European Space Policy in 2007 that security and defence dimensions related to space started to be fully included in EU documents related to space. The 2007 European Space Policy stressed that steps must be

[150]European Commission, 'Space Strategy for Europe', p. 2.

[151]High Representative of the Union for Foreign Affairs and Security Policy, 'Implementation Plan on Security and Defence', 14392/16 (2016) p. 14.

[152]'Space Strategy for Europe: the road ahead', p. 4.

[153]Commission of the European Communities, 'The European Union and Space: fostering applications, markets and industrial competitiveness', pp. 24–25.

taken in the direction of an increasing synergy between defence and civil space programmes and technologies.In 2011, while the first operations of GMES were taking place, an agreement was signed between ESA and the European Defence Agency.[154]Simultaneously the Space Council stressed for the first time that space assets can contribute significantly to the objectives of the CSDP.[155] Two years later, the Commission included space in its work on security and defence. It emphasised that, contrary to all space-faring nations, there is no structural link between civil and military space activities in the EU and that "this divide has an economic and political cost that Europe can no longer afford. It is further exacerbated by European dependence on third country suppliers of certain critical technologies that are often subject to export restrictions."[156] In a document entitled 'Underpinning the European Space Renaissance', the Council of the EU underlined the need to continue pursuing synergies in space, security and defence activities as a main emerging priority and welcomed the collaboration between the Commission, the EEAS, the European Defence Agency and ESA.[157] The Council also stressed the need for a satellite communications capability in cooperation with the Member States,[158] which will take the form of GovSatCom in 2016.

The 2016 Implementation Plan on Security and Defence explicitly refers to EU space activities, notably Copernicus, Galileo andGovSatCom. It strongly insists on the primordial

[154]Council of the European Union, 'Administrative arrangement between the European Defence Agency and the European Space Agency concerning the establishment of their cooperation', 10085/11 (2011).

[155]Council of the European Union, 'Council resolution of 6 December 2011 on "Orientations concerning added value and benefits of space for the security of European citizens"', OJ C 377 (2011) p. 1.

[156]European Commission, 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on "Towards a more competent and efficient defence and security sector"', COM(2013) 542 final (2013) p. 12.

[157]Council of the European Union, 'Competitiveness Council meeting conclusions: "Underpinning the European space renaissance: orientations and future challenges"' (2014) p. 3.

[158]Council of the European Union, 'Competitiveness Council meeting conclusions: 'Underpinning the European space renaissance: orientations and future challenges'', p. 3.

need of an autonomous access to space. This aspect of the EU space policy is one of the only aspects related to the CFSP that has attracted commentators' attention.[159] Indeed, the EU is heavily dependent on the United States' space capabilities and this is perceived as worrying on many aspects. So far the United States have provided other parts of the world with space data for free but it seems unlikely that it will continue to do so in the future.[160] Furthermore, the EU is currently developing its own Space Surveillance and Tracking (SST) support framework to protect its own space infrastructure. This project's objective is to gain independence from the United States' Space Surveillance Network (SSN) that proved unable to continuously track every space object.

The 2016 Implementation Plan's reference to space goes beyond the EU independence in space activities. It states that the EU can contribute from a security and defence perspective to ensuring stable access and use of space and that space capabilities should be used to respond to external conflict and crisis.[161] The EU and its Member States can contribute to the protection of the Union and taking forward the cross-cutting strategies in the domain of space and their link to CSDP.[162] The Implementation Plan sets priority areas of civilian CSDP missions that should be revisited. It is a priority that states should retain and further develop full-spectrum military land, air, space and maritime capabilities. It sets up a European Defence Fund that will support the financing of space capabilities.[163] These developments illustrate important spillover effects,that will be analyse below, and how the European space policy and the CSDP mutually consolidate and develop each other.

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[159] See e.g. Al-Ekabi, *European Autonomy in Space*.

[160] 'Space Strategy for Europe: the road ahead', p. 13.

[161] High Representative of the Union for Foreign Affairs and Security Policy, 'Implementation Plan on Security and Defence', p. 12.

[162] High Representative of the Union for Foreign Affairs and Security Policy, 'Implementation Plan on Security and Defence', p. 15.

[163] High Representative of the Union for Foreign Affairs and Security Policy, 'Implementation Plan on Security and Defence', p. 20.

2. Dual-use application of space technologies

In the Member States' culture, there is a clear separation between civilian and defence activities. However, space assets are dual use technology by nature. According to Francois Rivasseau, Special Envoy for Space at the European External Action Service (EEAS), "[t]he Europeans having started space programmes for civilian purposes, moving progressively to defence programmes, followed the reverse track of the United States, which started first with strong military programmes."[164] He emphasises that if the aim of the EU is to develop a European security and defence, it should start with space.[165]Christian Ehler, member of the European Parliament and Vice-Chair of the Sub-Committee on Security and Defence, shares this views and states that "[s]o far, no European tank nor European aircraft carrier exist, but satellite may offer an ideal point of application for a European military significant asset."[166]Besides Copernicus, the Galileo programme equally possesses military aspects that have not yet been developed. Should its military use de developed, governance questions will arise, notably regarding the implementation of a relevant interface with the military that does not exist yet.[167]

The discussions around dual-use capacities go beyond the area of space activities. Indeed, it is an "unofficial secret"[168] that half of the research projects funded by the European Commission implies dual use technology.[169] Ulrika Morth highlights that traditionally the military has generated technology for the civilian sphere through a spin-off effect. In the framework of the EU, however, this process has been replaced by a spin-in effect, the defence industry becoming increasingly dependent on civilian industry and civilian research

[164]'Space Strategy for Europe: the road ahead', p. 13.

[165]'Space Strategy for Europe: the road ahead', p. 13.

[166]'Space Strategy for Europe: the road ahead', p. 12.

[167]Sitruk and Plattard, *The Governance of Galileo*, p. 13.

[168]U. Morth, 'Competing frames in the European Commission - the case of the defence industry and equipment issue' (2000) 7 *Journal of European Public Policy* 173–89 at 178.

[169]Morth, 'Competing frames in the European Commission - the case of the defence industry and equipment issue', at 177.

and technology development.[170]

The dual use nature of space technologies might be seen as challenging the pretention of the EU to remain a civilian space power. Both of the two existing EU flagship space programmes present a dual use potential. Copernicus' former name, GMES, undeniably shows that it was intended to cover security purposes. Galileo and Copernicus provide infrastructure and data that can reveal precious to military services. Potential military applications include weather forecast, disaster relief, border control, imaging crises centres and even missile guidance system.[171] It is difficult to imagine that, sooner or later, the military potential of these programmes would not be used, despite the fact that the European space policy defines itself as civilian. Thomas Hoerber's research shows that, in the event of an attack on the EU, EU officials have confirmed that these infrastructures would be used for defence purpose.[172] "That falls in line with the founding ideal of peace, insofar as dual-use technology would not serve aggressive purposes, but would defend European interests in a potentially dangerous international environment."[173]

3. Functional, political and cultivated spillover

As mentioned in the second chapter uncovering neofunctionalism's main features, this integration theory is based on the idea that some sectors are so interdependent that it is impossible to isolate them from each other. Sooner or later, integrating one sector will automatically lead to the integration of the others. Neofunctionalism has been criticised, notably by certain authors highlighting thata spillover effect may be true of economic integration but not of political integration in the sense of high politics.[174]However, GëzimVisoka and John Doyle explain that technical dialogue and low politics have a path-

[170]Morth, 'Competing frames in the European Commission - the case of the defence industry and equipment issue', at 178.

[171]Hoerber, 'Framing in European space policy', at 3.

[172]Hoerber, 'Framing in European space policy', at 3.

[173]Hoerber, 'Framing in European space policy', at 3.

[174]S. Hoffmann, 'Obstinate or Obsolete? The Fate of the Nation-State and the Case of Western Europe' (1966) 95 *Daedalus* 862–915 at 882.

breaking role and allow the emergence of high-level political dialogue as a spillover effect of technical dialogue. When there is a convergence of interest through economic and technical interest in one sector, other sectors can benefit from a spillover effect and enable broader political cooperation.[175]Julian Bergmann and Arne Niemann agree on this issue and highlight that the spillover logic is relevant to explain the integration of external policy areas: "It can be argued that during the course of European integration, internal policies have become more and more intertwined with external policy areas, also given the increasing issue density, which increased functional interdependencies."[176]

In the case of space, it has been demonstrated in the previous chapter that the integration of the European space policy was, at least in part, the result of functional discrepancies with other economic and industrial sectors that were integrated in the EU. Although it is managed in the Commission by the Directorate General for Internal Market, Industry, Entrepreneurship and Small and Medium-sized Enterprises (DG GROW), it has become a horizontal policy.[177] It is notably fully integrated in the work of the EEAS, which created the position of 'Special Envoy for Space' and included space in several documents, including the above-mentioned 2016 Implementation Plan on Security and Defence.[178]Thomas Hoerber calls "militarisation of the EU by the backdoor"[179] the tendency to put formerly military organisation under civilian political institutions. He takes the example of the EU satellite centre (SatCen) to illustrate this process. This centre, based in Madrid, was created in 1992 as a Western European Union body and was incorporated as a European Union agency in 2002.[180] Although the SatCen does not have military satellites, it

[175]G. Visoka and J. Doyle, 'Neo-Functional Peace: The European Union Way of Resolving Conflicts' 54 *JCMS: Journal of Common Market Studies* 862–77 at 863.

[176]J. Bergmann and A. Niemann, 'From Neo-Functional Peace to a Logic of Spillover in EU External Policy: A Response to Visoka and Doyle' 56 *JCMS: Journal of Common Market Studies* 420–38 at 427.

[177]Reillon and European Parliamentary Research Service, 'European space policy', p. 34.

[178]High Representative of the Union for Foreign Affairs and Security Policy, 'Implementation Plan on Security and Defence'.

[179]Hoerber, 'Framing in European space policy', at 3.

[180]'Who we are: The Centre'.

purchases images from military sources in order to support the work of the ESDP.[181]

This militarisation of European space activities is a result of functional, political and cultivated spillover. Functional, because the dual use application of space technologies would sooner or later incontrovertibly lead to a shift from a civilian to a military use of these technologies. Furthermore, this process is to be put in a more general context of other integrated economic sectors lead to the reinforcement of the EU foreign and security policy, and of a European political and security crisis with regard to its external borders.

In this context, political elites in the EU decide to use the space policy to develop European security and defence and the synergies between civilian and military space activities, in a logic of political spillover. Two main reasons can explain this decision, and are ultimately interconnected: on the one hand, the perceived need for European independence and autonomy in space and, on the other, a cost-benefits assessment. The latter is notably explained in a communication of the Commission adopted in 2013. It states that Europe can no longer afford the divide between civilian and military application of space activities, especially because of its dependence to third country suppliers. Although some capabilities have to remain under exclusive national and/or military control, in a number of areas, synergies between civilian and defence activities will reduce costs and improve efficiency.[182] These areas include protecting space infrastructures, satellite communications and building an EU satellite high resolution capability.[183]This fits the neofunctionalist prediction that political elites will move towards further integration based on a cost-benefits analysis. Turning to the question of theindependence of the EU,it is noteworthy that this is an example of a product of the socialisation of EU economic and political actors. The idea that Europe needs to take its independence from the United States dates back to De Gaulle and the French

[181]Hoerber, 'Framing in European space policy', at3.

[182]European Commission, 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on 'Towards a more competent and efficient defence and security sector'', p. 12.

[183]European Commission, 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on 'Towards a more competent and efficient defence and security sector'', pp. 12–14.

integrationists and resisters[184] (although De Gaulle was nationalist).[185] It is striking that, as early as 1979, the European Parliament pressed to European Community to play a role in space in the name of European independence from the United States. It states that "Europe cannot depend on outside sources to meet its own needs but that on the contrary the Community must, as far as possible, within the framework of an effective policy of international cooperation, play a significant role in the main sectors of space activity and make the necessary resources available to this end."[186]

Finally, cultivated spillover are also at stake as EU institutions, and more particularly the Commission, have used the development of the European space policy to increase their competence in politically sensitive sectors. The European Commission has used the neofunctionalist rhetoric, on the one hand, to explain its involvement in space activities. On the other, now that the EU is established as a major space actor, it uses the concept of spillover to justify gaining further competence in other policy areas that are linked to space activities, more particularly security and defence. One might uncover other neofunctionalist concepts in the discourse of the Commission, such as that of depoliticization. Galileo, for instance, was carrying a high potential for political controversy. Firstly, its dual-use technology implies that implementing such a programme at the supranational level has an impact on national security and defence actors, whose actions would be dependent on EU institutions for key infrastructures. Furthermore, building an independent GNSS could carry tensions in the Member States' relations with the United States. The accent put on the need for an independent system effectively means that the American GPS is unreliable, and could be perceived as a lack of trust in European allies. In a clear depoliticization attempt, the Commission went around these controversy by focusing on the technical aspects of Galileo and using a highly technical language. The same procedure was used with regard to Copernicus and its dual use application. It is noteworthy, for instance, that the discourse adopted refers to 'users' instead of 'citizens'. The programme was reduced to "merely one piece of technical infrastructure which can be used for a variety of purposes."[187]

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[184]Hoffmann, 'Obstinate or Obsolete?', at 880–81.

[185]Hoffmann, 'Obstinate or Obsolete?', at 897.

[186]European Parliament, 'Resolution on Community participation in space research'.

[187]KöppingAthanasopoulos, 'Spillover to Space: A Critical Investigation into Neofunctionalist EU

It has been demonstrated that EU policy-makers deliberately used the development of the European space policy to increase the competence of the Union in sensitive issues related to security, and that the process of spillover was meditated.[188] A former Commissioner interviewed by Harald KöppingAthanasopoulos in 2015 "suggests that space policy was deliberately intended to become a vehicle for further spillover into the realm of defence policy."[189]

Space Policy', p. 31.

[188]KöppingAthanasopoulos, 'Spillover to Space: A Critical Investigation into Neofunctionalist EU Space Policy', pp. 29–30.

[189]KöppingAthanasopoulos, 'Spillover to Space: A Critical Investigation into Neofunctionalist EU Space Policy', p. 30.

Conclusion

The European space policy and the CFSP and CSDP are intertwined and mutually reinforce themselves. As such, studying the impact of the European space policy on the EU security and defence proved to be a relevant case study of the neofunctionalist theory.

A historical overview of space activities in Europe highlights that European institutions stressed the need to define a European space policy as well as a comprehensive space strategy as early as the end of the 1970s. While the EU seemed to struggle to find its place within the European space policy-making, a clear shift of power towards the European institutions happened in 2008 when they took over Galileo's funding. Article 189 of the TFEU includes space as a shared competency between the EU and its Member States and expressly mentions EU's partnership with ESA. However, debates on the future of the European space governance are far from being over.

As a horizontal/transversal policy, space quickly invaded other integrated sectors of the economy, including security and defence. In the 2000s, security appeared in the objectives of European space programmes, most notably Copernicus. The European Space Policy adopted by the Space Council in 2007 established for the first time a connection between space policy and European security and defence. Finally, in 2016, the Space Strategy for Europe as well as the Implementation Plan for Security and Defence insisted on the importance of EU's autonomy in space and the defence dimensions of space activities.

Neofunctionalism provides a relevant theoretical framework to analyse the development of the European space policy, as well as its links with the EU security and defence. This theory is based on the premise that processes evolve over time and possess their own dynamics. The core concept of neofunctionalism is that of spillover and can be applied to the European space policy. The latter is both a product and a creator of functional, political and cultivated spillover. The Commission itself used the neofunctionalist rhetoric and the idea of spillover to justify the integration of space activities into broader socio-economic policies of the EU. In turn, the Commission's ambitions have led to further involvement of the EU in security and defence through further spillover. Furthermore, EU institutions tend to increase the likelihood of space integration within the EU through

epistemic communities, more particularly ESA, and the depoliticization of politically sensitive space programmes.

As space technologies are dual use by nature, synergies between civilian and military aspects of space activities are inevitable. EU institutions soon foresaw that space could be used to solve security challenges, on the one hand, and to develop the controversial CSDP, on the other. The dual use potential of space activities and the strong interconnection between the civilian and military space sectors generate spillover that would sooner or later lead to a shift from a civilian to a military use of these technologies. Spillover have also been generated by political elites that perceive the importance of EU independence in space and the benefits that they could gain from more effective synergies between the civilian and military use of space assets. Furthermore, the Commission itself used the development of the European space policy to legitimate its ambitions in security and defence, and subtly increase its competences in these policy areas.

One should keep in mind that neofunctionalism is not only an integration theory but also an ideology of integration.[190] Thomas Diez emphasises that This is particularly striking with regard to the European space policy, as "the European Commission has used the neofunctionalist rhetoric to encourage the emergence of an EU space policy."[191] However, Harald KöppingAthanopoulos warns against the application of neofunctionalism as an ideology of integration. The latter, according to him, leads to different types of danger. Firstly, neofunctionalism is an "inward-looking theory that possesses no meaningful conceptualization of exogenous factors."[192] It could lead the EU to isolate itself from the rest of the world in the name of a perceived need for independence. Secondly, neofunctionalist tools have reduced the European space policy to its technocratic narrative, exacerbating the democratic deficit of the EU. Finally, depoliticising EU space programmes makes it easier for member states to accept them but puts at risk "the visionary role that the European space

[190]Hoerber, 'Introduction: A Theoretical Perspective on European Space Policy', at xvi.

[191]KöppingAthanasopoulos, 'Spillover to Space: A Critical Investigation into Neofunctionalist EU Space Policy', p. 29.

[192]KöppingAthanasopoulos, 'Spillover to Space: A Critical Investigation into Neofunctionalist EU Space Policy', p. 33.

policy has historically played in the facilitation of the European project."[193] This aspect could severely damage space activities as a factor of European identification, if discourses on the European space policy become too technical to be a source of admiration and dream for EU citizens.

[193]KöppingAthanasopoulos, 'Spillover to Space: A Critical Investigation into Neofunctionalist EU Space Policy', p. 33.

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