Sara Venditti

New Wings for Europe

Western European Strategic Cooperation and Integration in the Aerospace Field: Ariane and Eurofighter, 1973–1985

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Statement of inclusion of previous work:

- I confirm that chapter 4 was the result of previous study for the Postgraduate Sørensen Grant I undertook at Historical Archives of the European Union (Florence, Italy).
- I confirm that chapters 2 draws upon an earlier article I published "The Informal Character of the Western European Union: European Defence, Industry and Integration", in Mechthild Herzog and Lennaert van Heumen, eds., The Informal Construction of Europe (Abingdon: Routledge, 2019)
- I confirm that chapter 3 draws upon an earlier article I published "Europeanization of Space: The Ariane project between Europeanization and Independence, 1973-1979", in Francesco Cassata and Sara Lorenzini, eds., Building a European Research Policy. Science and "Europeanization" After WW2, Annals of the Fondazione Luigi Einaudi, Vol. LIII, June (2019): 121-140
- I confirm that Annex draws upon an earlier article I published "'Europeanization' of Technology: The Role of Trade Unions in the Aerospace Sector" in David Burigana and Christine Bouneau, eds., Experts et Expertise in Science and Technology in Europe since the 1960s: Organized Civil Society, Democracy and Political Decision-Making (Bruxelles: Peter Lang, 2018).

Signature and date:

Sara Venditti, November 29, 2019

Entropy growth orients time and permits the existence of traces of the past, and these permit the possibility of memories, which hold together our sense of identity. I suspect that what we call the "flowing" of time has to be understood by studying the structure of our brain rather than by studying physics: evolution has shaped our brain into a machine that feeds off memory in order to anticipate the future.[1]

Carlo Rovelli

[1] *Financial Times*, 'Carlo Rovelli on the meaning of time. The theoretical physicist on why 'exploring the nature of time leads us to understand something about ourselves''. FT Series Masters of Science 2018, April 20, 2018.

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Abstract

This thesis deals with the history of the European Integration process through the study of the aerospace cooperation during the 1970s and 1980s. In this thesis, I do not approach the European integration process through the traditional narrative or the international relations (institutions, nations, etc…), but through the lens of technology and the so-called "hidden integration". In fact, this work uses technology to look at the political and industrial processes that involved governments, scientists, and organizations, and fostered the European integration process. The chronology and the mirror-like structure of this work is based on my two case studies: the European Fighter Aircraft (EFA) and the Ariane launcher. They both went through similar development phases (i.e. debates, feasibility studies, industrial agreements, launches/flights) and during the same decades. I decided to analyse Ariane and EFA because they are the first successful European projects led and produced exclusively by European countries. My aim is to show how EFA and Ariane played a crucial role in boosting the European construction as 'hidden' tools for integration, but also in leading the Western European countries to seek and achieve independence in the air and space industry and market.

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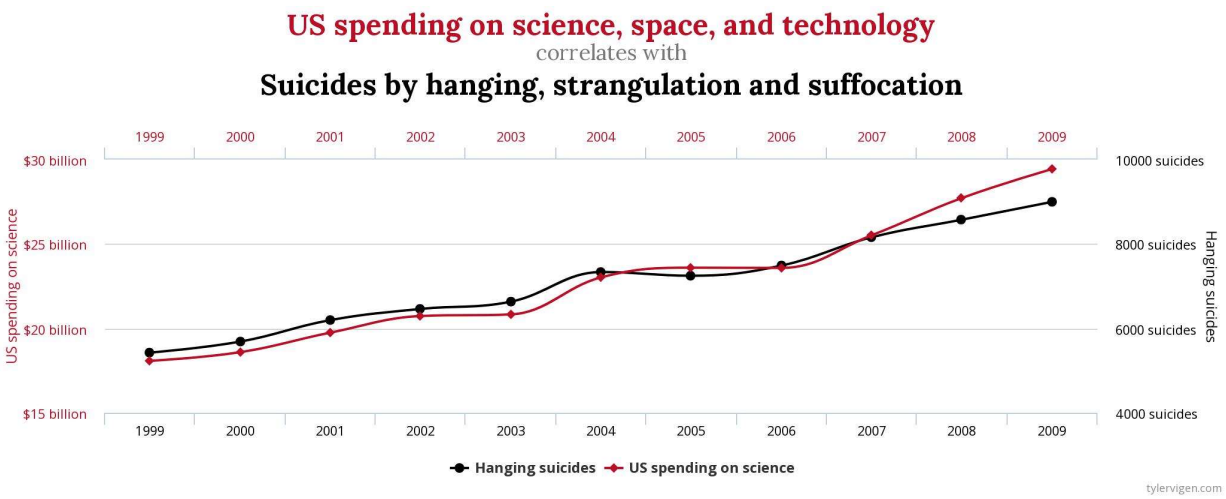

Figure 1 – Spurious correlation[2]

[2] Data sources: U.S. Office of Management and Budget and Centers for Disease Control & Prevention in Tyler Vigen, Spurious Correlations, Gift edition (New York: Hachette Books, 2015).

Introduction

Time, in nature, works differently from what is the culturally institutionalised idea we have of it. Equally it does in History where time is not uniform everywhere but, according to when and where we are, it flows differently. Reconstructing the different flows of time, interpreting its numerous layers, overcoming the sometimes-growing entropy of information, have been the constant work behind this thesis. Entropy is what accompanied me when I started to write this manuscript. What I acknowledged back then was that the complexity that characterised defence and aerospace cooperation is extremely intricate; that the political debates at the highest levels were almost diabolical; and that the technological goals and dreams shared by experts at the end of the Second World War were probably the easiest archival source to understand. This thesis wonders what impact that complexity had on the European construction process.

This work aims at jettisoning the idea that the European construction was based exclusively on economic reasons and wants to cast a light on the role that technology and science played in the process. Main protagonists of this story are France, the United Kingdom, Italy, and the Federal Republic of Germany—what I often refer to as the Western European countries in this study. However, France and the United Kingdom have a special role in the whole thesis and, especially in the two case studies presented here: the rocket Ariane and the European Fighter Aircraft (EFA) projects. Leafing through these pages, the reader might eventually grasp a *fil rouge* in the French behaviour regarding its interaction with the other international players: prepositive, leader, independent, nationalist, and often not reliable. This patter is fairly visible in the events narrated here, from the attempted establishment of a paramount European Defence Community to minor bilateral Anglo-French aeronautic cooperation. Zooming out from France's patterned attitude and Western Europe national and foreign policy, the narrative of this work moves in the wider Cold War history in which the European cooperation in air and space took place.

Specifically, this thesis deals with the history of the European integration process through the lens of the aerospace cooperation. It mainly focuses on the 1970s and early 1980s. However, a considerable space is granted to the year 1973, when the official debates on the European Fighter Aircraft and Ariane officially started. Ariane and EFA have been selected as the most suitable case studies for this specific historical analysis. First, they are the first *successful* European projects of their kind, namely with European countries exclusively involved in the development of the programmes. In fact, Ariane is the first launcher ever produced in Europe that succeeded at first flight and competed against on the global market; and EFA is the first fighter aircraft produced outside the usual bi- and trilateral agreements, and that involves four European Member States. Second, in both the case studies the United Kingdom and France have played extremely important roles, but antipodean ones. Especially the erratic behaviour of France has raised several questions during the analysis of the primary sources: Why would France favour a national-owned project instead of a European one? Could sovereignty or national prestige be the only reasons? Who were the actors lobbying for a national solution? Industries and trade unions exclusively? For this reason, along the entire volume, France and the United Kingdom have been given a special place according to their major role as main investors and decision makers of the future of the EFA and Ariane. Third, the European aerospace policies were deeply influenced by the United States. While the EFA and Ariane projects were a partial consequence of the European need to gain independence for the US, their development was strongly influenced by the transatlantic attempt to affect Europe cooperation and position on the global market. Finally, Ariane and the EFA are both entangled with the civil and military aspects of the aerospace cooperation which are inextricably related when it comes to transfer of technology and know-how from one to another.

I. Research Question

Today's Common Security and Defence Policy and Space Policy are a visible achievement of a joint effort and reinforced integration accomplished thanks to European struggles during the 1970s. Despite this coordination, the bulk of the Cold War historians deal chiefly with political and economic issues of the European integration, disregarding defence and aerospace cooperation as

an important aspect of such process. This negligence is arguably linked to the lack of evident result—such as the European Defence Community failure in 1954 and the attempted production of the launcher Europa I.[3] As a consequence, this perceived weaker coordination among European countries has led scholars to develop the concept of erosion of the European role as a world actor in the defence field, and to the bias against the existence of a significant security cooperation during the Cold War.[4] Despite this feeble interest from the academic community, some scholars have recently investigated the European defence and space cooperation during the 1970s and 1980s. Their focus is on military and technological cooperation—such as the European Fighter Aircraft project and the cooperation in space research—and on the forums in which debates have taken place, such as the Assembly of the Western European Union (WEU).[5] Even with this flurry of new research, the aerospace cooperation between the European countries has not been hitherto considered as one of the complementary components of the European building process.

My main purpose is to fill this historiographical gap by employing aerospace as a prism through which to study the European integration process and its transatlantic dimension. Catching the

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[3] Victor Gavin, 'Power through Europe? The Case of the European Defence Community in France (1950–1954)', *French History* 23, no. 1 (2009): 69–87; Michel Dumoulin, ed., *La Communauté Européenne de Défense, Leçons Pour Demain?: The European Defence Community, Lessons for the Future?*, Euroclio, no 15 (Brussels ; New York: P.I.E.-Peter Lang, 2000); European Space Agency, *A History of the European Space Agency, 1958-1987, Vol. I* (ESA Publications Division, 2000); Edward Fursdon, *The European Defence Community: A History* (Macmillan, 1980).

[4] Seth G. Jones, *The Rise of European Security Cooperation* (Cambridge University Press, 2007), 16.

[5] Naomi Oreskes and John Krige, *Science and Technology in the Global Cold War* (The MIT Press, 2014); Christian Grabas and Alexander Nützenadel, *Industrial Policy in Europe After 1945: Wealth, Power and Economic Development in the Cold War* (Palgrave Macmillan, 2014); Sally Rohan, *The Western European Union: International Politics between Alliance and Integration*, British Politics and Society (New York: Routledge, 2014); Yohan Droit, 'L'European Fighter Aircraft : Le Rendez-Vous Manqué de La Coopération Aéronautique Européenne 1978-1985', *Histoire, Économie & Société* 29e année, no. 4 (1 December 2010): 103–116.

missteps and difficulties, strengths and long-term reverberations, I intend to investigate the debates concerning the 'Air and Space' policy carried out by several European countries and the United States embracing the entire realm of European defence and space industry. Furthermore these debates highlight the stance of European countries in relation to the United States, as in the case of French nationalism and Italian trasatlanticism, both part of a spectrum of mottled behaviour.[6] Secondary aims are to clarify European position in the development of national industries, and of Europe's role as a world actor. The dichotomy in the perception of the United States as an ally and at the same time as an industrial rival sustains the claim of this analysis.[7] The importance of this research lies in current historiographical debates about relations between government and industries, integration policy and harmonisation of the European market, history of the international relations, development of new kinds of technologies and conflicts.

a. Background

In a bipolar world heavily dependent on the Superpowers for its security, Western Europe concerned itself with the balancing of the perceived threat from the Soviet Union and the maintaining of the transatlantic security cooperation. The 1970s are considered by the historiography as a decade "characterised by events of real tension between United States and its main European partners" marked by uncertain episodes, such as the 1973 crisis, the 1976 Lockheed scandal, and the 1979 Soviet invasion of Afghanistan.[8] Beneath this new world (dis)order Europe

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[6] Geir Lundestad, *The United States and Western Europe since 1945: From 'Empire' by Invitation to Transatlantic Drift* (Oxford: Oxford University Press, 2003).

[7] Antonio Varsori, *Alle Origini Del Presente: L'Europa Occidentale Nella Crisi Degli Anni Settanta* (FrancoAngeli, 2007), 193.

[8] Daniel J. Sargent, *A Superpower Transformed: The Remaking of American Foreign Relations in the 1970s* (Oxford, New York: Oxford University Press, 2015); Claudia Hiepel and Angela Romano, *Europe in a Globalising World:*

started thinking ambitiously about its own place in the global arena. Symptomatic of this new European mindset was the speech of Ludwig Bölkow, President of the aeronautic firm MBB, in 1973. The decreasing enthusiasm for cooperation efforts was, in his view, the result of "complications bureaucratiques de maladresses administratives et de l'égoïsme à courte vue" of European national industries. Undoubtedly, during the 1970s the aerospace market in Europe was branched in domestic industrial planning, bi– and trilateral agreements producing an overlapping amount of products.[9] In addition, the market supremacy of the US was indisputable with some 80% of the military and civil aircrafts in the European market being produced in the US in contrast with 15% produced *in loco*. Advocating European needs in the aerospace field, the WEU Assembly efforts were directed to make European countries aware of the financial and political gains that would result from armament harmonisation. The results of these debates became tangible in the late 1970s and 1980s: when Reagan's rhetoric and actions engendered a renewed muscle-flexing between the Superpowers, the Western European countries developed Ariane and the EFA. [10]

Global Challenges and European Responses in the 'Long' 1970s, First edition. (Nomos, 2014); Emmanuel Mourlon-Druol, '"Managing from the Top": Globalisation and the Rise of Regular Summitry, Mid-1970s–Early 1980s', *Diplomacy & Statecraft* 23, no. 4 (December 2012): 679–703; Thomas Borstelmann, *The 1970s: A New Global History from Civil Rights to Economic Inequality*, America in the World (Princton: Princeton University Press, 2012); Antonio Varsori and Guia Migani, *Europe in the International Arena during the 1970s: Entering a Different World = L'Europe Sur La Scène Internationale Dans Les Années 1970: À La Découverte d'unnouveau Monde*, Euroclio, no. 58 (Bruxelles ; New York: P.I.E. Peter Lang, 2011); Niall Ferguson, ed., *The Shock of the Global: The 1970s in Perspective* (Cambridge, Mass: Belknap Press of Harvard University Press, 2010); Mario Del Pero and Federico Romero, eds., *Le Crisi Transatlantiche: Continuità e Trasformazioni*, 1st ed., Biblioteca Di Studi Americani, nuova ser., 31 (Roma: Edizioni di storia e letteratura, 2007), 45.

[9] Matthias Schulz, Thomas Alan Schwartz, and German Historical Institute in London, *The Strained Alliance: U.S.-European Relations from Nixon to Carter* (German Historical Institute; Cambridge University Press, 2010).

[10] Gordon Barrass, *Able Archer 83: What Were the Soviets Thinking?*, 2016; Ralph Dietl, *The Strategic Defense Initiative : Ronald Reagan, NATO Europe, and the Nuclear and Space Talks, 1981-1988* (Lexington Books, 2018);

II. Proposal

The ambition of this project is to investigate the role of aerospace cooperation among European countries and its impact on the European construction process via a three-level analysis:

1. National;
2. Intergovernmental;
3. Transatlantic

The first two levels are related tools with which to probe the development of the 'Air and Space' debates in the Assembly of the WEU—i.e. as the 'Schuman Plan for aircraft' proposed by Altiero Spinelli at the EC in the 1970s—and to analyse the intent of its participants both at the national and intergovernmental level.[11] Identifying the actors inside the forums—namely politicians, diplomats, industrialists, and experts—the thesis aims to comprehend the reasons behind their stances, pro-European or not. Did the national industries influence the aerospace cooperation to advocate their own market needs? The main question I intend to address is whether the difficult coexistence among national interests and European approach undercut the chances for further successful cooperation in the aerospace field.

The last level, the transatlantic one, aids to examine industrial competition and alliance with US as important elements in shaping the internal evolution of the cooperation. First, this study allows a

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Robert C. Rowland and John M. Jones, *Reagan's Strategy for the Cold War and the Evil Empire Address*, 2016; Daniela Spenser, *The American Mission and the 'Evil Empire': The Crusade for a 'Free Russia' since 1881 David S. Foglesong*, 2009.

[11] Christophe Bouneau, David Burigana, and Antonio Varsori, *Les Trajectoires de l'innovation Technologique et La Construction Européenne: Des Voies de Structuration Durable?* (Peter Lang, 2010), 81.

deep evaluation of the efforts of the European countries and of the external perspective of the US and, at the same time, a more comprehensive analysis of scientific and technological transatlantic relations. Second, it is important to disclose what the reiterated European countries' agreements with US meant, especially when the European scepticism rose against the US mismanagement of the global economy during the 1970s.[12] Hence, the rise of Gorbachev and the ensuing global decrease in tensions raise new questions. Did this new international environment provoke effects on the production and the marketing phases of the EFA's project? Did the further decrease of the risks of an imminent military conflict lead a revaluation of the European defence policy?

The study of these different strands and their reciprocal interactions is necessary in the understanding of the transformations that took place between the 1970s and 1980s and their effects on the European construction process. It helps thus to clarify on the one hand whether there were any attempts to overcome national peculiarities in the industrial and security field, and, on the other hand, whether the EFA inheritance affected the future European cooperative efforts from the 1990s onwards. The hypothesis presented in this thesis is that, by advocating intergovernmental burden-sharing, harmonisation and standardisation, the official forums were promoting European defence and cooperation in space as a tool for further integration facing the global and local transformation toward a new world order.

a. Structure

This work is divided in two main parts and follows a symmetrical structure that moves constantly from 'Air' to 'Space', and so the sub-sections inside the chapters. This symmetrical structure aims at giving the reader an equal share of information on the two case studies—Ariane and EFA—that will be dealt with separately in the last two Chapter, 3 and 4. The whole manuscript is composed by four Chapters and an Annex that provides two additional examples, or minor case studies, of cooperation in air and space fields. The first part provides an historical overview and background

[12] Sargent, A Superpower Transformed, 100–161.

of the organisations, actors, and historical events analysed in the following chapters that played a role on defence, air and space policies. The background of the two case studies is wide and complex. It spans from the project of a European Defence Community to the development of different fighter aircrafts, and again, from the space race led by the United States and the Soviet Union to the several attempts to produce a rocket in Western Europe. The second part includes Chapter 3 and Chapter 4 and is devoted respectively to Ariane and the EFA. Both these chapters are characterised by the initial discussions the main actors undertook in the forums presented in the first part. It traces the rationale behind the realisations of the rocket and the combat aircraft, the difficulties met during the development phases, and their failures and successes in the ever-changing Cold War world.

Chapter 1, "Chins up: Europe's Defence and Space" accompanies the reader through the development of the European Defence Community (EDC) project right after the end of the Second World War. The Chapter focuses on the role of France as *deus ex-machina* behind EDC birth and premature death and leads to a second attempt of a "European NATO", meaning the establishment of the Western European Union. In order to understand the connection between the WEU and the EFA, the Chapter introduces the bi- and trilateral cooperation between European countries on combat aircrafts that were also discussed at the WEU level before the EFA. The second part of this Chapters is dedicated to space. It briefly describes the historical context of space research during the Cold War and moves to the establishment of the two main organisations on space research and launcher development in Europe before ESA came into existence: European Space Research Organisation (ESRO) and European Launcher Development Organisation (ELDO). Following the previous part concerning the WEU, this section also culminates with an overview on the attempted cooperation on launchers before Ariane in Western Europe.

Chapter 2, "Path to Independence" presents the unsteady international economic and political landscape of the Cold War, specifically the transformation of the transatlantic relationship and the following research for independence in air and space projects by the Western Europeans. The Chapter deals more in detail with the forum in which this cooperation has been debated, the WEU. It traces the transformation of its Assembly, the role it played on aerospace matters, and the relationships of cooperation, coopetition, and competition between the WEU members and the

United States. The aim of the second section of Chapter 2 is to understand the ambiguous, almost informal, character of the WEU during a period of institutional lethargy. It looks at its main actors and goals in order to understand the impact they had on the development of aeronautical cooperation pursued by its members until the reactivation of the WEU in the early 1980s, while the EFA was becoming a tangible project.

Chapter 3, "Ariane: a launcher for the independent access to space", deals with the history of Ariane starting from the germinal reason that had eventually led to its development: the independent access to space in order to place the communication satellites into orbit. This rationale brings the reader to the beginning of the 1970s when several meetings, dominated by France, took place between the Western European countries. Specifically, this section highlights the importance of 1973 as the year in which France proactively pushed the other partners towards a European cooperation for the development of the launcher. This part deals with the preferred technical requirements and the compromises the different countries had to concede to achieve such an ambitious goal that eventually led to the establishment of the European Space Agency as the result of the merge of ELDO with ESRO. To conclude, Chapter 3 offers an overview and comparison on the American perception of the European cooperation in space—specifically on Ariane as direct competitor of the transatlantic ally's launchers.

Chapter 4, "European Fighter Aircraft: a political place intended to unify Europe", follows the same structure of Chapter 3 with a strong attention on 1973 as well. It shows how during that year the debates on a first European combat fighter came into existence at the WEU Assembly and the following developments. Contrarily to Ariane, the EFA had as main lead-project the United Kingdom. However, this Chapter shows how pivotal the position of France was in the entire decision-making process around the EFA and the British and West German position in it. While the trilateral meetings between Bonn, London, and Paris are central during the whole Chapter, the Italian position is always considered because of her shifting preferences from an American to a European cooperation. The Chapter ends casting a light on the difficulties met by the EFA members on establishing the final operational requirements in agreement with the ones requested by Paris until the withdrawal of the latter and the solo production of the Rafale.

The Annex of this thesis intents to contribute to a better understanding of the cooperation/coopetition in the aerospace field and the consequent Europeanisation of technology with two examples from the countries with the most severe economic difficulties during the 1970s: United Kingdom and the Italy. The first example is on 'Air'. It shows the interaction between civil society—specifically the British Trade Unions—and the Thatcher government in combining the nationalisation of aerospace industries with the general increase in unemployment through the participation in the European solution, the Eurofighter project. The second example is on 'Space'. It focuses on the Italian participation in ESA's different contracts, specifically Spacelab, from which she was not receiving the agreed *juste return*. The example shows how the muscle-flexing between Italian and ESA's officials led to a deep transformation of the Agency itself, from a more transparent communication to a larger and fairer distribution of contracts among its members.

Finally, the Conclusion.

b. Methodology

The core of this thesis lies between the histories of European integration, the political, military and technology. This work looks constantly at the defence issue as a complementary but absent element of the European integration process, and at the different role played by France and the United Kingdom on Ariane and the EFA projects. The controversial negotiations, the industrial disagreements, the lack of compromises and the transatlantic relationship, have been here be surveyed according to two approaches:[13]

1. Comparative, for example, with a systematic comparison of previous partnerships in the aerospace field in order to investigate divergent and convergent development—such as the

[13] Heinz-Gerhard Haupt, Jürgen Kocka, and EBSCOhost, eds., *Comparative and Transnational History: Central European Approaches and New Perspectives* (New York: Berghahn Books, 2009).

Anglo-French Variable Geometry, the Jaguar, and the Tornado; or Europa I, II, and III—but also with a comparison between the countries involved in the programmes, especially France and the United Kingdom;[14]

2. Transnational by, for instance, analysing the supranational approach of the national industries ('champions nationals') and the epistemic communities—such as scientists, academics, and technicians. Furthermore, by directing the attention to economic and political changes, flow of ideas, technologies and networks that had an influence on the global and local scale.

The project relies on primary sources coming from several archives, physical or online: the Historical Archives of the European Union in Florence; the Archivio Centrale dello Stato in Rome; the Archives Nationales, the Centre des Archives Diplomatiques du Ministère des Affaires Etrangères, and the Centre National d'Etudes spatiales in Paris; the National Archives of Kew in London; the Reagan Library, in Simi Valley, California; the Jimmy Carter Presidential Library and Museum in Atlanta, Georgia; the National Archives and Records Administration, in College Park, Maryland; the Library and Archives Canada, in Ottawa; and, online the Central Intelligence Agency, International Monetary Fund, and the Margaret Thatcher Foundation. Thanks to the documents consulted in these archives, I was able to trace the debates had in different forums—namely Western European Union, European Commission, ELDO, ESRO—as well as official communication channels between European countries, European Community, and NATO on transatlantic, Soviet, and European defence realms. To conclude, a multilevel and multi-layered analysis of the documents was necessary to deal with the varying declassification rules in the various countries that did not allow me to research deeper the defence question, especially on the EFA.

[14] D. James and Phil Judkins, 'Chute Libre Avant Le Décollage: Le Programme GVFA d'avion à Géométrie Variable Franco-Anglais, 1965-1967', *Histoire, Économie & Société* 29e année, no. 4 (1 December 2010): 51–73.

Chapter 1 – Chins up: Europe's Defence and Space

A little too early, is just right. Already in 1945 Valéry Giscard d'Estaing had begun to imagine a common European future.[15] He envisioned the post-war period as the starting point of forty-five years of discovery and establishment of reconciliation.[16] The post-war period might seem too early in the past compared to the decade this thesis focuses on. However, that year is a fairly favourable moment to embark into the exploration of the history of air and space in Europe. This first Chapter intends to give a taste of the decades preceding the development of Ariane and the EFA and it is also meant to act as the foundation around which the following chapters develop. Specifically, this first Chapter is intended to provide the reader with the '*history of the history*' I am narrating throughout the pages of this thesis.

[15] Valéry Giscard d'Estaing (1926 -), President of France from 1974 to 1981. Cfr. Frédéric Abadie and Jean-Pierre Corcelette, *Valéry Giscard d'Estaing* (Nouveau Monde Editions, 2009); Valéry Giscard d'Estaing, *Le pouvoir et la vie* (Compagnie 12, 2004); Valéry Giscard d'Estaing, *Valéry Giscard d'Estaing: entretien avec Agathe Fourgnaud* (Flammarion, 2001).

[16] Valéry Giscard d'Estaing and Helmut Schmidt, *Europa: La Dernière Chance de l'Europe* (XO, 2014), 183.

I. Looking West: from the European Defence Community to the Western European Union

a. The establishment of the Western European Union in the post-war period

In 1948, the British Secretary of State for foreign affairs Ernest Bevin stated that a more cooperative and secure Europe "can only be [reached] by creating some form of union in Western Europe, whether of a formal or informal character". Bevin considered that, indeed, "this need not take the shape of a formal alliance […] It does, however, mean close consultation with each of the Western European countries".[17] The French government welcomed the idea, and assumed that an integrated defence system would allow France to solidify its influence in Europe as well as in the West German restructuration and eventual rearmament process.[18] Ultimately, such an initiative was expected to increase European security and decrease Europe's dependence on the United States.[19]

In March 1948, France, the United Kingdom and the Benelux countries signed the Brussels Treaty on mutual defence that established the Western Union and the very next year they signed—along with Italy—the North Atlantic Treaty, one of the most important international agreement of the time that led to the establishment of the North Atlantic Treaty Organization (NATO).[20]

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[17] David H. Stauffer et al., eds. Foreign Relations of the United States [hereafter FRUS], 1948, Western Europe, Volume III. Washington: Government Printing Office, 1974, 5.

[18] Elena Calandri, 'The Western European Union Armaments Pool: France's Quest for Security and European Integration in Transition, 1954-55', *JEIH Journal of European Integration History* 22, no. 1 (1995); Antonio Varsori, *Il Patto Di Bruxelles (1948): Tra Integrazione Europea e Alleanza Atlantica* (Bonacci, 1988).

[19] John Krige, *American Hegemony and the Postwar Reconstruction of Science in Europe* (MIT Press, 2006); Antonio Varsori and Elena Calandri, *The Failure of Peace in Europe, 1943-48* (Palgrave Macmillan, 2002).

[20] Tomáš Valášek, *France, NATO and European Defence*, Policy Brief (Centre for European Reform) (London: Centre for European Reform, 2008); John C. Milloy, *The North Atlantic Treaty Organization, 1948-1957: Community or Alliance?* (McGill-Queen's University Press, 2006); Carol Edler Baumann and Committee on Atlantic Studies,

Consequently the division between Eastern and Western Europe, the future of the newly created Federal Republic of Germany (FRG) was discussed in May at the Western's Foreign Minister's meeting in London. The FRG was indeed a pivotal asset in the minds of Americans and Western Europeans policy makers who wanted to prevent an alliance with the Communists through a political, economic, but also military integration into the West. It goes without saying that Soviet Union was completely against this idea. France on the other hand decided to play upon the momentum and to bond Germany to Western Europe. The French Minister of Foreign Affair, Robert Schuman, proposed his notorious Schuman Plan, namely the establishment of a single authority to control the pool of production and development of steel and coal resources in France and FRG. [21] The European Coal and Steel Community (ECSC) was formed following the Treaty

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eds., *Europe in NATO: Deterrence, Defense, and Arms Control* (New York: Praeger, 1987); North Atlantic Treaty Organization, *The North Atlantic Treaty Organisation: Facts and Figures.*, Tenth edition. (NATO Information Service, 1981); Escott Reid, *Time of Fear and Hope: The Making of the North Atlantic Treaty, 1947-1949* (McClelland and Stewart, 1977); Arthur L. (Arthur Lehman) Goodhart, *The North Atlantic Treaty of 1949* (Brill, 1952).

[21] In HAEU, Jean Monnet Duchêne Sources, JMDS.A-07 Schuman Plan; see: Nuno Severiano Teixeira and Ana Santos Pinto, *European Defence in Times of Austerity: The Case of Southern*, EUI Working Papers. RSCAS PP, 2014/08 (Florence: European University Institute, 2014); Nuno Severiano Teixeira and Robert Schuman Centre, *European Defense: Past Legacy, Present Challenges, Future Challenges* (European University Institute, 2012); Sylvain Schirmann, *Quelles Architectures Pour Quelle Europe?: Des Projets d'une Europe Unie à l'Union Europeéenne, 1945-1992: Actesdes Deuxièmes Journées d'étude de La Maison de Robert Schuman, Metz, 9, 10 et 11 Mai 2010*, Publications de La Maison de Robert Schuman. Etudes et Travaux 2 (Bruxelles: Peter Lang, 2011); Andreas Wilkens, *Le Plan Schuman Dans l'histoire : Intérêts Nationaux et Projet Européen* (Bruylant, 2004); Andrea Sampoli and Università degli studi di Siena Facoltà di scienze politiche, *Germania e Gran Bretagna Di Fronte al Piano Schuman* (Università degli studi di Siena, 2001); William I. Hitchcock, *France, the Western Alliance, and the Origins of the Schuman Plan, 1948-1950.*, 1997; A. W. Lovett, *The United States and the Schuman Plan. A Study in French Diplomacy 1950-1952*, 1996; Edmund Dell, *The Schuman Plan and the British Abdication of Leadership in Europe*, 1995; Paolo Emilio Taviani, *Il Piano Schuman.*, 3 edizione. (s n, 1957); Paul

of Paris signed by six countries in 1951.[22] In 1950, another significant move came from Paris. The French Prime Minister, René Pleven, suggested the creation of a European Defence Community that would include West Germany.[23] The so-called Pleven Plan was proposed by the French out of resentment for the United States' desire to rearm Germany, to strengthen its influence and the Cold War front against the Soviet Union. The Plan was clearly designed with a supranational character. In the Plan it was anticipated a European Minister of Defence would be appointed and who would answer directly to a Council of Ministers and to an Assembly. These bodies would exercise their

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Reuter, *Le Plan Schuman* (Brill, 1953); Robert Schuman, *Origines et Elaboration Du 'Plan Schuman'* (De Tempel, 1953).

[22] André Tavernier and Francis Balace, *L'idee de La CECA, : [Communauté Européenne Du Charbon et de l'acier, de Par Sa Nécessité] : Lodoïs Tavernier Un Pére de l'Europe Oublié* (Avant-Propos, 2014); Franco Piodi and European Parliament Archive and Documentation Centre, *From the Schuman Declaration to the Birth of the ECSC: The Role of Jean Monnet.* (Publications Office of the European Union, 2010); Piodi and Centre; Lorenzo Mechi and Università degli studi di Firenze Facoltà di scienze politiche, *La Politica Sociale Delle CECA, 1950-1957.* (Università degli studi di Firenze, 1995); John Gillingham, *Coal, Steel, and the Rebirth of Europe, 1945-1955: The Germans and French from Ruhr Conflict to Economic Community* (Cambridge University Press, 1991); European Coal and Steel Community High Authority, *CECA 1952-1962 : Resultats, Limites, Perspectives.* (Services des publications des CE, 1963); Max Kohnstamm, *The European Coal and Steel Community*, 1957.

[23] René Pleven (1901-1993) was Prime Minister of France from 1950 to 1952. On René Pleven see Eric Duhamel, Pleven et Mitterrand, 1995; For his writings see Christian Bougeard, René Pleven : un Français libre en politique (Presses universitaires de Rennes, 1994); René Pleven, La'union europeenne : Une construction continue et irreversible. (Centre de recherches europeennes, 1984); René Pleven, France in the Atlantic Community, 1959; On the EDC see Victor Gavin, «Power through Europe? The case of the European Defence Community in France (1950–1954)», French History 23, n. 1 (1 marzo 2009): 69–87, https://doi.org/10.1093/fh/crn065; Michel Dumoulin, a c. di, La communauté européenne de défense, leçons pour demain?: The European defence community, lessons for the future?, Euroclio, no 15 (Brussels ; New York: P.I.E.-Peter Lang, 2000); Edward Fursdon, The European Defence Community: a History (Macmillan, 1980).

power over a European army and were financed through a common budget from the member states. This structure was the skeleton of the future defence community.

The EDC was seemingly brought on the way to its establishment on 27 May 1952 with the signing of the Paris Treaty establishing the EDC. However, de Gaulle—who was in favour of a European defence cooperation—saw the EDC marked by a strong Atlanticism that was "a likely prelude to the subjugation of Europe by the United States" and loss of independent sovereignty.[24] This perception made him fight against the EDC project, despite he was no longer in power. Therefore, shortly before the treaty enactment, the French National Assembly rejected its ratification in August 195[25] In fact, it was precisely the highly advocated supranational character of the EDC that was problematic for Paris. According to Paolo Emilio Taviani, Italian Defence Minister in 1954:

> The EDC was too cumbersome, it had major shortcomings and it sacrificed national sovereignty. Western European Union (WEU) is rearming Germany and so is making a powerful contribution to Europe's security without the unwieldy apparatus and serious drawbacks of the EDC. It is therefore very fortunate that the EDC collapsed and WEU has been set up. […] WEU is therefore making western Europe more secure and helping to consolidate its internal solidarity.[26]

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[24] Eric Anceau, 'De Gaulle and Europe', *Encyclopédie Pour Une Histoire Nouvelle de l'Europe*, 2016; Arnold Kanter, *The European Defense Community in the French National Assembly: A Roll Call Analysis*, 1970, 224; Simon Serfaty, *France, De Gaulle, and Europe; the Policy of the Fourth and Fifth Republics toward the Continent.* (Johns Hopkins Press, 1968).

[25] Kanter, *The European Defense Community in the French National Assembly*.

[26] In Paolo Emilio Taviani, *Solidarieta Atlantica e Comunita Europea.*, 5 edizione. (Le Monnier, 1967), 289; See also Paolo Lingua, *Colloqui Con Paolo Emilio Taviani, 1969-2001* (De Ferrari, 2010); Simonetta Bartolozzi Batignani,

The limited sovereignty Taviani was referring to, and that would derive from the EDC, was among the biggest fears in France. Moreover, Paris worried also about the consequential diminishment of influence on its colonies and the feeling of loss of national identity in the army. After this early failure, the British Foreign Office rushed to offer an alternative concept of defence cooperation that would include Germany and Italy through an extension of the Brussels Treaty, signed in March 1948.[27] The British Prime Minister, Anthony Eden, acted on the frontline in order to modify the Brussel Treaty towards a new path for the European defence, without excluding the transatlantic ally.[28] As a result, the WEU was formally established in October 1954 by the Paris agreement—otherwise known as the Modified Brussels Treaty (MBT).[29] It included two new members, namely Italy and West Germany, the latter of which also joined NATO in 1955 after several years of French

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Dai Progetti Cristiano-Sociali Alla Costituente : Il Pensiero Economico Di Paolo Emilio Taviani (1932-1946) (Le Monnier, 1985).

[27] In TNA, Cabinet (hereafter CAB) 129/70/30: C(54) 280, Memorandum: 'Alternatives to the European Defence Community', Note by the Secretary of State for Foreign Affairs, Anthony Eden, From Foreign Office to Her Majesty's (H.M.) Representatives at Bonn, Washington and Paris, 1 September 1954. See also Gavin, 'Power through Europe?'; Dumoulin, *La Communauté Européenne de Défense, Leçons Pour Demain?*

[28] Robert Anthony Eden (1897-1977) was a British Conservative politician. He served as Foreign Secretary and then as Prime Minister from 1955 to 1957.

[29] The MBT was signed by P.-H. Spaak (BE), P. Mendes-France (FR), K. Adenauer (FRG), G. Martino (IT), Jos. Bech (LUX), J.W. Beyen (NL), A. Eden (UK).

obstructionism.[30] Through the MBT, the Assembly of the WEU was established as one of the earliest fora where the Western European states could discuss security and defence issues.[31]

The official aim of this institution was to foster peace and security while promoting the European integration process. Yet, it swiftly was given a double role: first, to contribute to the prevention of hypothetical German revanchism—feared especially by France that even proposed a supranational armament community—by coordinating and debating German military policies in the WEU.[32] Second, to cooperate with NATO, which was expected to fulfil all defence obligations, from sharing strategic information to participating in external actions.[33] The MBT itself did not contain any provisions on the organisation of defence against external threats or the future order in Europe. Nevertheless, the WEU members constantly discussed these issues. Indeed, parts of the Treaty were intentionally left ambiguous – under the pressure of the British delegation – to avoid undermining the influence of the US in Europe. This lack of concrete provisions in the Treaty gave the WEU a sort of hybrid nature, bringing together in the same forum Cold War issues and European integration ambitions. Due to this fuzzy character, the WEU provided a space for its

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[30] Rohan, *The Western European Union*, chap. 1; G. Wyn Rees, *The Western European Union at the Crossroads: Between Trans-Atlantic Solidarity and European Integration* (Boulder, CO: Westview Press, 1998), chap. 1; Calandri, 'The Western European Union Armaments Pool: France's Quest for Security and European Integration in Transition, 1954-55', 38–43; Paul Borcier, *The Assembly of Western European Union: Its Contribution to the Defence and Building of Europe since 1955* (Paris: Office of the Clerk of WEU, 1975).

[31] See also the 'Armaments Agency Project' in Calandri, 'The Western European Union Armaments Pool: France's Quest for Security and European Integration in Transition, 1954-55', 43–46.

[32] Calandri, 'The Western European Union Armaments Pool: France's Quest for Security and European Integration in Transition, 1954-55'.

[33] Modified Brussels Treaty, Protocol I, Article IV. http://www.weu.int/Treaty.htm

members to discuss their own cooperation, within Europe and beyond NATO, without compromising the Atlantic Alliance.

Hence, following this ambiguous design for more than sixty years, the WEU Assembly functioned as a unique forum bringing together several Western European delegations to discuss diplomatic, political, and institutional topics ranging from Europe's energy independence to the Strategic Defence Initiative, the missile defence system for the Atlantic Alliance proposed by US President Ronald Reagan.[34] Indeed, the WEU was able to mitigate tensions, for instance in industrial (dis)agreements and defence cooperation within Europe and within the larger transatlantic framework, by taking an intermediary position and by bringing together the divergent interests of national governments concerning defence and sovereignty issues. Eventually, compromises became the mainstay of the organisation's methods and its *raison d'être*, particularly during the multi-faceted transatlantic crises of the 1970s, which intensified the Western European governments' lack of confidence in US management of economic problems.[35] The simmering European acrimony was partly a mirror of European power struggles with the United States that was reverberating also on the industrial and technological markets, amongst others in the area of aeronautics. Specifically, the Assembly of WEU was the place used by the European delegates to debates on the cooperation in air and space (Ch. 2 and 4). This is where with all probability, in 1973, the first official talks about the future European fighter aircraft came into existence and led to development of the Eurofighter. In this area, the WEU Assembly's *modus operandi* revealed itself to be particularly efficient in the

[34] Robert Lifset, *American Energy Policy in the 1970s* (Norman: University of Oklahoma Press, 2014); James Graham Wilson, *The Triumph of Improvisation: Gorbachev's Adaptability, Reagan's Engagement, and the End of the Cold War* (Ithaca: Cornell University Press, 2014); Steven F. Hayward, *The Age of Reagan: The Conservative Counterrevolution: 1980-1989*, Reprint edition (New York: Crown Forum, 2010).

[35] Finn Laursen, *The EU, Security, and Transatlantic Relations*, Euroclio. Etudes et Documents, no 30 (New York: P.I.E. Peter Lang, 2012).

long run, but not without NATO's supervision and the experiences of the previous attempt of armaments harmonisation, especially from the 1950s.[36]

b. Air: Life before EFA

In 1921 the French aircraft engine manufacturer engineer Gnome & Rhone bought the patent to build the engine Jupiter 400 CV from its British counterpart, Bristol Aeroplane Company.[37] The Bristol engine, so-called Cosmos Jupiter, was designed at the end of First World War and was extensively used in Europe becoming one of the finest examples of its kind.[38] While the history of aircrafts and its components is wide and abundant, in this section the light will be shed on the predecessors of the European Fighter Aircraft—namely fighter combat aircrafts that have been developed in cooperation between European countries.[39] Before the development of EFA and

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[36] Calandri, 'The Western European Union Armaments Pool: France's Quest for Security and European Integration in Transition, 1954-55', 60.

[37] Quoted in Droit, 'L'European Fighter Aircraft', 104.

[38] Cosmos Jupiter was designed as a nine-cylinder single-row piston radial.

[39] Mauro Elli, *Detente and beyond Anglo-Romanian Relations in the Aviation Industry (1966-1993)* (P.I.E Peter Lang, 2018); International Institute for Strategic Studies, 'Cloudy Prospects for Europe's Combat Aircraft Makers', *Strategic Comments* 18, no. 6 (1 August 2012): 1–3; Alan P. Dobson, *Globalization and Regional Integration: The Origins, Development and Impact of the Single European Aviation Market*, Routledge Studies in the Modern World Economy 68 (London: Routledge, 2007); Jeffrey A. Engel, *Cold War at 30,000 Feet: The Anglo-American Fight for Aviation Supremacy* (Cambridge, Mass. ; London: Harvard University Press, 2007); Scott W. Palmer, *Dictatorship of the Air Aviation Culture and the Fate of Modern Russia* (Cambridge University Press, 2006); William M. (William Matthew) Leary, *From Airships to Airbus : The History of Civil and Commercial Aviation.* (Smithsonian Institution Press, 1995); Peter Fritzsche, *A Nation of Fliers German Aviation and the Popular Imagination* (Harvard University Press, 1992); Henri A. Wassenburgh, *External Aviation Relations of the European Community: Includes the Proceedings of Two Mock Negotiations by the'European Commission' with*

Airbus, the aeronautic cooperation in Europe, has always been characterised by bi- and trilateral agreements between European industries, or with the United States.[40] Industrial cooperation in the aeronautic sector has often been a key driver of economic growth and a solution for job creation. For this reason, starting from the end of the Second World War, the attempts of industrial collaboration between European countries were increasing.[41] The aeronautic field, especially the military one, was, and still is, a strategic tool for the biggest countries in Europe.[42] Indeed, the

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Respectively the 'USA' and 'Czechoslovakia' (Deventer: Kluwer, 1992); Alan P. Dobson, *Peaceful Air Warfare : The United States, Britain, and the Politics of International Aviation* (Clarendon Press; Oxford University Press, 1991); Christer Jönsson, *International Aviation and the Politics of Regime Change* (Pinter, 1987); Barry Bluestone, Peter Jordan, and Mark Sullivan, *Aircraft Industry Dynamics: An Analysis of Competition, Capital, and Labor* (Boston: Auburn House Pub. Co, 1981).

[40] On Airbus see David Burigana, 'The European Search for Aeronautical Technologies, and Technological Survival by Co-Operation in the 1960s–1970s... With or Without the Americans? Steps, Ways, and Hypothesis in International History', *Humana.Mente* 16 (2011); John Newhouse, *Boeing versus Airbus: The inside Story of the Greatest International Competition in Business*, First edition. (A.A. Knopf, 2007); Douglas A. Irwin, Nina Pavcnik, and Centre for Economic Policy Research (Great Britain), *Airbus versus Boeing Revisited: International Competition in the Aircraft Market.* (Centre for Economic Policy Research, 2003); Steven McGuire, *Airbus Industrie: Conflict and Cooperation in US-EC Trade Relations* (St. Martin's Press, 1997); E. Chadeau, *Airbus, Un Succès Industriel Européen* (Paris: Rive Droite, 1996); Damien J. Neven, Paul Seabright, and Université de Lausanne Département d'économetrie et d'économie politique, *European Industrial Policy: The Airbus Case.* (Universite de Lausanne, 1995).

[41] Grabas and Nützenadel, *Industrial Policy in Europe After 1945*; Burigana, 'The European Search for Aeronautical Technologies'; Jones, *The Rise of European Security Cooperation*; Gordon Adams, *Between Cooperation and Competition: The Transatlantic Defence Market* (Paris: Institute for Security Studies, Western European Union, 2001); Luca Guzzetti et al., eds., *History of European Scientific and Technological Cooperation*, EDC Collection (Luxembourg: OOPEC, 1997); Jack Ernest Shalom Hayward, *Industrial Enterprise and European Integration : From National to International Champions in Western Europe* (Oxford University Press, 1995).

[42] Florian Seiller, 'Les négociations sur la production sous licence des avions Fouga Magister et Noratlas : un exemple concret des débuts de la coopération franco-allemande en matière d'armement dans les années 1950', *Histoire,*

industrial, technological, political, military, economic, and social outcomes of a lively aeronautic industrial policy are such that even the most resourceful governments were willing to cooperate in that sector.

Specifically, during the 1960s the major Western European countries found themselves all in need of renewing their military fleets. France, the United Kingdom, the Federal Republic of Germany, and Italy were constantly in between the Cold War dynamics and in their position between the two superpowers.[43] Acknowledging the delicate international and geopolitical arena in which the Cold War was being played, Western Europe had to readapt its own military needs accordingly. The operational requirements, as it will be shown also in the case of EFA, were complicated by national preferences and politics, but also by the characteristics of the existing fleets that were still operational. Above all, the lack of funding was at the core of the debates on the feasibility studies led by the national air staff of France, United Kingdom, FRG, and Italy. The European fleets were now facing several and different problems, they were in fact becoming increasingly vulnerable to the scenario of defence and attack that was unfolding—from the surface-to-air missiles ability to the efficiency at low latitudes with high velocity, The technological gap with the Soviet Union and the United States was such that modifying and improving the old national combat fighters was not enough in case of a new conflict. Defence and technology were not the only factors. Europeans were occupying but a little piece of the global market of the aeronautic sector. Moreover,

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économie & société 29e année, no. 4 (1 December 2010): 19–36; David Burigana and Pascal Deloge, *L'Europe Des Coopérations Aéronautiques* (Armand Colin, 2011), 37–49; James and Judkins, 'Chute Libre Avant Le Décollage'.

[43] Martin Klimke, Reinhild Kreis, and Christian F. Ostermann, 'Trust, but Verify: The Politics of Uncertainty and the Transformation of the Cold War Order, 1969–1991', Wilson Center, 24 May 2016; Engel, *Cold War at 30,000 Feet*; Audra J. Wolfe, *Competing with the Soviets: Science, Technology, and the State in Cold War America* (Johns Hopkins University Press, 2013); Lawrence Freedman, *The Cold War: A Military History*, History of Warfare (London: Cassell Military, 2001).

Europeans were mostly buying from the US and doing very poorly in selling their own products even internally. This trend was due to different factors, mainly technological superiority of the US but also the economic capabilities of each European country.[44]

In order to face the several differences with the US, and to foster its own national presence in Europe, an initial cooperation started between the French Dassault Aviation and the British Aircraft Corporation (BAC) to develop the Anglo-French Variable Geometry (AFVG). The aim of the project was a supersonic multi-role combat aircraft whose main characteristic was a variable-geometry wing, commonly known as a swing-wing.[45] British and French leaders launched the project in May 1965 signing a Memorandum of Understanding (MoU) in which the two countries stated they would jointly produce a cutting-edge combat aircraft, the AFVG, and an advanced jet trainer, the Jaguar. These efforts notwithstanding, in June 1967 Dassault and the French government withdrew from the collaboration with the British, cancelling the AFVG project, thus embarking on developing their own combat aircraft, the Mirage G, preferring a stronger and safer domestic corporation between Dassault and the national air forces. Eventually, following de Gaulle's and Pompidou's pressures for industrial policy consolidation, Dassault absorbed financially Bréguet Aviation as a consequence of the second program-law for the consolidation of aircraft industry.[46]

So far, the only exception of what seems a general preference for domestic development is that of the Jaguar. In fact, it remained for a long while the only combat aircraft developed by France in

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[44] For the percentage of the annual evolution of sales distribution of European and American aeronautical products to European aviation companies see HAEU, WEU 40 (1), doc. 674, p. 350.

[45] Marc DeVore and Moritz Weiss, 'Who's in the Cockpit? The Political Economy of Collaborative Aircraft Decisions: Review of International Political Economy: Vol 21, No 2', n.d., 511–14, accessed 7 October 2019.

[46] Edward A. Kolodziej, *Making and Marketing Arms: The French Experience and Its Implications for the International System* (Princeton University Press, 2014), 221.

cooperation with another partner.[47] The unique nature of this exceptions has led scholars to meticulously trace the reasons behind this French commitment as being linked to the firm involved, and not to the government or the national air force. Indeed, despite the traditional preference for national projects, the Jaguar was developed by Dassault's main industrial rival at home, Bréguet Aviation, together with BAC. Bréguet Aviation was not in the economic position to develop national or independent programmes—such as Dassault's—and Jaguar was its chance to produce an aircraft not only for internal use but also to be exported. However, while the Jaguar was on its way to being produced, Dassault decided to produce the Mirage F1, which was a more appetible fighter for external markets mainly thanks to its secondary ground-attack capability in comparison to the single one of the Jaguar. The limited air-to-air combat potential of the Anglo-French aircraft did not help either and, despite its successful production, the Jaguar lost a huge piece of the export markets that was now occupied by the Mirage F1. Following its loss in the market and its weakened position, Bréguet Aviation was later completely acquired by Dassault in 1971 establishing the Avions Marcel-Dassault-Bréguet Aviation (AMD-BA).[48]

In the meantime, the British were looking for new international partners to develop their swing-wing combat aircraft. The studies previously led by the air staff of Dassault and BAC on the AFVG had been indeed modified and adapted to the next programme according to the needs of the British Royal Air Force (RAF) for a national aircraft, the United Kingdom Variable Geometry (UKVG). In 1967 the Secretary of State for Defence, Denis Healey started to actively contact his counterpart of Italy and West Germany, the only two other countries in Western Europe with the financial and

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[47] DeVore and Weiss, 'Who's in the Cockpit? The Political Economy of Collaborative Aircraft Decisions: Review of International Political Economy: Vol 21, No 2', 514–17.

[48] Philippe Malaval and Christophe Bénaroya, *Aerospace Marketing Management: Manufacturers · OEM · Airlines · Airports · Satellites · Launchers* (Springer Science & Business Media, 2003), 426.

industrial capability to work on high technology.[49] Once the two countries agreed to cooperate on the production of a common aircraft, all their efforts were directed into the development of Multi-Role Combat Aircraft (MRCA), the future Tornado.[50] In only two years, in 1969, an Anglo-German-Italian consortium was funded in cooperation with the British Aircraft Corporation, Messerschmitt-Bölkow-Blohm GmbH (MBB) and FIAT Velivoli: the Panavia Aircraft GmbH.[51] Eventually, Tornado was developed during the 1970s as a fighter aircraft with a variable-geometry wing, on the base of the AFVG project, ready to be in service in the early 1980s. The project's production, as a result of a transnational shared work, took place in all three partner countries: the centre fuselage was produced by the Germans, its tail and front fuselage by the British, and its wings by the Italians. The scattered production guaranteed that the *juste retour* to the respective industries would be guaranteed and that a fair allocation of jobs maintained. Tornado was ready to fly for the first time as a prototype already in 1974 and it was planned that it would be involved in

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[49] Denis Winston Healey (1917-2015) was a British politician and member of the Labour Party. He served as Secretary of State for Defence from 1964 to 1970,

[50] France doubted whether to join the MRCA programme or not only in 1975, when its ambitious national programme, the Avion de Combat Futur (ACF), was facing several difficulties. Michael Napier, *Tornado Over the Tigris: Recollections of a Fast Jet Pilot* (Pen and Sword, 2015); Jon Lake and Mike Crutch, *Tornado: Multi-Role Combat Aircraft* (Midland Pub., 2000); DeVore and Weiss, 'Who's in the Cockpit? The Political Economy of Collaborative Aircraft Decisions: Review of International Political Economy: Vol 21, No 2', 17–18.

[51] Michael Leek, *The Panavia Tornado: A Photographic Tribute* (Pen and Sword, 2015); Erol G. Asu, *Profiles of Flight/Panavia Tornado: Strike, Anti-Ship Air Superiority, Air Defense, Reconnaissance & Electronic Warfar Fighter Bomber/Sepeeat Jaguar Tactical Support and Maritim Strike Fighter….*, 2012; Asu Erol G, *Three Profiles of Flight Combined: Panavia Tornado: Strike, Anti-Ship, Air Superiority, Air Defense, Reconnaissance & Electronic Warfare Fighter Bomber; Sepecat Jaguar: Tactical Support and Maritime Strike Fighter; and British Aerospace Hawk: Armed Light Attack and Multi-Combat Fighter Trainer Windle Dave Bowman Martin*, 2012; Dave Windle, *Profiles of Flight: Panavia Tornado* (Casemate Publishers, 2011); Andy Evans, *Panavia Tornado* (Crowood, 1999); 'Rivista aeronautica', *Ministero dell'aeronautica* 65 (1989): 58.

military operations by 1981. The success of this cooperation meant that during the 1970s, Western Europe had become an important player in the combat aircrafts industry. Concomitantly, the debates around the next European fighter aircraft were already taking place at the premises of the WEU Assembly (Ch. 4).

II. Looking Up: European Space under the Cold War Sky

After the end of the Second World War, the rivalry between the United States and the Soviet Union swiftly moved under the Cold War umbrella and changed its shape.[52] As an outcome of their competition in every aspect of life, from security to culture, from economy to technology, the two superpowers kicked off the space race era that officially started in 1957 when Sputnik 1 was launched during the International Geophysical Year.[53] It was the 4th of October when the first

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[52] Klimke, Kreis, and Ostermann, 'Trust, but Verify'; Sargent, *A Superpower Transformed*; Ennio Di Nolfo, *Storia Delle Relazioni Internazionali. II, Gli Anni Della Guerra Fredda, 1946-1990*, Manuali Laterza 350 (Roma: GLF editori Laterza, 2015); Federico Romero, *Storia della guerra fredda* (EINAUDI, 2014); Wolfe, *Competing with the Soviets*; Wolfe; Melvyn P. Leffler, *For the Soul of Mankind: The United States, the Soviet Union, and the Cold War*, First edition (New York: Hill and Wang, 2007); Ronald E. Doel, Dieter Hoffmann, and Nikolai Krementsov, 'National States and International Science: A Comparative History of International Science Congresses in Hitler's Germany, Stalin's Russia, and Cold War United States', *Osiris* 20, no. 1 (February 2005): 49–76; Richard Saull and Fred Halliday, *Rethinking Theory and History in the Cold War: The State, Military Power, and Social Revolution*, Cass Series--Cold War History, v. 2 (London ; Portland, OR: F. Cass, 2001); John Lewis Gaddis, *We Now Know: Rethinking Cold War History*, Reprint edition (Oxford: Clarendon Press, 1998); Vojtech Mastny, *The Cold War and Soviet Insecurity: The Stalin Years* (Oxford University Press, 1998).

[53] The International Geophysical Year (IGY) was an international scientific project whosw year of reference goes from the beginning of July 1957 to the end of December 1958. The IGY relaunched the scientific exchange between East and West (67 countries, People's Republic of China excluded) under the problematic Cold War scenario. Denise Lemaire, 'International Geophysical Year', in *Salem Press Encyclopedia* (Salem Press, 2019); Ian Ridpath, *International Geophysical Year*, 2018; Yanek Mieczkowski, *Eisenhower's Sputnik Moment: The*

artificial satellite was launched from a deserted area of the Kazakh Soviet Socialist Republic, today's Kazakhstan. The radio beacon carried into orbit by Sputnik 1 was able to receive radio stations from the United States, and during the twenty-one days of its mission, the Soviet satellite had an enormous impact on the Cold War dynamics. In fact, the USSR was proclaiming the whole world that it was second to no one.[54]

Initially, the United States were devastated by the news of the Soviet accomplishment in the quasi-unknown realm of space. However, Sputnik became a catalyst for several new observations and research in space. Hence, the International Geophysical Year was a moment in which the competition for scientific innovation led to the establishment of international epistemic communities, but also space agencies.[55] It was in October 1958 that the American National Aeronautics and Space Administration (NASA) became operational and the space race between the two superpowers transformed into a long-lasting competition — from the first (Soviet) man to

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Race for Space and World Prestige (Cornell University Press, 2013); Christy Collis and Klaus Dodds, *Assault on the Unknown: The Historical and Political Geographies of the International Geophysical Year (1957–8)*, 2008; Martin J. Collins et al., *A Spacefaring Nation: Perspectives on American Space History and Policy* (Smithsonian Institution Press, 1991), 77–82; Lloyd Viel Berkner, *The International Geophysical Year, 1957-1958: A Pattern for International Cooperation in Research*, 1957; United States National Committee for the International Geophysical Year, *Proposed United States Program for the International Geophysical Year* (National Academies, 1956).

[54] Rip Bulkeley, *The Sputniks Crisis and Early United States Space Policy: A Critique of the Historiography of Space* (Macmillan, 1991), pt. 1; Hervé Moulin and Nathalie Tinjod, eds., *La France et l'Europe Spatiale, 1957-1972: Troisième Rencontre de l'IFHE Sur l'Essor Des Recherches Spatiales En France, Paris, France, 30-31 Octobre 2003.* (Institut Français d'Histoire de l'Espace, 2004), 23–32.

[55] Bulkeley, *The Sputniks Crisis and Early United States Space Policy*, pt. 3.

travel into outer space in 1961 to the first (American) men to land on the Moon in 1969.[56] The superpowers' accomplishments had a great influence also on the e Eastern and Western popular cultures.[57] In this unique terrestrial, lunar and spatial theatre, from 1957 to 1969, Western Europe seemed to be a mere spectator. Was it?

a. The road through the establishment of ESRO

If Western Europe were to enter the space race, or simply space, a collective action between the major countries was needed. The endeavour to reach space was, and still is, gargantuan. Pools of minds, resources, know-how, funds, technology, and innovation are only few of the ingredients necessary for such an ambitious goal. Countries like France or the United Kingdom have neither the availability nor the capability to use those ingredients. However, they also needed a political will for cooperation in space. Instead of individual countries, two physicists were the starting engines of the European cooperation in space: the Italian Edoardo Amaldi and the French Pierre

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[56] Respectively, Yuri Alekseyevich Gagarin(1934-1968) travelled in outer space with the capsule Vostok 1 on April 21, 1961; and Neil Armstrong (1930-2012) and Buzz Eugene Aldrin (1930-) landed on the Moon thanks to the Apollo Lunar Module 'Eagle' on July 20, 1969.

[57] John M. Logsdon, *Exploring the Unknown: Selected Documents in the History of the U.S. Civilian Space Program* (NASA, 2019); Roger D. Launius and Howard E. McCurdy, *NASA Spaceflight A History of Innovation* (Springer International Publishing: Imprint: Palgrave Macmillan, 2018); Neil M. Maher, *Apollo in the Age of Aquarius* (Harvard University Press, 2017); Michael G. Smith, *Rockets and Revolution: A Cultural History of Early Spaceflight* (University of Nebraska Press, 2014); Matthew D. Tribbe, *No Requiem for the Space Age the Apollo Moon Landings and American Culture* (Oxford University Press, 2014); Martin Parker et al., *Space Travel and Culture : From Apollo to Space Tourism* (Wiley-Blackwell/Sociological Review, 2009); William David Compton, *Where No Man Has Gone before : A History of Apollo Lunar Exploration Missions.* (National Aeronautics and Space Administration, 1989); Robin Kerrod, *The Illustrated History of NASA*, Anniversary edition. (Prion, 1988).

Victor Auger.[58] In spring 1959, Amaldi, inspired by the International Geophysical Year and the flourishing bond amongst the scientific communities in the US, developed the idea of a European organisation devoted to the research in space. His idea was met with overwhelming backlash from the Western European scientific community, yet Amaldi could count on the strongly favourable opinion of Auger.

The two scientists had already cooperated at the beginning of the 1950s by playing a crucial role in the foundation of the European Organization for Nuclear Research, CERN, and were now reunited to establish a new European organisation based on the same concept of cooperation, but in space.[59] The success of CERN was possible also thanks to the American technological supports, and it was no different in the case of space. In March 9-10, 1959, NASA's help was offered during the second meeting of COSPAR (International Committee for Space Research) held in The Hague.[60] What the American delegates proposed was a technical support, the launch—via

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[58] Edoardo Amaldi (1908-1989), physicist and stateman, was among the leading figure of the Italian and European scientific research of the XX century. He was one of the founding members of INFN, CERN and ESA, and was politically and academically active along his entire life. Pierre Victor Auger. 1899-1993), physicist and academic, was the first Director General of the European Space Research Organisation (ESRO). Cfr. Kazuto Suzuki, *Policy Logics and Institutions of European Space Collaboration* (Routledge, 2017), 39–84; Michelangelo De Maria, *Europe in Space: Edoardo Amaldi and the Inception of ESRO.* (ESA Publications Division, 1993).

[59] From the French: Organisation européenne pour la recherche nucléaire. J. Krige, *History of CERN, III* (Elsevier, 1996); Armin Hermann et al., *History of CERN: Launching the European Organization for Nuclear Research* (North-Holland Physics Pub., 1987); Armin Hermann, Lanfranco Belloni, and European Organization for Nuclear Research, *History of CERN: Building and Running the Laboratory, 1954-1965* (North-Holland Physics Pub., 1987).

[60] Established in 1958 by the International Science Council (ISC), COSPAR had its first international meeting in London in 1958. Among the American delegates during the second meeting at The Hague were Richard Porter, Dr. Wallace O. Fenn and Dr. Donald J. Hughes. See: COSPAR, *Information Bulletin : COSPAR.* (Pergamon Press, 2019).

American satellites—of 'reasonable' experiments presented by foreign scientists to NASA. The American interest in such endeavour emerged also from the newly established NATO Science Committee that was interested in assuring the Western presence in space by putting a European satellite in orbit. Moreover, the American presence in Europe was already strongly rooted in the armament field. For instance, the Americans were already supporting the United Kingdom's Blue Strike, making the Great Britain the only European country with the know-how and the licences to build medium-range ballistic missiles.[61]

In a decade of flourishing collaboration at the European level, symbolised and supported by the establishment of the EEC (European Economic Community) and the Euratom in 1957, the political momentum for pooling highly technological and expensive resources seemed to be ripen.[62] In 1958,

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[61] Matthew Godwin, *The Skylark Rocket: British Space Science and the European Space Research Organization 1957-1972* (Beauchesne, 2007); Moulin and Tinjod, *La France et l'Europe Spatiale, 1957-1972*, 41–42; James Eberle, Helen (Helen S.) Wallace, and Royal Institute of International Affairs, *British Space Policy and International Collaboration* (Royal Institute of International Affairs; Routledge & Kegan Paul, 1987).

[62] Anna Södersten, *Euratom at the Crossroads* (Edward Elgar Pub., 2018); Harald Badinger and Volker Nitsch, *Routledge Handbook of the Economics of European Integration* (Routledge, 2016); John Krige, *Sharing Knowledge, Shaping Europe: US Technological Collaboration and Nonproliferation* (The MIT Press, 2016); Elena Calandri, Maria Eleonora Guasconi, and R. (Ruggero) Ranieri, *Storia Politica e Economica Dell'integrazione Europea: Dal 1945 Ad Oggi* (Edises, 2015); Daniela Preda and Daniele Pasquinucci, eds., *The Road Europe Travelled along: The Evolution of the EEC/EU Institutions and Policies*, Euroclio, no. 54 (Bruxelles [Belgium] ; New York: Peter Lang, 2010); European Commission Directorate General for Research, *Euratom* (DG Research, 2007); Willem Molle, *The Economics of European Integration: Theory, Practice,Policy*, Fifth edition (Aldershot, England ; Burlington, VT: Ashgate, 2006); Marco Nuzzachi, *Origini, Creazione e Insuccesso Dell'Euratom 1955-1959.* (Università degli studi di Firenze, 2001); Riccardo Iodice, *La Nascita Dell'Euratom e La Politica Nucleare Italiana 1955-1963.* (Università degli studi di Firenze, 2001); Geir Lundestad, *Empire by Integration: The United States and European Integration, 1945-1997* (Oxford ; New York: Oxford University Press, 1998); William Walker and Royal Institute of International Affairs, *The US-Euratom Disagreement.* (Royal Institute of International Affairs, 1995); Michel Dumoulin, Pierre Guillen, and Maurice Vaïsse, *L'énergie*

the first national organism for space was created: the British National Committee for Space Research (BNCSR), a regional group inside COSPAR. Its first President was the mathematical physicist Harrie Massey.[63] Following the British example, the French established the Comité de Recherches Spatiales (CRS) one year later. The CRS was in charge of coordinating the national programmes in accordance with the French Secrétariat des recherches spatiales and developed in what would become the famous Centre national d'études spatiales (CNES) in 1961.[64] Finally, the Italians as well set up their Consiglio per le Ricerche Spaziali (CRS) inside the Consiglio Nazionale delle Ricerche (CNR), thanks to the initiatives of Amaldi and Luigi Broglio.[65]

In such a bountiful conjuncture of events in a relatively peaceful Western Europe, Amaldi and Auger—both actively supporters of a pacific use of science and technology—did not cherish the

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Nucléaire En Europe : Des Origines à Euratom : Actes Des Journées d'études de Louvain-La-Neuve, Des 18 et 19 Novembre 1991 (P. Lang, 1994); Varsori, *Il Patto Di Bruxelles (1948)*.

[63] Sir Harrie Stewart Wilson Massey (1908-1983) was Australian of origin and dedicated most of his work on atomic and atmospheric physics.

[64] Hervé Moulin and European Space Agency, *La France Dans l'espace 1959-1979: Contribution a l'effort Spatial Européen* (European Space Agency, 2006); Moulin; Moulin and Tinjod, *La France et l'Europe Spatiale, 1957-1972*; Claude Carlier and Marcel Gilli, *The First Thirty Years at CNES : The French Space Agency, 1962-1992*, English edition. (Documentation française, 1994).

[65] Luigi Broglio (1911-2001), Italian aerospace engineer and air force lieutenant colonel, was the father of the San Marco programme making Italy the third country in the world to build its own operational satellite. Michelangelo De Maria et al., *Italy in Space 1946-1988* (ESA Publications Division, 2003); Raffaella Simili and Giovanni Paoloni, *Per una storia del Consiglio nazionale delle ricerche* (Editori Laterza, 2001); Consiglio nazionale delle ricerche COSPAR, *Space Research Activity in Italy: Report to COSPAR.* (CNR, Committee for Space Research, 1976); Luigi Broglio and CNR, *La Ricerca Spaziale - Luigi Broglio, Consiglio Nazionale Delle Ricerche* (Consiglio nazionale delle ricerche, 1963).

idea of NATO establishing a European military organisation for space in the continent.[66] The sense of urgency that made them wanting to avoid NATO's shadow over Europe, was one important factor in pushing them to seize the moment and undertake a visionary project. First, Auger was defining a national research programme for outer space and upper atmosphere thanks to his position of first chair at the Comité de recherches spatiales' in France. Second, Amaldi was pushing the Italian government in the same direction while, at the same time, he took the initiative of exchanging intense correspondence with the scientific community in Western Europe. Massey was one them, but he worked also with other scientists with whom he had already worked in the past. Together they formed a strong scientific community and were at the forefront of these new effort of collaboration. Eventually, this epistemic community was joined by Amaldi himself through a memorandum in nine points entitled "Introduction to the discussion on space research in Europe" dated April 30, 1959.[67]

In his memorandum, Amaldi reminded his colleagues that up to that moment, the USSR and the USA had been the only countries able to mobilise the human and financial resources for crucial activities in the space sector. What was important, according to the Italian scientists, was that Western European countries, despite their "finest scientific traditions", have not enough potential—financially and industrially—to sustain such an effort. However, what those countries were lacking the most was the organisational component. In fact, Amaldi continued, Europeans "are bound to find it very difficult to establish themselves in this field" because the research was "destined to remain a monopoly of the United States and the Soviet Union, and […] all the countries

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[66] Cfr Lodovica Clavarino, Scienza e politica nell'era nucleare: la scelta pacifista di Edoardo Amaldi (Carocci editore, 2014).

[67] See HAEU, COPERS.A-01 "Beginning of Europe in space" and COPERS-1 "Space research in Europe". Cfr. John Krige, *Fifty Years of European Cooperation in Space: Building on Its Past, ESA Shapes the Future* (Beauchesne, 2014), 17; J-J Dordain, 'Why 1964? An Introduction by Jean-Jacques Dordain, ESA Director General', *ESA Bulletin. Bulletin ASE. European Space Agency* 2014 (1 February 2014): 3–5.

of Europe would have to remain mere spectators of the grand endeavours to the East and West of our continent."[68]

What Amaldi was suggesting in his third and fourth points was the creation of an international organisation that would pool the resources of about ten countries in order to enable the scientists of Europe to contribute to the research and eventually exploration of outer space.

> The creation of such a European Organization is essential and urgent, if we are not to have a situation, twenty years hence, where there is an unbridgeable gap, both on the scientific and on the technological and industrial plane, between the countries capable of launching vehicles through interplanetary space and those Incapable of doing so. Apart from such scientific results as were mentioned above, the launching of satellites requires and occasions extraordinary industrial development in the field of propellants, metallurgy, electronics, etc., and this development in turn has its effect on the country's entire industry. The urgency of the problem stems from the need to make sure that the existing gap between the Soviet Union and the United States on the one hand, and the countries of Europe on the other, does not widen further to the point of eventually becoming all but unbridgeable.[69]

As we can understand from Amaldi's memorandum, his appeal spanned from the growing technological gap between Europe and the US to the new exciting scientific discoveries. Eventually, it advised for a "European Space Research Organisation" (the future ESRO) devoted

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[68] In HAEU, European Preparatory Commission for Space Research, COPERS-1, Space research in Europe, p.3, April 30. 1959

[69] In HAEU, European Preparatory Commission for Space Research, COPERS-1, Space research in Europe, p.3, April 30. 1959

to science, civil purposes, and transparency only. In Amaldi's worlds, "the proposed European Space Research Organization should have no other purpose than research and should, therefore, be independent of any kind of military organization and free from any Official Secret Act."[70] The project and the idea behind it captivated the interest of the epistemic community that was now looking for an institutional umbrella under which the Organisation could be established and could flourish with legitimacy. It was in January 1960 that, during the General Assembly of COSPAR held in Nice, an informal meeting took place between the interested parts.[71] Among the participants, Massey, seemed to be enthusiastic about the project and he proposed a programme for sounding rockets to study upper atmosphere and space radiation, and a programme for the development of a European launcher – derived from Britain's Blue Streak. The British attitude presented by Massey was surprisingly in favour of a European cooperation, differently from the one regarding CERN and Euratom in which multilateral agreements were preferred over a European one.

Taking the leads of the promotion of the future ESRO, the British continued to express their interest in the project, especially in two meetings that took place among the European scientists. First, the one held in Paris at Auger's flat on February where everyone, especially Massey, confirmed the importance and interest in a joint research on space at the European level.[72] Second, the meeting held at the Royal Society of London in April. Here, about twenty scientists from ten countries of

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[70] In HAEU, European Preparatory Commission for Space Research, COPERS-1, Space research in Europe, p.4, April 30. 1959

[71] Among the participants: the French scientists Jacques Blamont and COSPAR Chairman, the Dutch Helk Van de Hulst. The informal meeting is reported in: Krige, *Fifty Years of European Cooperation in Space*, 18.

[72] In Paris there were eight scientists, each from a different country: M. Nicolet (BE), F.G. Houtermans (CH), J. Bartels (DE), P. Auger (FR), E. Amaldi (IT), J. Veldkamp (NL), E.A. Brunberg (SE), H.S.W. Massey (UK). The list can be found in the letter written by Auger to Amaldi in Amaldi Archive, Box 270, Spazio Europa – Corrispondenza e Relazioni, 1960,1962, February 16, 1960.

Western Europe and Australia, gathered to discuss more in detail how to achieve their ambitious project.[73] During the meeting three main points were discussed: first, the cooperation based on pre-existing national programmes and facilities; second, a research space programme based on common funds; and third, how to proceed in order to launch and then develop the project.

Once the first two point were discussed, and the national preferred programs were pointed out—such as the development of launchers and satellites—the third and more pragmatic point was left to be solved. In fact, now that the scientists were on board, governments were the ones that had to be convinced to bind themselves into a supranational and expensive cooperation. In order to do so, a more official and reliable non-governmental body was needed to introduce a solid proposal to the European governments. This is when Auger proposed that the whole group of scientists would establish and form a European Space Research Group that would conduct technical and scientific research to define the areas in which European cooperation could effectively take place. At the end of the meeting, Auger set up a task force that would work on the establishment of such a group. Eventually, the GEERS (Groupe d'études européen pour la cooperation dans le domaine des recherches spatiales) was established in June 1960 during another meeting.[74] This group was chaired by Massey, as yet another confirmation of the British interest in the European cooperation

[73] Australia was a strategic member of ESRO because the British hope they could use the area of Woomera as spaceport for the European programmes. The Royal Society of London for Improving Natural Knowledge was founded on November 28, 1660 and approved by King Charles II. The presents scientists were: L.M. Malet (BE), M. Golay (CH), F.G. Houtermans (CH), E. Ehmert (DE), R. Lust (DE), K. Thernoe (DK), P. Auger (FR), J. Blamont (FR), E. Amaldi (IT), L. Broglio (IT), H.S. van der Maas (NL), J. Veldkamp (NL), H.C. van de Hulst (NL), R. Rosseland (NO), E.A. Brunberg (SE), W. Hodge (UK), R.L.F. Boyd (UK), A.W. Lines (UK), D.C. Martin (UK), J.A. Ratcliffe (UK), M.O. Robins (UK), R.L. Smith-Rose (UK). The list can be found in HAEU, Jean Mussard, JM-1, Origines de la COPERS I, April 1960.

[74] B. Landheer, Annuaire Européen (Springer, 2013), 156.

in space, and was composed by some of the brightest and influential minds of Western Europe, among which Auger, Amaldi and Luigi Broglio.[75]

In October 1960, GEERS called for a first meeting at the Royal Society in London. Thirty-six experts attended the meeting, most of whom were British and French, and were then divided in five working groups.[76] These groups produced different reports that were then made into a first draft of the document containing the administrative and technical needs of the organisation, but also its aims and applications. The final official document was later submitted to high-level officials of the respective governments that were to meet between November and December of that year at CERN, in Meyrin, Geneva.[77] After five months since its establishment, GEERS' work was completed. During this meeting, the need for a new temporary body was felt and the officials agreed on the establishment of COPERS, Commission préparatoire d'études et de recherches spatiales.[78] This commission had been agreed on taking the distance from the original idea of Amaldi and Auger. In fact, COPERS would have not conducted its study towards what was Amaldi's first idea, namely a single agency that would aim at a comprehensive European space effort. The final decision was that satellites and launchers had to be dealt separately, in different bodies.

The reasons behind such a steering manoeuvre were several. First, the participants, mainly scientists, feared that the study and development of a launcher would have drained all the human and financial resources, taking them away from other studies. Second, some of the smaller

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[75] Chairman: H. Massey (UK); Executive Secretary: P. Auger (FR) Secretary; Vice-chairmen: M. Golay (CH), L. Broglio (IT) and L. Hulthén (SE).

[76] Nine participants were from Britain and eight were from France.

[77] In HAEU, Jean Mussard, JM-3, Origines de la COPERS III, October 1960

[78] See HAEU, Jean Mussard, JM-5 Accord de Meyrin, December 1960; HAEI, COPERS-14 Intergovernmental Conference on Space Research, Geneva, from November 28 to December 1, 1960.

countries could not assure their participation in funding expensive projects such as a launcher but wanted to participate firmly in the other studies on outer space. Third, the French and British interests in building a heavy launcher bringing along all the inevitable military connotations were too strong to be ignored.[79] The same military implications Auger and Amaldi had toned down since the very beginning. These three reasons were among the strongest drivers that pushed towards a division of jobs that were fostered by the awareness of the American launchers' availability to launch applications satellites. The disagreements on the separation issue were such that the delegates agreed that Meyrin was not the place to find a common solution. Meyrin was the place where two different space organisations' foundations were laid: one intended to the development of launchers only, the European Launcher Development Organisation (ELDO), and one to pure space research, the European Space Research Organisation (ESRO).

Eventually, on March 13-14, 1961, the members of COSPAR had their first meeting in Paris.[80] The members set up two working groups whose task was to draft a document that would later become the convention of ESRO after governments' approval. The two working groups were working on the technical and administrative framework of the organisation, as it was clearly stated in their names: Scientific and Technical Working Group (STWG), and Legal, Administrative and Financial Working Group (LAFWG).[81] In October 1961, the draft convention prepared by STWG and LAFWG was presented in the fashion of a 77 pages long "Blue Book" that was signed by the

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[79] For the debates among the officials at Meyrin see: Agency, A History of the European Space Agency, 1958-1987, Vol. I, 35–39.

[80] In HAEU, COPERS-395 1, Paris, March 13 and 14, 1961.

[81] The structure of ESRO was very similar to the one already experimented for CERN: a Council, two advisory bodies, the Administrative and Finance Committee (AFC) and the Scientific and Technical Committee (STC), a Launching Programme Advisory Committee (LPAC) with six subgroups, such as Atmospheric Structure (ATM), Ionospheric and Auroral Phenomena (ION), Solar Astronomy (SUN), Moon, Planets, Comets, and Interplanetary Media (PLA), Stellar Astronomy (STAR), and Cosmic Rays and Trapped Radiation (COS).

governments' delegates in June 1962. On March 13, 1964 the ESRO Convention was ratified by its members (except Italy that was parallelly arranging agreements with the US) and signed on March 20.[82] Under the direction of Auger who was appointed Director General (DG) from 1964 to 1967, ESRO finally became a reality.[83]

b. The road through the establishment of ELDO

In the previous section, we have seen how, in December 1960, the epistemic and political communities had set up two different bodies for space activities.[84] ESRO would conduct research on space and science via peaceful purposes, while ELDO would study the development of a launcher, child of the Anglo-French interests in technological and strategic goals. Once the division was clear to everyone involved, parallel negotiations started on the establishment of the two organisations. Leading actors in the establishment of ELDO were London and Paris. The interests

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[82] ESRO member: Belgium, Denmark, France West Germany, Italy, the Netherlands, Spain, Sweden, Switzerland, and the United Kingdom

[83] For the following years of ESRO see Krige, *Fifty Years of European Cooperation in Space*, chaps 2-5-6-7-8-9–10; Agency, *A History of the European Space Agency, 1958-1987, Vol. I*, chap. 2; Arturo Russo and European Space Agency, *The Definition of ESRO's First Scientific Satellite Programme (1961-1966)* (ESA Publications Division, 1992).

[84] For the following years of ESRO Krige, *Fifty Years of European Cooperation in Space*, chap. 3; Agency, *A History of the European Space Agency, 1958-1987, Vol. I*, chaps 3, 4, 11; Michelangelo De Maria and European Space Agency, *The History of ELDO. Part 1, 1961-1964.* (ESA Publications Division, 1993); John Krige and European Space Agency, *The Launch of ELDO.* (ESA Publications Division, 1993).

of both their governments was the development of a launcher able to place European heavy satellites into orbit—without constantly relying on the American rockets and conditions.[85]

Already in the mid-1950s, the British had started to develop a medium-range ballistic missile, the Blue Streak.[86] However, the project had rapidly become obsolete in comparison with the American counterparts and was therefore abandoned before entering production in April 1960. The Blue Streak might have not been the most suitable missile for military purposes, but it could have been translated into a civilian project (a satellite launcher) and neither the national prestige, nor the budget would have been impacted negatively. However, shifting the project from military to civil aim meant pooling more money into the latter when a significant amount of it had already been devoted to ESRO and its civilian activities. Among many oppositions to the shift, the scientific advisers were proposing to invest the Blue Streak budget to develop more specialised instrumentation and satellites to place thanks to the American launchers' availability.[87] The only alternative for the British seemed to pave the way for a Europeanisation of their launcher by looking to their continental partners—France especially. Therefore, in September 1960, the British Minister of Aviation, Peter Thorneycroft, invited Paris to participate in the production of a European launcher.[88] According to the British, this launcher would have three stages, the first of whom

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[85] Godwin, *The Skylark Rocket*.

[86] Lewis Betts, *Duncan Sandys and British Nuclear Policy-Making* (Palgrave Macmillan UK : Imprint: Palgrave Macmillan, 2016), chap. 6; Richard Moore, *Bad Strategy and Bomber Dreams: A New View of the Blue Streak Cancellation.*, 2013; Ian Clark, *The Politics of the Blue Streak Programme*, 1994; Kevin Harrison, *From Independence to Dependence: Blue Streak, Skybolt, Nassau and Polaris.*, 1982; Charles H. Martin and Thomas E. Barry, *The Blue Streak.*, 1976.

[87] Among whom was the British chief scientific adviser, Sir Solomon Zuckerman (1904-1993)-

[88] George Edward Peter Thorneycroft (1909-1994), member of the Conservative Party, served as British Chancellor of the Exchequer between 1957 and 1958, then as Minister of Aviation from 1960 to 1962 and finally as Secretary of State for Defence until 1964.

composed by the Blue Streak.[89] In order to find an agreement with the French, who wanted to be in charge of the second stage of the rocket, Thorneycroft had to fly to Paris on December to discuss the sensitive military information that had to be shared and the cost of such a plan, especially if it was to remain a bilateral cooperation only.

Hence, to solve the budget issue, London and Paris decided to meet in Strasbourg on January 30 with the delegates of the potential participant countries—namely Austria, Belgium, Denmark, West Germany, Italy, the Netherlands, Norway, Spain, Sweden, and Switzerland. The delegates were presented with a document that would introduce an organisation to be established with the aim of developing the European rocket—first stage Blue Streak, second stage a French rocket, and third stage to be manufactured on the continent by the other members. The countries with the largest industrial capacity, West Germany and Italy, were also the ones to doubt the most this project. The first changed its position soon enough, especially once it obtained the American blessing to cooperate with the Europeans on a technology involving rockets. Thus, Chancellor Konrad Adenauer confirmed the German participation. On June 1961 the third stage of the European launcher was commissioned to West Germany. Italy, though, was opposing to the project for several reasons and it would turn out to be a harder nut to crack.

Comparing the position in Europe with what was being done in the United States and the Soviet Union, the Italians were not at all certain that the Anglo-French proposal would develop space technology in Europe as a conducive to technical progress. Moreover, they thought that

> Having the different stages produced by different countries. Leaving aside the political implications, this was not a sound method of organisation. […]. The problem of building, a three-stage rocket, starting from the European level of experience (which was admittedly

[89] The second stage proposed was composed by the Black Knight, still a British rocket, while the third stage is not specified in the document, in TNA, Prime Minister's Office (hereafter PREM) 11/3098, Blue Streak, July 25, 1960.

> low), was very difficult. It would not be made easier by setting up an organisation of questionable effectiveness. [90]

According to Amaldi himself, the national industries were not interested in a rocket that would be produced in four different countries, without guarantee on the outcome and perfect compatibility of the three stages, and that would become obsolete the moment it would be produced. From the Italian perspective, the French, British, and Germans were pressing Italy to invest money in a valueless scientific project.[91] Another point raised by Rome was the choice of the launcher base (Woomera, Australia) and the use of liquid oxygen instead of experimentation on cryogenic propulsion. In fact, Rome agreed on an initial use of Woomera, "but it should not become the permanent European launching base" and if they were to continue "to use liquid oxygen for the launching vehicles, a costly range would be demanded by the launching operations. For reasons, therefore, both of cost and of the complexity of ground facilities, some other solution should be found" and Italy "was sure that the conditions to make it possible could be achieved", maybe with the help of their transatlantic ally.[92]

In order to convince the Italians to join the project, the British and French organised another meeting among the ones who were in Strasbourg. On October 30, at the Lancaster House in London, it was presented the first draft of the ELDO Convention where all the technical details of the initial programme. Here, according to the summary record of the Conference

> Italy's attitude was a constructive one; they wanted to co-operate in European activities, but they also wanted the best results for the money. In the promotion of European space co-operation, Italian scientists and

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[90] In HAEU, ELDO-1, 1. Meeting of Technical Committee: London, Statement of Italy, October 31, 1961, p.3.

[91] In Amaldi Archives, Box 210, Letter from Amaldi to Adams, December 15, 1961 quoted in Krige, *Fifty Years of European Cooperation in Space*, 38.

[92] Chaired by Soufflet (FR), in HAEU, ELDO-1, 1. Meeting of Technical Committee: London, Statement of Italy, October 31, 1961, p.3.

> technicians were amongst the first. He [the Italian delegate] was ready to submit the Italian Delegation's ideas to the Conference, His Delegation did not wish to change the programme too radically. They wished to make full use of Blue Streak, the techniques developed in Prance and the Gorman proposals, but also to take into account the aspirations of all the different countries. […] He repeated that, in the Italian view, the use of Blue Streak, built in Britain, was not the best way of achieving co-operation in Europe and a stimulus to its technology. From the point of view of European prestige, Blue Streak was obsolescent. Italy was not objecting to Blue Streak from a technical point of view but as a means of fulfilling European purposes. [93]

From this statement, it was clear that the Italians were unofficially committing to ELDO—while their Prime Minister, Amintore Fanfani, was negotiating with the Americans the construction of the launch platform for an Italian project called San Marco.[94] Fearing the absence of Italy and other industries, the organiser of the Lancaster House Conference, set up a Preparatory Group that met in December 1961, defined and approved the first studies on ELDO's first launcher, Europa I (ELDO A).[95] On April 30, 1962 the ELDO Convention was therefore "signed by seven countries

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[93] In HAEU, ELDO-1, 1. Meeting of Technical Committee: London, Statement of Italy, October 31, 1961, p.4.

[94] Amintore Fanfani (1908-1999), Italian politician, served as Prime Minister for five different terms. See Angela Maria Bocci Girelli, *Amintore Fanfani : Storico Dell'economia e Statista : Economic Historian and Statesman* (FrancoAngeli, 2013); Agostino Giovagnoli and Luciano Tosi, *Amintore Fanfani e La Politica Estera Italiana : Atti Del Convegno Di Studi, Tenuto a Roma, 3-4 Febbraio 2009* (Marsilio, 2010); Istituto regionale per la storia del movimento di liberazione nelle Marche, *Fanfani e La Politica Estera.* (CLUEB, 2009); Vincenzo La Russa, *Amintore Fanfani* (Rubbettino, 2006); Piero Ottone, *Fanfani* (Longanesi, 1966). On San Marco see De Maria et al., *Italy in Space 1946-1988*.

[95] In HAEU, ELDO-42, Preparatory Group, ELDO Convention, January 1962

whose contributions, according to the scale shown in the Financial Protocol annexed to the ELDO Convention, reach a total of 88.09".[96] Australia, Belgium, France, Italy, West Germany, the Netherlands, and the United Kingdom committed themselves to develop the first European launcher, each with a specific component to build, and a share to pay for.[97]

c. Space: Life before Ariane

Following the previous section on Air (I. b), this last part aims to introduce the status of the predecessors of Ariane—namely those launchers that have been developed in Western Europe before 1973. Once ESRO and ELDO were finally established, Western Europeans could finally pursue their research in space and their intertwined cooperation (see Ch. 2 and 3).[98] As we have seen in section II. b, Europa I was ELDO's first launcher—first stage Blue Streak (UK), second stage Coralie (FR), and third stage Astris (FRG) and the first step towards a rocket produced by Europeans only. The capability of Europa 1 was to put into a low Earth orbit (of some 300-500 km) a payload of 1000 kg, namely what was needed to be able to launch ESRO's satellite, LAS (Large Astronomical Satellite).[99] The initial programme on Europa 1 was anticipated to run for the next five years for 196 MAU, a cost that was expected to rise following the necessity to meet the delegations' needs, among which the ones made by the Italians at the Lancaster House

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[96] In HAEU, ELDO-178, Signature of the ELDO Convention, May 1962, p. 1

[97] The shares were considerably different: UK: 38.79%, FR 24%, FRG 22%, IT 10%, BE 2.85%, NL 2.64%.

[98] The history of the two organisations will not be narrated in this study, but their final years and eventual creation of ESA are described in Ch. 2 along the development of Ariane.

[99] See Agency, *A History of the European Space Agency, 1958-1987, Vol. I*, chap. 6.

Conference.[100] In the meantime, the main shareholders were working to meet their obligations in the programme.

In December 1963, the British sent their Blue Streak to Australia to be tested. The following year in May, the rocket was ready to perform from Woomera in a first attempted static firings test of its engines. However, the firing test had to be delayed because of bad weather conditions until the next month and on June 2, the Blue Streak's engines stopped only three seconds before their planned firing. The reasons were unclear. Only on June 5, Blue Streak was finally launched reaching a velocity of 10,000 kph and a height of 170 km and, eventually, crashing into the Australian desert because of a propellant spilling and consequent shortage. Despite the loss of fuel and the final crash, the next launch and firing tests of the rocket were successful and the British and the Australian governments could guarantee that they were able to meet their obligations according to ELDO Convention and the initial programme on ELDO-A.[101]

France was also proceeding smoothly with some twenty static tests made on Coralie by the end of 1963 and a first complete test scheduled for mid-1965. West Germany, on the other hand, was hampered by a series of difficulties due to the absence of a space programme, and, most importantly, of a ballistic missile one.[102] First of all, Germans had to set up a governmental agency that could manage the space activities and the industries, and to act as the bridge between the FRG and ELDO and ESRO.[103] By the end of 1963, a mock-up Astris and its main engine were tested

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[100] MAU stands for Millions of Monetary Units, and 1 MAU corresponds to 1 US dollar.

[101] The following tests of Blue Streak took place on October 20,1964 and March 22, 1965, in Woomera.

[102] Niklas Reinke, Barry Smerin, and Barbara Wilson, *The History of German Space Policy: Ideas, Influences, and Interdependence 1923-2002.*, Études de l'Académie Internationale d'histoire Des Sciences Sur Les Sciences et Les Techniques Modernes. (Beauchesne, 2007).

[103] The non-profit organisation established by West Germany was called Gesellschaft für Weltraumforschung (GfW).

without problems for the usual static firings tests[104]. Lastly, Italy had the task of developing the Satellite Test Vehicle (STV). STV had the aim of studying and evaluating several data, from the conditions of the launch, the injection into orbit, the tracking and transmission of information from the satellite to the ground station.[105] Belgium and the Netherlands were also working on their share of components. The first was building a tracking and control station with a radio interferometry system for the third stage calculation of distance; and the second was designing a telemetry system to monitor the performance always of the third stage.[106]

According to the studies conducted by the members of ELDO, by 1966 the Initial Programme had to be completed. Complications and increase of costs characterised the years between the official enforcement of the ELDO Convention 1964 and the first launch of Europa 1 (with mock-up second and third stage). While the test was a success and lifted the spirits of the stakeholders, Europa I had to be greatly improved before being completely approved for further and more sophisticated development. In fact, according to the French, the Initial Programme and design of Europa I would not be able to carry the payloads agreed with ESRO and this meant that there was no chance to commercialise such a rocket. That meant that new studies were necessary in line with the most advanced research on satellites and higher costs were to be expected. Hence, a second study was requested by the French for a rocket that, differently from Europa I, had its second and third stages fuelled by liquid hydrogen, which would reduce the costs, and was able to place heavier payload, such as the geostationary satellite into orbits that ESRO was aiming at. The development of ELDO

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[104] The West German consortium Arbeitsgemeinschaft Satelliten-Trägersystem (ASAT), set up in 1961, was building Astris.

[105] The Italian industries cooperating in the STV were: FIAT, Aerfer, Montecatini and Selenia.

[106] The Belgian firms involved were Ateliers des Costructions Electriques de Charleroy (ACE), Bell telephone and Manufacture Belge des Lampes et de Matériel Electrique (MBLME). The Dutch firm working on the system was Philips.

B/ELDO PAS, also known as Europa II, started among many complaints and problems. Chief among these problems was the British withdrawal in 1968 from ELDO claiming that it was becoming increasingly expensive.

The first stage of Europa programme, Blue Streak, was replaced with the French Diamant, and the second one, Coralis, with Véronique. It was the end of the British influence over the rocket.[107] Nevertheless, the Europa programme became reality and was organised in four different projects: Europa I, Europa II, Europa III and Europa IV. On June 6, 1970, Europa I had its last flight in Woomera. Six years before that and from the same site, Blue Streak had its first launch on June 5, 1964.[108] Since that day, Woomera has seen the launches of ten rockets, mainly mock-up, from ELDO. Only one year later, on November 5, Europa II had its first unsuccessful launch in Kourou, in the French Guiana (Ch. 2).[109] Consequently, Europa III and Europa IV were cancelled even before they could be tested or developed further. Sadly, for the aspirations of the members of ELDO and ESRO, after almost ten years their project for a European launcher was aborted and in 1972, the Europa programme ended. The ELDO team was

> badly shaken by the bitter failure of the ELDO organisation, which, far more for operational and management reasons, and because of political interference in the technical side, never succeeded in placing a satellite in orbit, in spite of numerous attempts […] Yet a certain number of

[107] France Durand-de Jongh, *De La Fusée Véronique Au Lanceur Ariane: Une Histoire d'hommes : 1945-1979* (Stock, 1998).

[108] Blue Streak launches: 5 June 5, 1964, October 20, 1964, March 22, 1965, May 24, 1966, November 15, 1966. Coralie launches, August 4, 1967, December 5, 1967. Europa 1 launches: November 30, 1968, July 31, 1969, June 6, 1970. Europa 2 launch: November 5, 1971.

[109] Marion F. Godfroy, *Kourou and the Struggle for a French America* (Palgrave Macmillan UK: Imprint: Palgrave Macmillan, 2015).

> people, such as Yves Sillard and Michel Bignier, and Albert Vienne and Roland Deschamps' team, stood up at that time and said: "We can't leave it at that. We got it wrong, but we managed to build Diamant and strategic missiles. If we get organised, there's no reason why we shouldn't be able to do the same with Ariane"[110]

And so, they did. Eventually, as Ch. 2 and 3 show more in detail, the death of the launcher Europa and the crisis of the two space organisations, ELDO and ESRO, paved the way to a new single space agency and the forefather of a whole family of launchers: Ariane.

[110] In HAEU, Oral History of Europe in Space Collection (hereafter OHES), INT053, Interview with Frédéric D'Allest, p.3

Chapter 2 – Path to Independence

This chapter introduces the political, economic and organisational framework in which the European aerospace cooperation took place during the 1970s. First, it gives an overview of the political and economic situation in Western Europe. Second, it follows the description of the WEU commenced in the previous chapter, focusing on the 1970s and starts the one on the ESA, as both these intergovernmental organisations played a crucial role in the development and establishment of the cooperation in air and space at the European level. Third, it provides two cases in which the previous topics are inextricably linked to each other and with the aerospace cooperation. In fact, the examples of the Italian relations with ESA and the ones between the United Kingdom and the Trade Unions demonstrate the interconnection of several layers—economic, social, industrial, diplomatic— and different levels— national, European, and transatlantic—during the Cold War period.

III. Economic turmoil and political change in the 1970s

At the end of the 1960s, the United States were fairly pleased with the considerable political stability reached by the Western European countries.[111] However, the last two years of that decade had been characterised by a few tumultuous events on the European scene: from the notorious May and June 1968 and the resignation of the Gaulle, the first socialist government in West Germany

[111] James E. Miller and Laurie Van Hook, *Foreign Relations of the United States, 1969–1976, Western Europe; NATO, 1969–1972*, vol. XLI (Washington: United States Government Printing Office, 2012), sec. 27. National Intelligence Estimate.

led by Willy Brandt in 1969, the Italian social problems, and, lastly, the soviet invasion of Czechoslovakia.[112] What was perceived as instability and the rise of new forces in Europe, led the Americans to nourish doubts about the durability of NATO and the Warsaw Pact, and to wonder about the future development coming from the new policies adopted by the biggest European countries within the Cold War framework. In a period when Western Europe was perceived by the US as more democratic and prosperous, despite the economic instability in the UK and also political in Italy, a decade of deep transformation, at the national, European, and transatlantic level was going to become visible.

a. Western Europe and the United States

At the dawn of the 1970s, the biggest Western European governments were deeply concerned. In August 1971, the American dollar was highly overvalued as a consequence, among other factors, of the negative balance of payments and the growing public debt engendered by the Federal Reserve monetary inflation, the President Johnson's Great Society programs, and the war in Vietnam.[113] Nixon decided to act with the suspension of the convertibility of the dollar into gold making the Bretton Woods system ineffectual.[114] Western Europe, especially France and Germany,

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[112] Céline Pessis, Sezin Topçu, and Christophe Bonneuil, *Une autre histoire des 'Trente Glorieuses'* (Paris: La Découverte, 2016); Laurent Warlouzet and Comité pour l'histoire économique et financière de la France, *Le Choix de La CEE Par La France: L'Europe Économique En Débat de Mendès France à de Gaulle, 1955-1969* (Comité pour l'histoire economique et financière de la France, 2011); Laurent Warlouzet, *Quelle Europe Économique Pour La France?: La France et Le Marché Commun Industriel, 1956-1969.* (Université de Paris IV-Sorbonne, 2007); Jean Fourastié, *Les Trente Glorieuses: Ou la révolution invisible de 1946 à 1975* (Fayard, 1979).

[113] Robert L. Hetzel, *The Monetary Policy of the Federal Reserve: A History*, Studies in Macroeconomic History (Cambridge ; New York: Cambridge University Press, 2008).

[114] Peter C. Caldwell and Karrin Hanshew, *Germany since 1945: Politics, Culture, and Society* (Bloomsbury Academic, 2018); Barry Eichengreen, *Global Imbalances and the Lessons of Bretton Woods* (MIT Press, 2010);

found itself in need to fight the 'Nixon shock' back while pursuing its 'European project'. Whereas any political move or attempted policy implementation in that direction was perceived as a threat to sovereignty, economic cooperation was easily presented as win-win compromise for all parties involved. In fact, thanks to the removal of tariffs and trade restrictions, and the adoption of a policy of investment in regions in crisis and important sectors, the common purpose of an integrated Europe led by the Western European countries was taking place. In 1972, in order to find a common solution Willy Brandt, Chancellor of the Federal Republic of Germany from 1969 to 1974, and George Pompidou, President of the French Republic from 1969 until his death in 1974, launched the so-called 'Snake in the tunnel'.[115] The Snake pegged the different European currencies together, allowing a fluctuation of 2.25 percent either side of the originally approved rates.[116] This system

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Schulz, Schwartz, and London, *The Strained Alliance*; Fredrik Logevall and Andrew Preston, eds., *Nixon in the World: American Foreign Relations, 1969-1977* (Oxford ; New York: Oxford University Press, 2008); David M. Andrews, ed., *Orderly Change: International Monetary Relations since Bretton Woods* (Ithaca: Cornell University Press, 2008); Daniel Möckli, *European Foreign Policy during the Cold War: Heath, Brandt, Pompidou and the Dream of Political Unity*, First Edition edition (London: I.B.Tauris, 2008); N. Piers Ludlow, *The European Community and the Crises of the 1960s: Negotiating the Gaullist Challenge* (Routledge, 2007); Duccio Basosi, *Il Governo Del Dollaro: Interdipendenza Economica e Potere Statunitense Negli Anni Richard Nixon, 1969-1973* (Polistampa, 2006); Klein, 'Maurice Vaïsse. La grandeur. Politique étrangère du général de Gaulle. 1958-1969', *Politique étrangère* 63, no. 3 (1998): 667–70; Mr Harold James, *International Monetary Cooperation Since Bretton Woods* (International Monetary Fund, 1996); Edward L. Morse, *Foreign Policy and Interdependence in Gaullist France* (Princeton University Press, 1973).

[115] Maria Eleonora Guasconi, *L'Europa Tra Continuità e Cambiamento: Il Vertice Dell'Aja Del 1969 e Il Rilancio Della Costruzione Europea* (Polistampa, 2004); Calandri, Guasconi, and Ranieri, *Storia Politica e Economica Dell'integrazione Europea*.

[116] Hiepel and Romano, *Europe in a Globalising World*; Harold James, *Making the European Monetary Union: The Role of the Committee of Central Bank Governors and the Origins of the European Central Bank* (Cambridge, Mass: Harvard University Press, 2012), chap. 4; Varsori and Migani, *Europe in the International Arena during the 1970s*; Ferguson, *The Shock of the Global*.

collapsed the following year when the dollars started to float freely.[117] It was during this extremely critical situation that the first of the two oil shocks hit the international economy in 1973.[118]

On 23 April 1973, Henry Kissinger, national security adviser for the administration of US President Richard Nixon, delivered his Year of Europe speech to the Associated Press editors at the Waldorf-Astoria Hotel in New York City. The aim of the address was to acknowledge successes and disagreements inside the Atlantic Alliance – on economic, defence, and diplomatic issues – in order to overcome obstacles and differences among the member governments, and to proceed on a path of common interests and unity.[119] According to Kissinger, a new era was dawning, an era in which the American perception of the European countries' economic success and of their unwillingness to share the burden of a common defence became a continuous source of frictions and turmoil. While Kissinger's speech was arguably an attempt to propose renewed commitments in the Atlantic Alliance – and to deepen US influence over Europe – Western Europeans perceived it differently. European leaders had the impression of being continuously outdone by the United States – diplomatically, militarily, and economically. Furthermore, the French and British feeling of having been unable to pursue their own interests in the Middle East during the Yom Kippur War in October

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[117] The idea behind the Snake was later developed in what become the European Monetary System (EMS) in 1979, always by a Franco-German cooperation, see: James, *Making the European Monetary Union*, chap. 5; Emmanuel Mourlon-Druol, *A Europe Made of Money: The Emergence of the European Monetary System*, Cornell Studies in Money (Ithaca, N.Y: Cornell University Press, 2012).

[118] Fiona Venn, *The Oil Crisis* (Routledge, 2016); Aurélie Elisa Gfeller, *Building a European Identity: France, the United States, and the Oil Shock, 1973-1974*, Berghahn Monographs in French Studies, v. 12 (New York: Berghahn Books, 2012).

[119] Kristine L. Ahlberg & Alexander Wieland, eds. FRUS, 1969-1976, Volume XXXVIII. Washington: Government Printing Office, 2012, Part 1, Foundations of Foreign Policy, 1973-1976, Document 8. See also Address by the President's Assistant for National Security Affairs (Kissinger), Department of State Bulletin, May 14, 1973, 593-598.

1973, while being excluded from the improving relations between the US and the USSR, did not mitigate the atmosphere.[120] In fact, as we have seen, a lack of confidence in the American willingness and capacity to guide the world economy—from the end of Bretton Woods in 1971 to the first oil crisis in 1973, engendered reciprocal resentment among the transatlantic allies.[121]

The economic down-turn that characterized this period led to a combination of critical consequences, among which: rising oil prices, declining exports, structural unemployment, and inflation– especially in the UK.[122] The economic crisis was such that, coupled with the third industrial revolution the Western European countries had undergone to, little could the governments do to stop the recession.[123] In fact, the traditional manufacturing economy that had characterized Western Europe was slowly, but steadily disappearing leading to an irreversible process of job losses—with different ones to be created—along the road of services and

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[120] Umberto Tulli, *The Search for a European Identity in the Long 1970s: External Relations and Institutional Evolution in the European Community.*, 2016; Mark Duckenfield, *European-American Relations and the Middle East: From Suez to Iraq*, ed. Daniel Möckli and Victor Mauer, 2013; Maria Găinar, *Aux Origines de La Diplomatie Européenne: Les Neuf et La Coopération Politique Européenne de 1973 à 1989* (P.I.E. Peter Lang, 2012); Simon C. Smith, *Ending Empire in the Middle East: Britain, the United States and Post-War Decolonization, 1945-1973* (Routledge, 2012); Galia Golan, *Yom Kippur and after: The Soviet Union and the Middle East Crisis* (Cambridge University Press, 1977).

[121] Venn, *The Oil Crisis*; Elisabetta Bini, Giuliano Garavini, and Federico Romero, *Oil Shock: The 1973 Crisis and Its Economic Legacy* (I.B. Tauris & Co. Ltd, 2016); Gfeller, *Building a European Identity*; Eichengreen, *Global Imbalances and the Lessons of Bretton Woods*; Tony Judt, *Postwar: A History of Europe Since 1945*, Reprint edition (Penguin Books, 2006), chap. 14; James, *International Monetary Cooperation Since Bretton Woods*.

[122] Unemployment in France was 7 percent, in Italy 8 percent, and in the UK 9 percent.

[123] Michel-Pierre Chélini and Laurent Warlouzet, *Calmer Les Prix : L'inflation En Europe Dans Les Années 1970* (Sciences po les presses, 2016).Judt, *Postwar*, 458; Giuliano Garavini, *L'integrazione Europea Nel Confronto Nord-Sud: La Comunità Europea e Il Dibattito Sul Nuovo Ordine Economico Internazionale, 1964-1977.* (Università degli studi di Firenze, 2006).

technological development. This, therefore, brought with it a wave of diminished political confidence and enthusiasm, combined with protests and strikes, in the biggest Western European countries. The political consequences of such a quick social and economic change were unpredictable, and, during the second half of the 1970s, inflation appeared to many politicians as the source of greater risk than unemployment.[124] An international solution was perceived as necessary.

As we have previously seen, the 'Snake in the tunnel' had not achieved the hoped results and lasted merely two years, with Italy, the UK, and Ireland forced to withdraw from the Snake and let their currencies fall. As a solution to the problem, in 1978 Helmut Schmidt, West German Chancellor from 1974 to 1982, proposed to reframe the idea behind the Snake into a more rigid structure. Schmidt was asking that Western European governments commit themselves into a system of fixed bilateral exchanges rate bounded to a basket of currencies called European Currency Unit, the *écu*.[125] The European Monetary System (EMS) stability was to be assured by the strength of the German economy and the Bundesbank – with the Deutschmark to replace the dollar as the currency of reference. While the UK decided to not participate into the EMS in order to avoid domestic rigour in terms of monetary policy, other participants joined the project precisely to be forced into a more structured and rigid grid 'obliging' them to adopt unpopular domestic policies. This was a

[124] Duccio Basosi, Giuliano Garavini, and Massimiliano Trentin, *Counter-Shock: The Oil Counter-Revolution of the 1980s* (I.B. Tauris, 2018).

[125] Caldwell and Hanshew, *Germany since 1945*, chap. 7; Kristina Spohr, 'Helmut Schmidt and the Shaping of Western Security in the Late 1970s: The Guadeloupe Summit of 1979', *The International History Review* 37, no. 1 (January 2015): 167–92, https://doi.org/10.1080/07075332.2013.836125; Mourlon-Druol, *A Europe Made of Money*; James, *International Monetary Cooperation Since Bretton Woods*.

pivotal moment for Europe and the world, with the important consequences, such as the development of a single European currency, to be seen only later.[126]

Peter Katzenstein has defined the period that goes from 1973 to 1986 as a "sequence of irregular big bangs" because of the hectic phase of enlargement and activism of the European Community.[127] Considering his statement, we can affirm that the 1970s were a decade of political change and economic turmoil, "but to remember the 1970s only as a decade of crisis and economic stagnation misses a good deal, internationally and domestically."[128] In fact, détente led to impressive improvements in the relations between Western European countries, especially France and Germany, and between West and East Germany. This general improvement—in a decade generally seen as of one of looming crisis—is probably part of what helped France and Germany to overcome their difficulties in reaching satisfying agreements, especially on the European aerospace policy.

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[126] Laurent Warlouzet, *Governing Europe in a Globalizing World: Neoliberalism and Its Alternatives Following the 1973 Oil Crisis* (Routledge, an imprint of the Taylor & Francis Group, 2018).

[127] Ernst Otto Czempiel and James N. Rosenau, *Global Changes and Theoretical Challenges: Approaches to World Politics for the 1990s* (Lexington Books, 1989), 296.

[128] Caldwell and Hanshew, *Germany since 1945*, 171; Michael Gehler, '"Europe", Europeanizations and Their Meaning for European Integration Historiography', *JEIH Journal of European Integration History* 22, no. 1 (2016): 141–74; Giulia Bentivoglio, 'The Tentative Alliance? Britain, Italy and Participation in the European Monetary System', *JEIH Journal of European Integration History* 22, no. 1 (2016): 85–106, https://doi.org/10.5771/0947-9511-2016-1-85; Quentin Jouan, 'Narratives of European Integration in Times of Crisis: Images of Europe in the 1970s', *JEIH Journal of European Integration History* 22, no. 1 (2016): 11–28, https://doi.org/10.5771/0947-9511-2016-1-11.

IV. Air: Western European Union and Independence

Since the end of the Second World War, Western European countries have debated the possible benefits of a common defence policy (Ch. 1). Particularly since the beginning of the Cold War, there have been repeated attempts by European countries to cooperate in the development of their defence systems, based on different interests. On the one hand, the common aspiration amongst the major Western European countries, specifically France, the United Kingdom, and West Germany, was to harmonise armaments, promote efficient spending on defence capabilities, and foster a competitive industrial base between European countries. On the other hand, these countries generally feared the loss of national sovereignty for the sake of European construction and—especially in France—the rearmament of the Federal Republic of Germany, notably through the intended establishment of the European Defence Community.[129] However, after the failure of the European Defence Community in 1954, no formal mandate to proceed towards the establishment of a European defence policy was issued, and related policy ambitions fell silent until the 1970s. The WEU, as we will see in this section, became the sole institutionalised forum in which Western European countries could discuss a common European defence among themselves. This part focuses on the role of the WEU during the 1970s and its later acquired 'hybrid nature' to better understand the role it played in the European civil and military aeronautic policy up to the establishment of the European Fighter Aircraft.

a. The ambiguos role of the Assembly of Western European Union

Before delving into the role of WEU in the aeronautic sector, this section aims to describe the informal or hybrid dimension of discussions within the framework of the WEU on closer

[129] Bozo: French Foreign Policy since 1945, chapter 2.

integration in the area of defence and aeronautic policy.[130] It analyses the different manifestations of informal and hidden processes[131] that, according to Remacle, consisted in "les multiples relations que les Etats, les entreprises, les acteurs sociaux européens établissent entre eux et qui contribuent à créer des solidarités et des interdépendances non formalisés dans des institutions et/ou des traités." [132] Specifically, this section demonstrates that the WEU allowed different actors to create informal networks inside and through its Assembly.[133] Some scholars have already acknowledged and defined the character of the WEU Assembly as informal, and have traced "une convergence stratégique informelle progressive non-institutionalisée ou faiblement institutionalisée" inside the WEU.[134] However, some problems remain, and no in-depth analysis has been conducted on the peculiar character of this organisation. I believe that some important points have been left out in these initial studies that would help to answer the question: What defines the WEU as hybrid or informal? This study suggests that the precise references to the use of informality made by delegates and politicians could help us define *how* and *why* informality was sometimes preferred to formality inside a European organisation. This section investigates some of the concrete tools that were adopted by the WEU as informal leverages at the European level: defence and aeronautic industrial policies. In fact, a focus on these two issues, debated often within the Assembly, allows

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[130] Sara Venditti, *The Weu Assembly and the Aeronautic Cooperation: Italy between European Integration and the Transatlantic Temptation (1973-1985).*, 2017.

[131] Thomas J. Misa and Johan Schot, 'Introduction: Inventing Europe: Technology and the Hidden Integration of Europe', *History and Technology* 21, no. 1 (March 2015): 1–19.

[132] Eric Remacle, *La PESC, l'UEO et La CIG* (Institut d'Etudes europeennes, 1996), 135.

[133] Sara Venditti, 'The Informal Character of the Western European Union : European Defence, Industry and Integration', in *The Informal Construction of Europe* (Routledge, 2019).

[134] According to Remacle, this convergence was due to the roles played by the smaller countries in the WEU. See Remacle: 'Le Rôle de Petits Etats au sein de l'UEO' in Deighton and Remacle: The Western European Union, 71-76 and Bailes and Messervy-Whiting: Death of an Institution, 13; Rohan: The Western European Union, 18.

us also to understand more extensively the organisation, its fluidity and ambiguity at different levels, mainly political and industrial. Although informal interactions of WEU delegates and industrialists left very few traces in primary sources, such interactions can be studied through the comparison of different documents, such as records of informal and formal meetings, treaties, recommendations, and reports. In addition to such types of sources, this section builds on reports, recommendations, letters, and industrial feasibility studies, produced by rapporteurs of the WEU, Ministers of Industry and Defence, officials, industrialists, and technicians.

Informality cannot always be recorded, but it can nonetheless be traced in official documents and recommendations produced by official bodies, such as the WEU. Indeed, despite its formal nature, the WEU has often been referred to as a "reserve organisation"[135] and "an odd-job institution,"[136] being very different from other European institutions by both scholars and WEU former employees. This considerable difference between the WEU and other European bodies may partially explain why the WEU's character and role were perceived, as well as desired, to be informal by European governments. At the same time, it is difficult to draw a precise line between informal and formal spheres within the WEU. Remarkably, while informal procedures are usually either formalised over time because they prove to be efficient, abolished because they become obsolete, or replaced by more adequate procedures (informal of formal), procedures within the WEU developed to some extent very differently. In fact, the need to de-formalise institutional procedures was repeatedly highlighted both during official and informal meetings of WEU members, specifically in the field of industrial and military aeronautic discussions in the 1980s. Instead of formal procedures, unofficial and non-committal debates between delegates and governments were favoured and indeed promoted in order to influence, in a space different from the official one, the aeronautic cooperation and future debates on European defence discussing the future developments of the organisation.

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[135] Van Eekelen: From Words to Deeds, 21.

[136] Bailes and Messervy-Whiting: Death of an Institution, 9.

i. The case of the aeronautics debates and transatlantic competition during the 1970s

As we have seen in the first section of this chapter, the 1970s were a decade marked by severe disagreements between the two sides of the Atlantic, prompting both to experiment with new solutions to the problems of the era, particularly in the wake of the economic crisis ending the fortune of post-war decades of almost uninterrupted economic growth.[137] The solutions envisaged by the Western Europeans included a harmonised industrial policy with a consequently urgent renewal of the national industries, particularly in one of the most important economic sectors since the end of the Second World War: the aeronautic field.[138] In the 1970s, the WEU Assembly was the only branch of the WEU that was still active. In fact, the WEU was experiencing what has been defined as a period of "dormancy" caused by the broader development of supranational and intergovernmental cooperation within Europe and with the US during the 1960s concerning defence and security policies.[139] Despite that lethargic status of the WEU, the Assembly kept its role as active promoter of a future European identity in defence with a focus on the aeronautic industry. In this forum, national delegations led lively discussions on the standardisation of the aeronautics industries among the EEC members states, aiming at securing a stronger position on the global market in the long term, which was at the time dominated by the United States.

Debating on how to best achieve industrial harmonisation, the WEU Assembly hoped to influence the national governments' preferences through the expertise of the 'Commission Scientifique, Technique et Aérospatiale'. This was a subgroup of the Assembly, which purpose was to preserve

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[137] Del Pero and Romero, *Le Crisi Transatlantiche*; Schulz, Schwartz, and London, *The Strained Alliance*.

[138] Hiepel and Romano, *Europe in a Globalising World*.

[139] Rohan, *The Western European Union*, chap. 2.

and improve both civilian and military aeronautic technologies in Europe.[140] The idea of industrial harmonisation was boosted by attractive and far-reaching perspectives in the aeronautic market and its closely related industries, ranging from electronics to radio-technique and optronic industries. These interrelations were particularly relevant given the complexity and the linked nature of these products. Consequently, a joint programme in the aeronautic sector was expected to create benefits on a large scale for Europe, affecting employment, research and development funding, quality control and regulation, and the protection of industries and of patent rights.[141]

A blueprint of this strong commitment was already devised in September 1973 in what could be named the manifesto of the Assembly's will to improve European integration in the area of aeronautics: a colloquium on the formulation of "A civil and military aeronautical policy for Europe". The colloquium was meant to recognise and solve disagreements among WEU members, in order to overcome the current situation of "planification essentiellement nationale, un marché divisé, sans coordination, avec un trop grand nombre d'avions [...] différentes."[142] Such a diversity was considered extremely expensive. In addition, beyond national concerns, the global market was overwhelmingly monopolised by the United States as some 85 to 90 percent of cargo aircrafts sold in Europe were produced on the other side of the Atlantic.[143] The solution proposed by the WEU was the development of a common aeronautics industry that would have an impact on both the civil and military market, the latter representing "62,6% du total du chiffre d'affaires du secteur aérospatial de la Communauté, contre 70,2% aux États-Unis."[144] Moreover, US sales in Europe

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[140] Italian parliamentary acts, Chamber of Deputies, VI legislature, doc. XXI, N° 12.

[141] David T. Armitage, *A Comparative Analysis of U.S. Policy toward European Defense Autonomy: Enduring Dilemmas in Transatlantic Relations* (Lewiston: Edwin Mellen Press, 2008).

[142] In HAEU, WEU 138, A/P 6423.

[143] Adams, *Between Cooperation and Competition*.

[144] In HAEU, WEU 41(3), Annexe II, 1975, 5.

were progressively increasing to the detriment of the production in the old continent with adverse implications for the labour market in Europe.

Eventually, closer cooperation revealed to be the best cure for the weakened European aeronautics market. However, it must be said that while in the WEU Assembly most of the national delegates – politicians and industrialists – declared their willingness to fight and to oppose the American industries, the delegations' statements differed from national actions towards the US. In fact, the complicated relation of alliance and competition between Europe and the United States created a conflict of interests between the members of the above-mentioned Commission Scientifique, Technique et Aérospatiale itself. Above all, the Italian delegation preferred, in view of Italy's peculiar foreign policy evenly split between Atlanticism and Europeanism, to avoid a *choc frontal* against the United States that would have been the symptom of "une politique tout à fait [pas] réaliste" for Europe.[145]

The colloquia held at the WEU caught the interest of Altiero Spinelli, European Commissioner for Industrial, Technological and Scientific Affairs from 1970 to 1976.[146] Since there were no direct links between the WEU and the institutions of the European Communities, Spinelli took the debates held at the WEU Assembly into the European Communities in the form of his "Action Plan for

[145] In HAEU, WEU 38, 7. For the Italian Foreign Policy and Atlanticism, see Benedetto Zaccaria, *Italy in the International System from Détente to the End of the Cold War The Underrated Ally*, ed. Antonio Varsori (Springer International Publishing : Imprint: Palgrave Macmillan, 2018); Guido Formigoni, *Storia d'Italia Nella Guerra Fredda: (1943-1978)* (Società editrice Il mulino, 2016); Massimo de Leonardis, *Italy's Atlanticism between Foreign and Internal Politics*, 2011.

[146] Daniela Preda, *Altiero Spinelli e i Movimenti per l'Unità Europea* (CEDAM, 2010); Alessandra Faccini, *Altiero Spinelli : Un Italiano Alla Commissione Europea, 1970-1976.* (Università degli studi di Padova, 2009); Piero S. Graglia, *Altiero Spinelli* (Il mulino, 2008).

European aeronautics", presented at the Commission's 353rd reunion on 1 October 1975.[147] Spinelli's action plan – also called the "Schuman Plan for aeronautics" – aimed at relaunching the ailing European industry and to strengthen European integration through an integrated aircraft production, while at the same time creating a single aeronautic market capable of competing with American global predominance.[148] In concert with the WEU colloquia, Spinelli was keen to underline in his plan the lack of a coherent European programme despite the existence of numerous bi- and trilateral agreements.[149] He showed how more coordination and cooperation in the aeronautical field could produce employment and economic dynamism, despite a period of stagflation, a combination of high unemployment and high inflation. The "Schuman Plan for aeronautics" was received with enthusiasm by the members of the WEU Committee on Scientific, Technological and Aerospace Questions as a tangible result of the industrialists', politicians' and technicians' internal debates. Still, it took another decade for the Europeans to "bien comprendre que, lorsque l'Europe achète aux États-Unis des produits aéronautiques, c'est aux dépens de son économie et de son industrie aéronautique."[150]

By the end of the 1970s, the combination of the WEU's efforts and exchanges between different actors eventually brought the aeronautic issues to the attention of the European Council — thanks to Spinelli's intervention — and to one of the main European national industries

[147] Bouneau, Burigana, and Varsori, *Les Trajectoires de l'innovation Technologique et La Construction Européenne*.

[148] Burigana, 'The European Search for Aeronautical Technologies', 60–104.

[149] See WEU recommendation N° 257 adopted by the Assembly, in HAEU, WEU 39, Proceedings Vol. III, Twentieth session, second part, Assembly Document 643, 5 December 1974, Paris. Also see Borcier, The Assembly of Western European Union, 51.

[150] In HAEU, WEU 42(1), 125.

in the aeronautic field, the so-called "national champions."[151] The results were tangible.[152] At the military level, the process was slower than the civil one, but brand-new prototypes of aircraft were being designed starting from the 1970s, following the example of the Tornado programme.[153] As it is shown in Chapter 4, the most important step towards a European military aircraft was made by the French, West Germans, and British by putting together advisors from their national Air Staff departments to commence a series of feasibility studies for the development of the Future European Fighter Aircraft (FEFA), to be ready for the 1990s. Here, it is worth noting that the term 'feasibility studies' was preferred to any other military nomenclature, such as 'task force', to avoid any formal implication of such studies, which were rather intended to be a more informal and provisional

[151] According to Alina Kaczorowska-Ireland, "national champions" are "large enterprises or industries that are expected to become major international players in the relevant market, and thus governments justify protectionist measures for their champions on the basis of the need to strengthen the competitiveness of the national economy". See Alina Kaczorowska-Ireland, *Competition Law in the CARICOM Single Market and Economy* (Routledge, 2014), 216; Oliver Falck, Christian Gollier, and Ludger Woessmann, *Industrial Policy for National Champions* (MIT Press, 2011); Frank S. Benyon, *Direct Investment, National Champions and EU Treaty Freedoms: From Maastricht to Lisbon* (Hart, 2010); Hayward, *Industrial Enterprise and European Integration*.

[152] At the civil level, The Airbus programme, crown jewel of European civil aviation, began to record an increasing number of deliveries of the short- to medium-range jet airliner A300/B-10, in competition with the American Boeing's 7x7 series. The Airbus consortium gradually increased its deliveries, becoming over time the fiercest jet airliner family competitor of the American Boeing on the global market. Airbus was established in 1969 by France, the Federal Republic of Germany, and the UK, and later joined by the Netherlands and Spain. See Newhouse, *Boeing versus Airbus*; Douglas A. Irwin and Nina Pavcnik, 'Airbus versus Boeing Revisited: International Competition in the Aircraft Market', *Journal of International Economics* 64, no. 2 (December 2004): 223–45; McGuire, *Airbus Industrie*; Chadeau, *Airbus, Un Succès Industriel Européen*.

[153] The Tornado was a multi-role combat aircraft produced by the consortium Panavia, which had been established by the Federal Republic of Germany, the United Kingdom, and Italy.

inquiry.[154] The feasibility studies aimed to develop a tool that could replace the old national combat aircrafts and counter the threat represented in the three governments' view by the Soviet Union's fighter aircrafts, the Mig-29 and the Su-27, respectively Fulcrum and Flanker for NATO's nomenclature. Major problems concerning the choices on the avionics, the armaments, the engine, and the distribution of the industrial production emerged from the informal studies – as expressed during the WEU meetings. Furthermore, West Germany, and especially the United Kingdom bumped into serious budget problems that might affect their ability to contribute effectively to the development of such an aircraft. The economic adversities of the 1970s, coupled with the transformation of the political scenario, seemed to lead to a severe standstill in the development of a common fighter aircraft at the very end of the 1970s.

b. Revitalisation: a renewal of informal procedures in the 1980s

On 20 January 1981, Ronald Reagan became President of the United States, starting what he announced to be a strong mandate for economic and military change. The former governor of California called for a "crusade for freedom", bringing forth a US escalation of the Cold War against the "evil empire", i.e., the Soviet Union.[155] Moreover, given the conviction that Soviet strategic and military capabilities were surpassing the American ones at the time – a dominant conviction in the US since the Nixon presidency – the Reagan administration opted for a significant boost in defence spending. This budget increase, however, went hand in hand with tax cuts, leading to a rapid worsening of the balance of payments of the United States in the following years. The more extreme the American rhetoric became, the more estranged European leaders felt, and

[154] Another example of this choice of words is the informal 'study group' formed in 1991 by Canada, United States and several European countries to develop a study for transatlantic armaments trade.

[155] US President Reagan held a speech about the "Evil Empire" to the National Association of Evangelicals (Orlando), in Reagan Presidential Library, White House Staff and Office Files, Box 77, "Evil Empire speech", 8 March 1983

Western European governments and diplomats realised how limited their influence on US decision-making concerning defence or economic policy was.[156] The European fear of impotence was indisputably evident in Western Europe's dependence on American technology and industries, such as informatics and electronic equipment. However great the benefits that could derive from the standardisation of the European industries were, they would always collide with the tendency of the individual governments to help their own industries to survive through short-term bilateral arrangements with the United States.[157] Indeed, these bilateral negotiations were in some areas the easiest, fastest, and cheapest way to ensure employment and technological gains for their nation-states. Those benefits were realistically achievable also through European cooperation, but only in the long run. Yet, the periods of crisis that plagued the 1970s and the early 1980s induced European governments to pursue short-term and, indeed, urgent – solutions.

In order to gain independence from US industries, the Assembly of the WEU concluded that "European cooperation is essential" to create jobs and to improve European competitiveness vis-à-vis the US, something that the creation of the European Space Agency (ESA) had been demonstrating since 1973.[158] Furthermore, stronger and more effective European cooperation was needed between the Western European countries if they were to be able to influence their transatlantic ally, and to gain independence in decision-making processes in the area of security and defence policy. To improve the standing of European industries on the market and overcome the Soviet threat, WEU delegates were betting on a military plane, namely the Future European Fighter Aircraft project led by France, West Germany, and the United Kingdom. First, according

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[156] Saull and Halliday, *Rethinking Theory and History in the Cold War*; Fred Halliday, *The Making of the Second Cold War* (London: Verso, 1983).

[157] Grabas and Nützenadel, *Industrial Policy in Europe After 1945*.

[158] Author's translation from the original French: "la collaboration européenne est indispensable". HAEU, WEU 50(1), L'état des activités européennes en matière aérospatiale, 1 December 1980, doc. 841, p. 183.

to the WEU rapporteur and Belgian delegate Guy Brasseur, it was crucial to understand the different operational needs of the three major European air forces before agreeing on a common position. Second, it was necessary to know whether the European industry alone could develop

> un avion qui satisfasse tous les besoins des trois états-majors de l'air, non seulement dans le domaine des moteurs, des cellules ou de l'avionique, mais en ce qui concerne aussi les dispositifs d'attache des systèmes d'armes nécessaires pour assurer les capacités offensives et défensives de l'appareil.[159]

Brasseur warned the other delegates that the costs for such a project would be so high that a European cooperation would be unable to implement it. However, he concluded, before "les besoins ne seront pas harmonisés, l'industrie devra attendre que les états-majors prennent leurs décisions", since they were the main stakeholders and the WEU had no formal power.[160] This lack of power had always been an inherent characteristic of the WEU's hybrid nature and ambiguous role. Since the late 1970s, the WEU's powerlessness had caused doubts concerning the efficiency of such an organisation, coming especially from the British government. On 7 October 1981, an informal meeting of the Permanent Council of the WEU was held at the British Foreign Office in London to discuss the future of the WEU between Edouard Longerstaey, WEU Secretary-General from 1977 to 1985, and 16 national delegates and ambassadors from the Benelux countries, France, Italy, Germany, and the United Kingdom. The host of the meeting, the British diplomat Sir Ewen Alastair John Fergusson, had decided to organise "an informal meeting because he felt it might

[159] In HAEU, WEU 52(1), L'avion de combat européen et autres projets aéronautiques, 30 April 1981, doc. 874: 115.

[160] *Ibid*.

lead to a freer discussion" than was possible in formal WEU meetings.[161] In the previous four years, Fergusson said, London had questioned the seemingly inconsistent and symbolic value of the WEU. Amongst others, London wondered: "what price should one pay for continuing symbolism"?[162] Doubts on the WEU's added value notwithstanding, "to the UK the WEU was of continued political importance", and especially the WEU Assembly, which "provided a useful forum for informed discussion among Parliamentarians on defence matters", since the WEU "represented a unique European nucleus in the defence field".[163] The Netherlands' ambassador confirmed that the WEU had indeed political importance for his country. However, he added that the world had changed, and that the time to renew the WEU had come. Luxembourgish, Italian, German, French, and Belgian ambassadors followed in concert. They all recognised that whatever renewal the WEU was going to face, the Assembly would remain a useful forum for discussions on security and defence vis-à-vis the Soviet Union. Eventually, the informal atmosphere of the meeting, according to both Fergusson and the French ambassador, turned out to be extremely useful to go through the entire discussion on the renewal of the WEU.

The most eager government in leading such a renovation was France.[164] The French President François Mitterrand, who had taken office in May 1981, together with his Defence Minister Charles Hernu evoked the necessity to use the WEU Assembly as an informal channel of communication.

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[161] In TNA, Foreign and Commonwealth Office (hereafter FCO) 33/5232, 'British policy towards the Western European Union': 2. Record of an informal meeting of the WEU Permanent Council at the Foreign Office, 7 October 1981, London.

[162] *Ibid*., 4.

[163] *Ibid*., 3.

[164] In 1973 a first attempt of renewal was made by the French Foreign Minister Michel Jobert, whose proposal was rejected by the other WEU members that labelled his attempt as the typical French attitude of anti-Americanism. In Jørgensen: The Western European Union, 137.

The position of the Élysée derived from the pursuit of an international consultative role for the WEU without risking French autonomy within the NATO framework.[165] To achieve the revival of the WEU, France needed to bring on board its German and British allies. Indeed, the first objective became the development of closer Franco-German relations in the security field, based on the hope to form a tighter bond between Paris and Bonn. On the one hand, West Germany was in a period of augmented economic power and was looking for a more important political role in the Western world. The West German Foreign Office and defence officials believed the WEU to be "a useful vehicle for discussing security issues informally along the line of the EC political cooperation".[166] On the other hand, the British were generally eager to maintain their position as 'second-in-command' within NATO, and were not completely satisfied with the WEU's role in Europe because "any moves in the direction of European defence cooperation should not undermine nor overlap the work of NATO".[167] Yet, after the American invasion of Grenada in 1983, the British government began to feel more strongly its own impotence vis-à-vis what was perceived to be the unpredictable and uncooperative behaviour of the United States.[168] Furthermore, fearing isolation within Europe in case of a successful reinforcement of the Franco-German economic and military leadership, Whitehall officials started to consider the reactivation of the WEU an expensive action with merely symbolic value for the UK, as indicated during an informal meeting in October 1981.[169] Ultimately, Geoffrey Howe, British Foreign Secretary, expressed the UK's willingness

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[165] Wassenberg et al.: L'Otan et L'Europe.

[166] In CIA, CIA Records Search Tool (CREST), CIA-RDP85S00316R000300020001-6, Report: Status of the Western European Union Initiative (U), An Intelligence Assessment, 1 October 1984: 8.

[167] Rohan: The Western European Union, 133.

[168] For the British defence position, see Statement of the Defence Estimates, Defence in the 1980s, London: Her Majesty's Stationery Office (HMSO),1980, 41.

[169] In HAUE, WEU, 65(3), Assembly Document 1085, Part 1: the reactivation of WEU, 18 February 1987.

"to consider the ways to use the WEU informally for consultations on security issues."[170] Following the informal meeting of 1981, a formal one was convened by the WEU for October 1984 to "increase consultations on joint arms production […] and possibly the creation of an informal group of defense experts."[171] During this meeting, the idea of informal exchanges as political tool was proposed again, based on the argument that "even small steps towards greater defense cooperation – such as more frequent WEU Council meetings or regular, informal consultations […] could provide the political impetus to greater policy coordination and armaments cooperation".[172]

On 26-27 October 1984, the Foreign and Defence Ministers of the WEU member states met in Rome to launch the official reactivation of the WEU in an extraordinary session that marked the 30th anniversary of the Modified Brussels Treaty.[173] Moreover, Rome was a symbolic place being the Italian Minister of Defence, Giovanni Spadolini, fierce supporter of WEU and one of the proponent of its attempted reactivation in Italy.[174] Through the 'Declaration by the WEU Foreign and Defence Ministers', the Council of Ministers of the WEU decided to reinforce the WEU's role as a unique forum to increase cooperation between the member states in the field of security policy. As agreed during the informal meeting held in 1981, the main role of the WEU remained defined by its capacity to informally and colloquially promote cooperation in the defence area among

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[170] CIA, CREST, CIA-RDP85S00316R000300020001-6, Report: Status of the Western European Union Initiative (U), An Intelligence Assessment, 1 October 1984: 9.

[171] *Ibid*.

[172] *Ibid*., 10.

[173] Rome Declaration, WEU Council of Ministers, October 26-27, 1984. In HAEU, WEU, 60, Proceedings Vol. III, Thirtieth session, second part, December 1984 - Assembly document 989, 27 October 1984.

[174] Giovanni Spadolini, *Scritti Giornalistici: Raccolta 2. Volume 4. Il Resto Del Carlino* (Polistampa, 2006), 655; Giovanni Spadolini, *Scritti giornalistici di Giovanni Spadolini: Epoca, 1950-1958* (Polistampa, 2004), 395, 400, 416; Cosimo Ceccuti, *Spadolini Storico e Uomo Delle Istituzioni: Bibliografia Degli Scritti Di Storia Moderna e Contemporanea, Degli Scritti e Discorsi Politici, 1990-1994* (Le Monnier, 2000); Giacomo Ascheri, *Giovanni Spadolini: prima presidenza laica* (Roma: Editalia, 1988), 163.

the WEU member states. In consequence, new types of relations flourished between the WEU national and industrial delegates. Indeed, many joint ventures and industrial agreements were established based on technological and not only political arguments, as had previously been common. It could be argued that a new industrial paradigm was born during the 1980s, which was characterised by a new coordinated synergy that went beyond national limits and aims. European actors were following to a greater extent the logics of the market, going sometimes to the detriment of the logics of the state. The outcome of this industrial transformative process, as we will see in the last two Chapters, was arguably a brand-new step towards a more united Europe on several levels.

Finally, the informal processes started through the feasibility studies on a common fighter aircraft and meetings between officials of three countries were over time embedded in formal procedures that eventually involved up to five countries. At the same time, the formal debates held at the WEU Assembly contained a hybrid character, which was strategically used by different governments, notably in the Ministers' attempts to create a more favourable environment for their "national champions" by influencing or adjusting industrial policies in Europe. The major outcome of these processes—the EFA (Ch. 4)—played a major role in WEU policymaking throughout the 1990s. It's coming into being cannot be understood without the examination of the role played by the WEU Assembly, and the informal procedures evolving within the WEU during the 1970s and 1980s.

Chapter 3 – Ariane: a launcher for the independent access to space

In October 2029, the JUICE (JUpiter ICy moons Explorer) spacecraft should enter Jupiter's orbit 7 years after its scheduled launch. JUICE is meant to explore and study the gaseous giant planet and the circumstellar habitable zone around it by flying past its three largest moons—Callisto, Europa, and Ganymede—and finally by entering Ganymede's orbit. Its launch is scheduled to take place from Kourou in French Guiana in June 2022 on board of the Ariane 6 launcher. Fifty years divide the JUICE mission-to-be and the first Ariane 1 launch from that very same site on Christmas Eve, 1979. That day defined almost a decade of space cooperation in Western Europe and paved the way to an era of political transformation and technological independence whose story began at the dawn of the 1960s.[175]

This chapter shows how previous European attempts to create an independent access to space had been hampered by industrial, financial, and political policies of byzantine complexity already during the 1960s. These obstacles were due to vast array of requests coming from the European member states that were expected to be met by the two space organisations at the time, ELDO and ESRO (Ch. 1). This analysis focuses on the debates among politicians, scientists, and experts, concerning an independent launcher as a pivotal tool for achieving a first attempt of Europeanization of space. First, it aims to understand the rationale that led to the development of Ariane. It argues that they were born out of the necessity for European countries to overcome serious difficulties in competing in a US dominated communication satellites field without a pooling of resources. Second, it explores the steps towards its development in the early 1970s

[175] Sara Venditti, 'Europeanization of Space: The Ariane Project between Europeanization and Independence', *Annals of the Fondazione Luigi Einaudi. An Interdisciplinary Journal of Economics, History and Political Science* 53, no. 1 (2019): 121–40.

focusing on 1973 as pivotal year for the launcher and the Europeanization of space. Third, it provides an overview of the development phases of the rocket until its commercialisation and first launch in 1979. Forth, it delves into the American perception of Ariane and the European policies in space. Finally, in the conclusion it argues whether and how cooperation in space and technology fostered the European cooperation process and the Europe that has yet to come.

I. Communication satellites as rationale for an independent launcher

In the late 1950s the major Western European countries, namely United Kingdom, France, Italy, and the Federal Republic of Germany, were already leading considerable efforts and achievements in the space field. However, they were led mostly separately or in cooperation with the US, and they were not even comparable to the US or USSR space programmes.[176] In fact, Western Europe was not considered as a competitor in the space race between the Americans and the Soviets that had started in 1957 with the launch of Sputnik and had its zenith in 1969 with the Moon landing (Ch. 1).[177]

The main characteristic of the early era of European space exploration was the difficulty in reaching a satisfying level of results. Space did not only mean playing a role in the Cold War arena. It meant development and future access to unknown technology to be applied to both civilian and military fields, but also a possible success on economic and social policies, and a certain political influence on national and international level. In order to achieve such ambitious goals, companies and organizations mushroomed between the 1950s and 1960s. In instance, as we have seen in Chapter

[176] Launius and McCurdy, *NASA Spaceflight A History of Innovation*; Smith, *Rockets and Revolution*; Agency, *A History of the European Space Agency, 1958-1987, Vol. I*, 9–11; Walter A. McDougall, *The Heavens and the Earth: A Political History of the Space Age.* (Basic Books, 1985).

[177] Mieczkowski, *Eisenhower's Sputnik Moment*; Wolfe, *Competing with the Soviets*.

1, at the national level, the French CNES was successfully created in December 1961. At the European level, ELDO and ESRO Conventions were respectively signed in March and June 1962 and entered into force two years later. ELDO and ESRO played an important role in the framework of the European cooperation in space at the end of 1960s and, how noble the reason behind their creation was—namely to develop and foster cooperation between different European countries and their national space organizations—the activities of ELDO and ESRO tended to limp along since the beginning of their establishment.[178]

During the 1960s, the governments of the major Western European countries went through a period characterised by lack of confidence in their own capability to obtain a significant role in space. Financial and managerial problems presented constant complications to the European space cooperation framework, especially among ELDO and ESRO. The historians John Krige and Arturo Russo have traced four main issues that hampered progress towards a coherent European space policy before the 1970s.[179] First, the lack of a homogenous institutional framework responsible for the activities and the coordination of member countries; second, the different interests and ambitions between the national space agencies and the joint effort of different European actors; third, the lack of a harmonized industrial policy able to close the technological gap between Europe and the United States to guarantee an industrial and geographical *juste retour* among the member states and to facilitate the establishment of industrial consortia;[180] and finally, the disagreement on whether to produce an independent European launcher or whether to rely on the American

[178] ESRO funding members were ten states: Belgium, France, West Germany, Italy, the Netherlands, Spain, Sweden, Switzerland, and United Kingdom. ELDO was established by Belgium, France, West Germany, Italy, the Netherlands, the United Kingdom, and Australia.

[179] John Krige and Arturo Russo, Europe in space, 1960-1973 (European Space Agency, 1994), 2.

[180] The juste retour – fair return – is the formula according to which each Member State gets economic benefit out of the ESA projects, meaning that the percentage of country's contracts had to be bounded to its own contribution in the projects.

programme. These obstacles have always been overcome by the conjuncture of different factors, which I call 'ingredients': a mix of different personalities, political and economic contexts, deadlines, and a pinch of anti-Americanism. I argue that the combination of these ingredients helped the Europeans to overcome the four problems described by Krige and Russo and to succeed in establishing European enterprises and projects—from the communication satellites programmes to Ariane—which led to a strong Europeanization of the space policy field.[181]

Thus, to understand the reasons behind Ariane's development, it is vital to look at the core sector that led to the debates on this project: the communication satellites sector.[182] This field proved to be strategic as far as development of high technology was concerned, for both civil and military purposes, but also for the vast market which it could fill—such as television broadcast and telephone linkage. The latter would guarantee strong political and cultural powers and influence derivable using telecommunication satellites. Unsurprisingly, the United States and the Soviet Union were the leading countries in this sector already in the 1960s and the first half of the 1970s, and the European governments were struggling to catch up due to the previously mentioned problems of coordination between ERSO and ELDO, the different national programs already in progress, the cheaper cooperation with their transatlantic ally.[183]

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[181] See also: Lorenza Sebesta, *Alleati Competitivi: Origini e Sviluppo Della Cooperazione Spaziale Fra Europa e Stati Uniti, 1957-1973* (GLF editori Laterza, 2003); Lorenza Sebesta and European Space Agency, *US-European Cooperation in Space during the Sixties.* (ESA Publications Division, 1994).

[182] For the history of the communication satellites programs see: Agency, *A History of the European Space Agency, 1958-1987, Vol. I*, chap. 9; Gerard Meurant, Burton I. Edelson, and Joseph N. Pelton, *Satellite Communications Systems and Technology* (William Andrew Publishing, n.d.).

[183] Agency, *A History of the European Space Agency, 1958-1987, Vol. I*, chap. 9; Christopher Hill, 'The Capability-Expectations Gap, or Conceptualizing Europe's International Role', *JCMS: Journal of Common Market Studies* 31, no. 3 (September 1993): 305–28; J.-J. (Jean Jacques) Servan-Schreiber, *The American Challenge* (H. Hamilton,

Hence, it is important to highlight why, despite these complications, many in Europe wished to launch their own satellites independently form the United States' launchers services. It is possible to trace different reasons for building an independent satellite. The first reason was the economic benefit coming from the participation in future international programs, such as the satellite operator organisation established during the 1960s (INTELSAT), and the contracts to be redistributed among the most qualified European industries.[184] The second reason was the political determination to challenge the American monopoly of a new technology whose future value, spill-over effect, and use were visible on an incredibly large scale.[185] Finally, national prestige and foreign and national political choices played an important role as well, particularly for the French and their political influence over Europe and the world.[186] At the end of the 1960s, Western European governments' determination to develop their own communication satellites grew alongside American criticisms of the European ambition in space. Here, and on other occasions as

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1968); The original French: J.-J. (Jean Jacques) Servan-Schreiber, *Le Defi Americain.* (Denoel, 1967), 89–94; 139–50; 161–70.

[184] The International Telecommunications Satellite Organization (INTELSAT) was created in 1964 by 13 countries, including the Vatican City. In 1972 the participant countries were 83. Intelsat I was launched into synchronous orbit in 1965 and Intelast III broadcasted the first Moon landing in July 1969. For Intelsat see: Krige and Russo, *Europe in Space, 1960-1973*, chap. 5; Marcellus S. Snow and United States Senior Interagency Group on International Communication and Information Policy White paper on new international satellite systems, *The International Telecommunications Satellite Organization (INTELSAT): Economic and Institutional Challenges Facing an International Organization*, 1. Auflage. (Nomos, 1987); For the geographical redistribution of contracts see: Agency, *A History of the European Space Agency, 1958-1987, Vol. I*, 72–75.

[185] Krige and Russo, *Europe in Space, 1960-1973*, 57.

[186] Moulin, *La France Dans l'espace 1959-1979*; Klein, 'Maurice Vaïsse. La grandeur. Politique étrangère du général de Gaulle. 1958-1969'; Morse, *Foreign Policy and Interdependence in Gaullist France*.

we will see in this work, the transatlantic relations provided once again a rationale for the development of an independent launcher.

On October 27-29, 1964, Europe crystallized its communication satellites program development during the European Conference on Satellite Communications (CETS).[187] During the CETS meetings, the Space Technology Committee (STC)—whose task was to define a program that would make the European industry qualified to sign the Intelsat agreements—drew up a development plan that, "the committee believed, indicated the only path by which Europe could hope to be in a position to supply adequately developed equipment for use in the global system from 1970 onwards."[188] This ambition behind the STC plan, along with the national will to develop alternative application satellites, such as navigation and meteorology assistance, led to the results achieved two years later during the European Space Conference (ESC) that took place in Paris on 13 December 1966 (Ch. 1).[189] The fourteen participating (member states from ELDO, ESRO, and CETS) decided to meet at least once a year at ministerial level to draw up and finally ensure a coordinated European space policy. However, the ESC was not always successful. Indeed, during the second conference held in Rome the next year, on 11-13 July 1967, among several doubts being raised over the economic feasibility of a European communications satellite system, most of the participants felt considerable animosity against the Franco-German experimental satellite later

[187] Agency, A History of the European Space Agency, 1958-1987, Vol. I, 266–67.The French 'Conférence européenne pour les télécommunications par satellites' (CETS) was established after the American proposal for the creation of Intelsat in order to deal with communications satellite and to design a common European policy for the negotiations with the US. No legal act institutionalised CETS, but it was extremely active from 1964 until its dismissal in 1970.

[188] *FLIGHT International*, 'Europe's Comsat Plans', 14 January 1965, n° 2914, Vol. 87, p.57

[189] The ESC was created to ensure a coordinated space policy between European member states, ELDO and ESRO.

called Symphonie.[190] According to the ESC delegates, this project would have duplicated CETS' work and overpowered the smaller European industries.[191] Disagreements over Symphonie were not resolved, but the delegates committed themselves to a balanced and coherent space program elaborated by the so-called Causse Committee appointed by the delegates themselves.[192] The Committee report was released on 30 January of the following year and it suggested, among other proposals, that "Europe should aim to launch an average two scientific satellites per year in the early seventies" and to achieve this goal "a single European organisation [should] be created for space research and development."[193] Moreover, it was stressed the importance that the exploratory studies should have because they would "enable Europe to define particular areas where European industry would be really competitive with the US industry."[194] What emerged from these conferences and studies was a growing consensus that for Europe it was imperative to have a coordinated space policy, and an independent satellite program operational already in 1970.

This idea was widely shared by the Western European ministers at the ESCs, but also scientists. For instance, Geoffrey Keith Charles Pardoe, PhD in Astronautics and at the time director of the non-profit organisation and consortium of the European industries, Eurospace, insisted that communication satellites should become the linchpin around which the European space activity

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[190] The chair of this ESC was Leopoldo Rubinacci, Italian Minister for the scientific research. France and Germany officially agreed to build Symphonie in 6 June 1967. See: Reinke, Smerin, and Wilson, *The History of German Space Policy*, 11.

[191] Agency, A History of the European Space Agency, 1958-1987, Vol. I, 117.

[192] The so-called Causse Committee was established to elaborate the European space programme. Jean Pierre Causse was appointed Chairman of the Advisory Committee on Programmes at the Rome conference and was the head of the French CNES at Brétigny.

[193] Krige and Russo, *Europe in Space, 1960-1973*, 64.

[194] *FLIGHT International*, 'Europe's Comsat Plans', 14 January 1965, n° 2914, Vol. 87, p.239.

should revolve.[195] In this way, the European governments would be able to "meet the ever-growing demands for improved services", such as and "also provide technological, educational and cultural advancement plus a return on the investment made." Pardoe argued that a satellite system "could make a significant contribution towards satisfying European regional requirements for telecommunications and television" and that "Eurospace sees this as just an initial phase and regards it of the utmost importance."[196] It was indeed *the* initial phase of a space policy that still forms the basis of the nowadays European space policy.

We have seen that the idea shared by experts and governments was that Europe needed to 'go it alone'. However, to launch a satellite in orbit the national space agencies needed a launcher, especially France who, since the beginning of the space programme:

> La France a jugé indispensable de mener un effort dans le domaine des lanceurs, parallèlement à celui consenti dans le domaine des satellites. Compte tenu de l'enjeu économique déjà prévisible des satellites d'application, il apparaissait en effet peu réaliste de chercher à développer des satellites sans disposer des moyens nécessaires pour les placer en orbite.[197]

In fact, placing a satellite into orbit without a launcher and without interfering with the American interests was extremely difficult, as Paris and Bonn experienced with Symphonie. In 1969, the

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[195] *FLIGHT International*, 'Eurospace view on communications satellites', 10 August 1967, n° 3048, Vol. 92, p.57. Eurospace was established in September 1961 as a supranational body whose aim was to promote and develop aerospace activities in Western Europe. It included the most important companies in the missile and aircraft manufacture sector.

[196] *FLIGHT International*, 'Eurospace view on communication satellites', 10 August 1967, n° 3048 Vol. 92, p. 239

[197] In AN, 19860235/37, pt. 2, JML-VB/24-430, Ministère du Développement Industriel et Scientifique, Programme Spatial Français, Bilan de l'expérience acquise en matière de lanceurs, 19 Avril 1970

French and German increased their resolve to develop an independent launcher, especially since they were sure the US would not launch their Symphonie.[198] Although, at the end of 1968 NASA declared that the US would be willing to provide the rocket to launch the Franco-German satellite if they "could arrive at a mutual understanding of the experimental character of the project." What NASA meant was that the satellites had to be "used exclusively for experimental and demonstration purposes, not for the transmission of regular commercial or governmental traffic or broadcasts."[199] However, as we have seen earlier, Europe wanted to obtain political and cultural influence through her satellites and, as a consequence, a launcher. This stance was more than enough to give France and Germany the motivation to free themselves from the Americans and to strengthen their bargaining position towards the US and USSR in future negotiations with an independent European launcher.[200]

During the 1960s ELDO had already developed a rocket, Europa I (Ch. 1). This experimental launcher was not developed – or qualified, for that matter – to put a telecommunications satellite into geostationary orbit, and both ELDO and ESRO did not have the means to operate application satellites. In fact, with six European members in ESRO, and Australia, and ten in ELDO, these two organisations needed a much wider amount of resources and a more coherent shared interest in communications satellites. The Western European governments had only two choices: either an *ad hoc* upgrade of their existing launcher or to rely on the US launcher supply. This fundamental choice between either the transatlantic option or deepening European space cooperation sparked a heated debate between major European countries, which threatened more than a decade of European space cooperation.

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[198] Agency, A History of the European Space Agency, 1958-1987, Vol. I, 368.

[199] Quote in: Krige e Russo, Europe in space, 1960-1973, 82.

[200] Lorenza Sebesta and European Space Agency, *The Availability of American Launchers and Europe's Decision 'to Go Alone'* (ESA Publications Division, 1996).

II. First steps towards Ariane in the early 1970s

It was now impelling for Europe to launch its satellite in orbit through an independent rocket. Despite the past experiences, the launcher's development was not spared the problems that characterized the communications satellite program. Moreover, the international atmosphere was not helping being the détente a period of political change and economic turmoil. In fact, the political and economic context in Western Europe and the United States played a crucial role in the debates on the development of the launcher and the European space policy (Ch. 2). The 1960s ended with new political developments. On the Western side of the Atlantic, Richard Nixon entered the White House as the new President of the United States after the Democrat Johnson. In Europe, Willy Brandt was elected new Chancellor of West Germany and with him a new outlook and opening towards the East commenced.[201] France witnessed Charles de Gaulle resigning and a new President being elected, Georges Pompidou, while coping with the heritage of May and June 1968.[202] Italy and the United Kingdom, as Chapter 2 has shown, were both experiencing economic turbulences and the latter was strikingly in opposition to the German situation of economic prosperity.[203] Britain was, in fact, the notorious sick man of Europe who, now that De Gaulle had left the Élysée Palace, was looking at a new possibility to join the European Communities and was carrying with him a plenty of interesting technological know-how.

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[201] Caldwell and Hanshew, *Germany since 1945*.

[202] Ulrich Krotz, *History and Foreign Policy in France and Germany*, Palgrave Connect (Houndmills, Basingstoke, Hampshire: Palgrave Macmillan, 2015); Klein, 'Maurice Vaïsse. La grandeur. Politique étrangère du général de Gaulle. 1958-1969'; Morse, *Foreign Policy and Interdependence in Gaullist France*.

[203] Ezio Tarantelli and Gerhard Willke, *The Management of Industrial Conflict in the Recession of the 1970s: Britain, Germany, and Italy* (Sijthoff, 1981); Renato Giannetti, *Tecnologia e Sviluppo Economico Italiano: 1870-1990*, Le Vie Della Civiltà (Bologna: Il Mulino, 1998).

At the beginning of the 1970s, Western European governments felt that they could no longer firmly rely on their transatlantic ally.[204] Political crises and economic stagnation nonetheless, détente led to impressive improvements in the relations between Western European countries, especially France and Germany, and between West and East Germany.[205] This widespread improvement of mutual relations—in a decade generally seen as of one of looming crisis—probably helped France and Germany to overcome their differences in reaching a satisfying agreement on the European space policy and thereby fostering the European integration process. However, more than two countries were needed to reach such ambitious goal.

At the ministerial meeting held in November 1970, French, German, and Belgian delegates showed their frustration for the other European delegates' reluctance to develop a European launcher by warning the other members that the three of them would build it anyway. In the meantime, the American government proposed the European ones to cooperate in the post-Apollo programme. What the US offer really demanded to achieve cooperation was a definitive reorientation in Europe's space priorities. The post-Apollo offer intentionally "placed a huge question mark over the continued technological interest and commercial viability of a European conventional launcher into which so much effort and money had already been put."[206] The European delegates were yet divided between a fully European effort and an American cooperation. To make this uncertainty

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[204] Andrews, *Orderly Change: International Monetary Relations since Bretton Woods*; James, *International Monetary Cooperation Since Bretton Woods*; Venn, *The Oil Crisis*; Schulz, Schwartz, and London, *The Strained Alliance*; Eichengreen, *Global Imbalances and the Lessons of Bretton Woods*.

[205] Krotz, *History and Foreign Policy in France and Germany*; Del Pero and Romero, *Le Crisi Transatlantiche*; Reinke, Smerin, and Wilson, *The History of German Space Policy*; Helga Haftendorn and Freie Universität Berlin, eds., *The Strategic Triangle: France, Germany, and the United States in the Shaping of the New Europe* (Washington, D.C. : Baltimore: Woodrow Wilson Center Press ; Johns Hopkins University Press, 2006).

[206] John Krige et al., A History of the European Space Agency, 1958-1987, Vol. II (ESA Publications Division, 2000), 391.

even worse, on November 5, 1971 ELDO's Europa II rocket exploded soon after being launched.[207] Europa II was designed to launch into orbit the Franco-German telecommunications satellite Symphonie following the French and German fears that the US would not be willing to launch commercially competitive satellites. This umpteenth failure worked as a catalyst for the European governments to reconsider the entirety of the efforts made during the past decade and pushed them to take a definitive stance on space policy.

Hence, the national delegations at both the ESC and the Assembly of the WEU had lively discussions about defence, independence, and cooperation that sought to achieve the standardization of the aerospace industries among EEC Members States. They were aiming for a long-term penetration into the global aerospace market, at the time dominated by the United States and the Soviet Union. Part of the solutions sought by the European delegates envisaged a harmonized industrial policy coupled with a subsequent and urgent renewal of national industries. Among the several efforts undertaken at the time, it is possible to trace two pivotal moments for the architecture of the future European space policy and, as seen in Chapter 1, of ESA: The First and the Second Package Deals. To briefly sum up the deals: in 1971, the members of ESRO devoted themselves in what was later called the First Package Deal. Here, the European members agreed to participate in the development of three applications satellites programmes (in aeronautical navigation, meteorology, and telecommunication), and the actualisation of a comprehensive space program.[208] The deal was finally adopted by the Council of ESRO on 20 December 1971.[209] In

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[207] Europa II was a rocket based on Europa I: its first stage was made of the British Blue Streak, the second stage of the French Coralie, and the third stage of the German Astris. It was upgraded—on French insistence—with a Perigee-Apogee System (PAS) that provided Europa II with a geostationary capability by adding a fourth stage that was the previous solid-fuelled third stage of the French rocket Diamant B.

[208] Krige et al., A History of the European Space Agency, 1958-1987, Vol. II, vol. 1 Chap. 8.

[209] In HAEU, ESRO/C/MIN/44, Minutes, Council 44th Session, 6 January 1972. The final version of the

order to deepen the cooperated agreed upon in the First Package Deal a second one was needed. The Second Package Dead was signed one year later and was born out of the necessity to reform ESRO and ELDO inadequacy, and to create a single agency that could guide the European industrial policy while incorporating both ELDO's and ERSO's functions.[210] It was the result of the Ministerial meeting of the ESC that took place in Brussels on December 20, 1972 during which the European countries agreed on the creation of a new forum where national delegations could discuss and coordinate the space program and its launcher at national and international level.[211]

At the end of 1972 ELDO ended to function (Ch. 1). Along with it, the Europa programme was discontinued in April 1973 and Europa III was cancelled in September. Scientists and engineers involved in these space projects had been left flustered and embittered by ELDO's failure. Frédéric d'Allest, Ariane project manager from 1973 to 1976 and Director General at CNES from 1982 to 1989, describes that moment as fairly traumatic, representing a "heavy investment that had borne no fruit."[212] According to d'Allest, several people working at CNES and ELDO did not want to give up on the production of a European launcher since many steps had already been made in that direction.[213] Furthermore, the French government itself was not ready to give up on the launcher either. In fact, Paris' main goal, as reported by Raymond Oyre, head of the Ariane Programme in 1973, was to maintain the strategic goal of independent access to space by further developing

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Resolution (ESRO/C/XLIII/Res. 3) is attached to the document.

[210] Arturo Russo and European Space Agency, *The Scientific Programme between ESRO and ESA: Choosing New Projects (1973-1977)* (ESA Publications Division, 1995).

[211] In HAEU, WEU, ESC, 130, New organisation formed out of ELDO and ESRO, its aim and projects, 20 December 1972

[212] In HAEU, OHES, INT053, Frédéric d'Allest interviewed by David Redon on 19 November 2002, p.3.

[213] Krige et al., A History of the European Space Agency, 1958-1987, Vol. II, vol. 1 Ch. 9.

technologies and know-how that already existed in Western Europe.[214] In order to ensure the success of these goals, the French Minister of Industrial and Scientific Development from 1972 to 1974, Jean Charbonnel, started a diplomatic crusade to fight the hesitance shown by some countries with regards to the development of the launcher program. A hesitance that, as seen earlier, troubled France, Germany, and Belgium. Initial but important results of his campaign to secure the development of the launcher had already been reached at the Ministerial meeting in 1972.[215] The Ministers responsible for the national space policy agreed that France, and none of the other countries, would take responsibility for the development of a third generation launcher (LIIIS), and West Germany for the sortie module, everything in the framework of a brand-new and single European space organisation. This new organization would absorb and replace ELDO and ESRO.[216] In order to do so, the French minister declared that France was ready to bear most of the burden, costs, and risks of such a significant project. In fact, France's policy of modernisation, mainly led by Pompidou and Giscard, were copiously investing on electronics, nuclear, and aerospace. This meant that Paris had most of the means and the resources to achieve that goal, and it was also more sceptical of the Americans and willing to reach its independent access to space. Since the CNES engineers had already started to develop the LIIIS, Charbonnel's diplomatic and political campaign assured the CNES that its project based on Europa III would continue.

Finally, a suitable institutional framework emerged at the end of 1972, a framework in which the Members States were willing to cooperate and compromise for the development of the European launcher. Despite all the efforts, the French crusade to obtain the results they had hoped for was

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[214] Emmanuel Chadeau, *L'ambition Technologique, Naissance d'Ariane* (Editions Rive droite, 1995), 15–34.WEU, ESA, OHES, INT051, Raymond Orye interviewed by David Redon on 19 November 2002, p.7,

[215] Chadeau, 113–15.Krige et al., *A History of the European Space Agency, 1958-1987, Vol. II*, vol. 1 pp.368-371; Durand-de Jongh, *De La Fusée Véronique Au Lanceur Ariane*, 149–90.

[216] Krige et al., A History of the European Space Agency, 1958-1987, Vol. II p. 15.

not over yet, and the other countries had started to change their stances. In fact, the Western European countries were dealing with apparently unsurmountable differences that clearly illustrated the deplorable state of European space activities.[217] France and West Germany, which had led from the beginning the initiatives in favour of the launcher in order to build its sortie module, were now embroiled in controversies, and Bonn was changing its view on the launcher. The controversies were tangible also at the WEU Assembly held in December 1972. Here, the French delegates "insisted on priority for the construction of a European launcher, whereas the German ones gave first priority to participation in the post-Apollo programme, whatever the conditions for European collaboration."[218] The German delegation was keen to illustrate how much the European launcher rocket was uneconomic, and it was backed by the Belgian delegation's assumption "that participating in the post-Apollo programme is more important than building a European rocket."[219] On the other hand, Théo Lefèvre, Belgian Secretary of State for Scientific Policy and Planning from 1972 to 1973, was extremely concerned because he believed that the debates were continuing "without all the participants being really aware of the political consequences" of an independent European launcher.[220] This general discord was constantly nourished by the fresh memory of the various unsuccessful attempts made by ELDO to place a satellite in orbit. Yet, the debates around an independent space launch vehicle (SLV) capability for Europe persisted.[221] Acknowledging the importance of the satellite launch service, the Europeans

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[217] In HAEU, WEU 73, Proceedings, XVIII Ordinary Session, Part 2, "The state of the European space policy", 4 December 1972, doc. 595, p.246

[218] *Ibid*.

[219] Klaus Richter (SPD) and Hektor de Bruyne (Volsunie) in HAUE, WEU 77, XVIII Ordinary Session, Part 2, December 1972, p.206

[220] In HAUE, WEU 77, XVIII Ordinary Session, Part 2, December 1972, p.191

[221] Central Intelligence Agency (hereafter CIA), Report, The Ariane Space Launch Vehicle: Europe's Answer to the US Space Shuttle, July 1, 1983, p.1. For the Franco-German different positions on launcher policy see: Krige et

slowly committed themselves to bridge their different viewpoints and difficulties in order to compete in that sector. One question remained unsolved: the shifted opinion of the German delegation.

At the end of 1970, Hans Leussink, the West German Minister for Education and Research from 1969 to 1972, had declared that West Germany was prepared to 'go it alone' and build a rocket in a trilateral cooperation with Belgium and France. Leussink and his Belgian and French counterparts agreed that the launcher should not be sacrificed, not even to participate in the post-Apollo Programme. However, to strengthen its position at the negotiation table with the US, Germany had started to detach itself from French efforts: Bonn had assumed a more prudent attitude because it had lost confidence in its own agencies and industries to follow a stand-alone strategy. In fact, according to a note released by the Quai d'Orsay, for the Germans "the prime objective was the development of an industrial capability in their industry which was adequate to maintain them in the first league, and which would later enable them to collaborate meaningfully in American ventures (Intelsat, post-Apollo)." France was interested in such programmes as well, but its main aim "was to ensure her autonomy in the area of telecommunications satellites, with a view to using these for radiodiffusion and direct television" and the availability of independent launchers "is essential if one attaches a political interest to space activities and requires that Europe retain her freedom of expression in this sector."[222] In 1972, Paris and Bonn had clearly diverging priorities and eventually a divorce became inevitable.

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al., *A History of the European Space Agency, 1958-1987, Vol. II*, 397. ELDO was established in 1964 in order to develop a satellite launcher based on the British Blue Streak missile.

[222] The Note dated 11 June 1971 is reproduced in: Chadeau, *L'ambition Technologique, Naissance d'Ariane*.

a. Turning point: 1973

"[E]verything really began in 1973".[223] These were the words of d'Allest, and while we have seen how the story of Ariane goes back to the 1960s, it is difficult to ignore the importance of 1973 as a crucial year for Ariane, in conjuncture with other international events—from the infamous oil crisis to Kissinger's speech 'Year of Europe'.[224] On the Western European level, the EEC enlargement of January 1973 marked an important novelty involving three additional countries—namely Denmark, Ireland and Britain— joining the previous six ones. On the space cooperation level, it is indeed where everything really began.

On the morning of July 12, 1973, Charles Hanin, the Belgian Minister for Scientific Policy and Planning who succeeded Levèfre, chaired the new ESC held at Palais d'Egmont, in Brussels.[225] Hanin had the difficult task of managing European ministers, ambassadors, and technicians holding different posts and varying in their ambitions. The positions of the various delegations were at odds as to the formalization of the agreements discussed in the December 1972 (the development of LIIIS and the merger of ELDO and ESRO). For example, the Belgian delegation thought that it was too early to develop LIIIS; the Swedish that it was not the right moment; the Spanish agreed to participate, but with a symbolic share; the Swiss had financial problems; and finally, the Italians were constantly uncertain and non-committal because of government instability at home.[226] The stances of the leading countries were even more divided. For instance, the German precondition

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[223] In HAEU, OHES, INT053, p.4. Before Ariane, d'Allest worked on the Diamant B project at CNES since 1966 and from 1970 to 1972 he was project manager of the second stage of Europa 3 at ELDO.

[224] Hervé Moulin, *La Construction d'une Politique Spatiale En France: Entre Indépendance Nationale et Dynamiques Européennes, 1945-1975* (Editions Beauchesne, 2017), chap. 17.

[225] Chadeau, *L'ambition Technologique, Naissance d'Ariane*, 89–91. Hanin was appointed in January 1973 and replaced Théodore Lefèvre who stayed in charge for one year.

[226] In HAEU, OHES, INT050, Charles Hanin interviewed by Dawinka Laureys, on 28 February 2002 p.3

for agreeing with the conference objectives was the participation to the American reusable space station programme, Spacelab, but they still preferred the post-Apollo programme to the launcher; while the British – who had always been reluctant to build a European launcher – continued to oppose the launcher's development.[227] France's position in this context is surprisingly different from what publicly advocated by her delegates.

Given the gargantuan efforts led by Paris in persuading the other countries on a comprehensive space program, it is natural to assume her positive attitude towards the points discussed at the ESC: the launcher and a single space agency. According to Perry Goodman, a British official based in Paris, in March 1973 the French had already visited seven of the capitals involved in the space policy and all of them had expressed an interest in participating in the launcher. "The interest was political and/or industrial. The Italians had been the coolest." Goodman's confidential analysis over the French and British stances helps to better portray how difficult Hanin's position was in chairing such a kaleidoscopic spectrum of national interests. Surprisingly, according to the British official, the French were unenthusiastic about the creation of a European space agency "but would go along with it provided the UK coughed up for L3S."[228] Goodman's updates and insights on the French position were even more explicit in the confidential letter that he wrote in June to Christopher Lush, British official at the Department of Industry, Science and Energy. The letter was written after the French visited London during their tour of the European capitals:

> I was at a party with the French space crowd on Wednesday. My conversation with Maurice Lévy [Chairman of the ESRO Council] was of particular interest both for its content and tone. […] Lévy was relaxed to the point of flippancy, and very optimistic about the whole space

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[227] Lorenza Sebesta and European Space Agency, *Spacelab in Context.* (ESA Publications Division, 1997); Arturo Russo, *Big Technology, Little Science: The European Use of Spacelab* (ESA Publications Division, 1997); Lorenza Sebesta and European Space Agency, *US-European Space Cooperation in the Post-Apollo Programme.* (ESA Publications Division, 1995); Douglas R. Lord, *Spacelab: An International Success Story.* (NASA, 1987).

[228] In TNA, FCO 55/1233, Very brief Notes of a discussion over lunch on 27 March 1973, pp.1-3

> situation. Everything, he said, would be sorted out satisfactorily in July. He was totally unconcerned about the UK's decision not to contribute to the launcher. He said that with Switzerland, Denmark and one other country – apart from Germany and France – agreeing to contribute to L3S the thing was home and dry – "We don't need the UK". He added that the UK would be bound, eventually, to come in. Can you really imagine, he asked, that with nine countries participating in L3S the UK will stay out? […] I am reluctant to create a sense of euphoria about a problem which could go sour. But the signs are that the French seem to think they have found salvation.[229]

Goodman's overall perception was that Paris was offhandedly dismissing the negative effect of the absence of the UK on the entire space program. The French 'flippant' attitude, according to Goodman, was constantly shifting from "very low key 'naughty boy' type [of] speech" to "very reassuring noises" towards the acknowledgment that difference in opinion over launchers would not affect the "Franco-British cooperation and relations in the space field."[230] However, Goodman writes, some "French Space officials are privately expecting no (no) [sic] UK contribution to L3S."[231] Moreover, London was aware that, despite the French general nonchalance, as highlighted by the British official, the European launcher project was of paramount importance for Paris, and the British financial participation, if anything, would have been incredibly advantageous for its development. The confidential comments expressed by Goodman offer an interesting insight over

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[229] In TNA, FCO 55/1233, Industry, Science & Energy Department, Perry Goodman to Christopher Lush in a personal and confidential letter, 15 June 1973

[230] In TNA, FCO 55/1233, Industry, Science & Energy Department, Perry Goodman to Christopher Lush, confidential letter, 21 June 1973

[231] In TNA, FCO 55/1233, French Launcher L3S, personal for Taylor. Following from Goodman, p.1

the French attempt to persuade the UK outside official forums, and the French feelings towards the creation of the European Space Agency.

With all the discordant delegations, the standstill was such that Hanin was forced to postpone the space conference until July 31. The Chair opened the adjourned space conference fearing that no one's attitude had changed, until another ingredient was added when the US President Richard Nixon imposed a deadline on the Europeans to decide whether to participate or not in the Spacelab programme before August 1972. Hanin saw this as an opportunity to change the delegates' minds because, "grace à Dieu, les Américains ont été extrêmement égoïste" and they indirectly helped the Conference to overcome this *impasse*.[232] In fact, Nixon had "informed the Europeans that NASA required a commitment in principle by the end of the year, following which the formal agreements would be prepared for adoption no later than 15 August 1973."[233] Therefore, two mere weeks were left to meet the deadline and find a common understanding over the European cooperation in space. In order to push the national delegations to find a compromise, Hanin decided to listen privately to each national delegation because, as he recalled

> Chacun sait qu'il y a des sacrifices à faire, mais il préfère que ce soit le voisin qui les fasse. Et par conséquent, en public comme ça, c'est très difficile d'obtenir quelque chose. C'est alors que j'ai proposé de voir toutes les délégations les unes après les autres […] pour essayer d'obtenir qu'elles fassent un effort supplémentaire.[234]

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[232] In HAEU, ESA, OHES, INT050, p.5 On the same issue see: Durand-de Jongh, *De La Fusée Véronique Au Lanceur Ariane*, 211.

[233] Krige et al., A History of the European Space Agency, 1958-1987, Vol. II, vol. 2 p.406.

[234] In HAEU, OHES, INT050, p.4

Hanin's intuition in having private audience with each delegation produced surprising results. While the idea of cooperating with the US was still very tempting, its implementation was extremely problematic. In the end, the involved European countries decided to sacrifice some particular goals in the interest of a more long-term commitment and benefit, such as the independent use of the launcher as a global political tool to project national influence in the international arena. At the end of the conference, Hanin, knowing each country's stance, was able to lead the national delegations to agree on all the issues raised during the ESC – from Spacelab to ESA – and "to make formal, financial, legal, and irreversible undertakings, to commit to the entire Ariane development phase over seven years."[235] Finally, "la Conférence de Bruxelles a formellement décidé que l'ensemble des trois projets adopté en 1973 constituait un tout indissociables et qu'aucun d'entre eux ne serait exécuté sans les deux autres."[236] France, Belgium, Denmark, the Federal Republic of Germany, Italy, the Netherlands, Spain, Sweden, Switzerland, and the United Kingdom agreed to the creation of a new organisation called the European Space Agency with the French managing most of the Agency's activities owning 59.5 percent of the shares.[237] However, following the death of Pompidou in 1974 and the election of the President Valéry Giscard d'Estaing, the whole Ariane programme was put at risk by several pressures because of the extremely high costs.[238]

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[235] In HAEU, OHES, INT053, p.4

[236] In CADN, BSG348/1305, Note pour le Ministre by Pierre Laurent, Paris, July 1974 p.3.

[237] Followed by West Germany (19.6%), Belgium (4.4%), Italy (3.3%), Switzerland (2.7%), Spain (2.5%), Sweden (2.4%), the United Kingdom (2.4%), the Netherlands (2.2%), Denmark (0.7%), and Ireland (0.3%).

[238] Serge Berstein et al., eds., *Les Années Giscard: La Politique Économique, 1974-1981* (Paris: A. Colin, 2009); Michèle Weinachter, *Valéry Giscard d'Estaing et l'Allemagne: Le Double Rêve Inachevé*, Allemagne d'hier et d'aujourd'hui (Paris, France: L'Harmattan, 2004).

III. Ariane's blueprint and first launch (1975-1979)

At the Ministerial meeting of July 1973, the Ministers agreed on the Europeanisation of the launcher. A final report was written on the definition of the project phases based on the initial studies led by the French on the 'Diamant' and ELDO programmes.[239] The European launcher was meant to be a three-stage rocket able to place in the geostationary orbit payloads of some 750kg. The first stage, called L140, was identical to the one developed for Europa III B, but slightly shorter on the cylindrical section of the tanks, their propellants were 10 tons lighter (from 150 to 140), and it was equipped with four Viking-2 engines. The second stage, called L33, was equipped with a single engine, the Viking 4, and was able to carry 33 tons of propellants in 2.6 meters of diameter. The final stage, H8, had the same diameter of L33 with a capability of 8 tons of propellants. The propellants used for the rocked was a mixture of dinitrogen tetroxide, N_2O_4, and Unsymmetrical dimethylhydrazine (UDMH), $H_2NN(CH_3)_2$ pressurised by high temperature gases.[240] Such a launcher was expected to be operational in 1980.[241]

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[239] Rapport Final sur la Phase de Définition de Project in CNES/DLA/AR-012/74, Ariane, Lanceur de Satellites, Système Lanceur « Ariane », Vol 1, 1 February 1974

[240] The formulation of the propellant used is N2O4/UDMH.

[241] Phase de Conception : Dossier de Synthese, in CNES, Lanceur LIIIS, 15 April, 1973

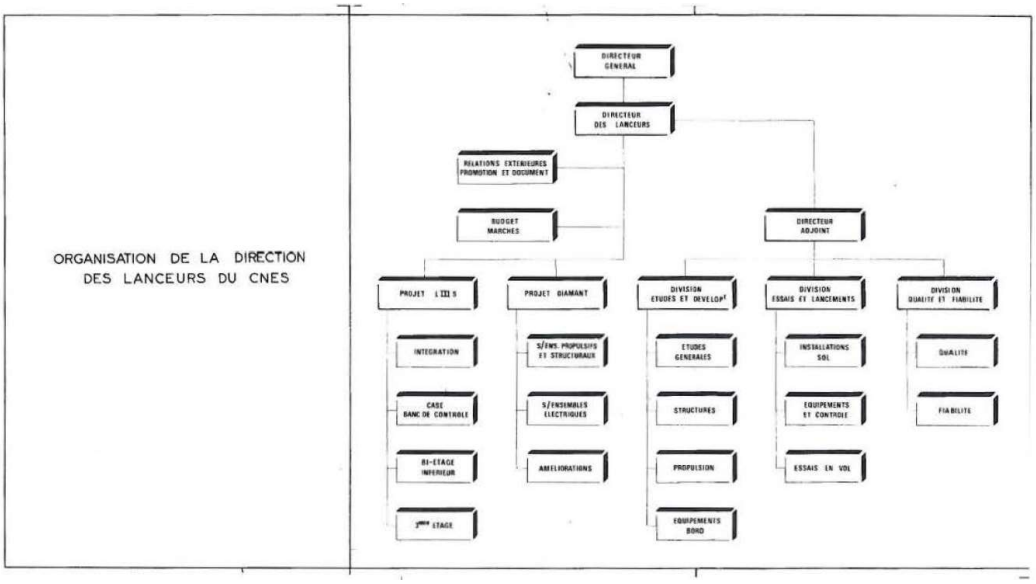

Figure 2 - Organisation of CNES Launcher's Direction[242]

a. Project Management, Finances, and *Juste Return*

As agreed in the package deals, CNES would have most of the management control over the project (*fig. 2*), especially the technical one, while the role of ELDO and ESRO was reduced to monitoring and ensuring the smooth development of the programme. This meant that the other participants had very limited external control over the launcher and that they were almost mere observers of the programme. In fact, it was agreed that ESRO's staff, in instance, could not interfere with the project team at CNES. This position was justified by the enormous economic investment that Paris was going to make into the project, its best industries, and its best researchers. Despite all this autonomy and despite the civilian character of the rocket, CNES had always to work closely to ESRO, then ESA, and the Délégation Ministérielle pour l'Armement (DMA), under the French Ministry of Defence. In fact, the Ministry of Defence was the source of precious information, human resources, experience, and facilities, but also the natural step since when, at the end of the1960s, civilian and

[242] In CNES, Lanceur LIIIS, 15 April, 1973, p.48

military launchers industries were merged by the French government. The whole team working on Ariane at CNES was about 100 people, from the project team to the technical and administrative one. This team would then select the industrial contractors and place contracts among the European participants—in line with the amount of share, contribution, and *juste return*—, it would inform the Programme Board of the advancement of the project, and arrange funding for CNES. Indeed, funding was a peculiar problem in France, the country more devoted to developing Ariane.

During the preliminary phases, the estimated costs of the programme increased from 2000 million French francs (FF) to some 2500 million, and already then, when Giscard was minister of Economy and Finance under Pompidou, he had expressed his doubts on Ariane. According to Giscard, a re-evaluation of France's space projects was necessary and especially the launcher's feasibility due to the considerable financial burden the programme would have on the country's finances. The newly appointed French minister for Economics and Finance from 1974 to 1976, Jean-Pierre Fourcade, was also strongly against the cost estimated by CNES for the development of Ariane and its growing trend.[243] Moreover, according to Fourcade, no authorisation for such an expensive amount had been officially approved. Despite no technical difficulties or delays had been met by CNES up to that moment, the Centre was risking a significant reduction of its own budget devoted to the national programmes, no matter how well they were progressing.[244] This sort of decision would put at risk the economic and industrial commitment that France had vouched for the success of the European space cooperation and Ariane. In the end, and only as an initial compromise between the minister, the industrialists and CNES, it was agreed on to maintain the development costs low, and to avoid any waste of money by testing singularly the three stages of the launcher altogether in seven years, and not individually as CNES used to. This compromise was harshly criticised by ELDO and Michel Bignier, DG of CNES at the time, highlighting how a single testing

[243] About 371 MAU in 1973 prices.

[244] In CNES, Conseil d'Administration, 4 July 1974

was technically enormously risky and economically expensive.[245] Moreover, according to the President of CNES at the time, Maurice Lévy, Giscard "believed that the investment in Ariane was informed solely by the wish for national independence" and "that it would be more economic for Europe to buy launchers and telecommunication satellites from the Unites States".[246] Protests and concerns nonetheless, the individual testing of the stages was out of question. According to the Head of the development of Ariane up to July 1976, the engineer and aviator Yves Sillard, during the first years of the programme, Fourcade made everything in his powers to impede and even terminate it.[247] The Minister was claiming that Ariane would not succeed technically, but that was not the case—surprisingly so, since highly expensive, long term, and technological advanced projects often do incur in technical problems. It took half a year before the engineers at CNES could start working again on the programme.

Another pivotal consideration was the *juste return* for the participants in the Ariane programme. As we have already seen in Chapter 2 with the Italian case, ensuring the fair industrial return was not an easy task. The amount of *juste return* the participants agreed on was of 80 percent of industrial work to the national industries participating in the project. Even in this situation, it was France, more specifically CNES, to commit itself to guarantee that the 80 percent level would be respected and that, in the occasion of more than 20 percent of contingency (up to 135 percent of the initial development cost), France would be ready to take sole and full responsibility for the additional costs.[248] Paris willingness to assume so many risks in order to guarantee the success of

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[245] Chadeau, *L'ambition Technologique, Naissance d'Ariane*, 155–59.

[246] Quoted in: Krige et al., A History of the European Space Agency, 1958-1987, Vol. II, 418.

[247] Quoted in: Krige et al., 55.

[248] In Arrangement, Article X - ESRO/C(73)41, rev. 4, 24 September 1973

the launcher could be read as a strong commitment towards a independence in space from the United States and a stronger political and industrial placement in Europe.

On April 1975, during the ESC held in Brussels, France officially claimed its commitment towards Ariane and ESA. In Brussels, governments, industrialists, and scientists from Western Europe settled officially on a series of agreements that would benefit all the investors, and the final draf of ESA Convention was signed on 30 May at the Conference of Plenipotentiaries in Paris. The following day, ESA was *de facto* functional and Ariane on its way to be formalised."[249]

[249] According to the ESA Convention, the aim of the Agency would be "to integrate the European national space programmes into a European national space programme as far and as fast as reasonably possible in HAUE, ESA, Documentation, 24751, Convention for the establishment of ESA, 1975, p.3

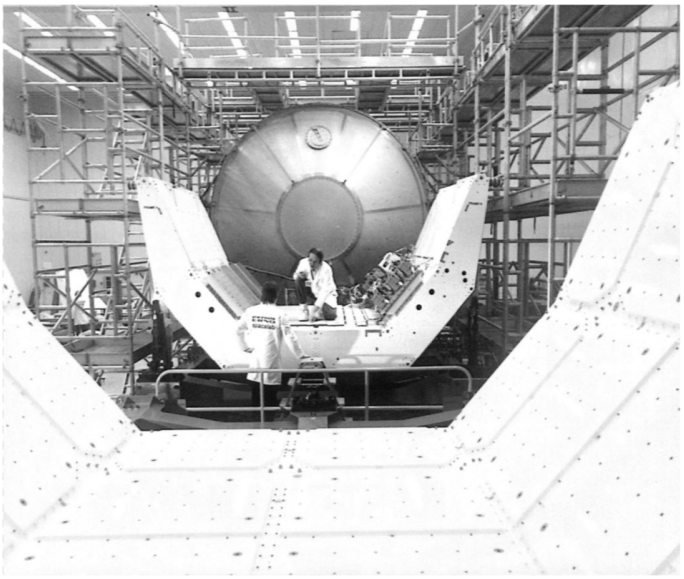

Figure 3 - Ariane 1, in HAEU, ESA, Documents, 24781

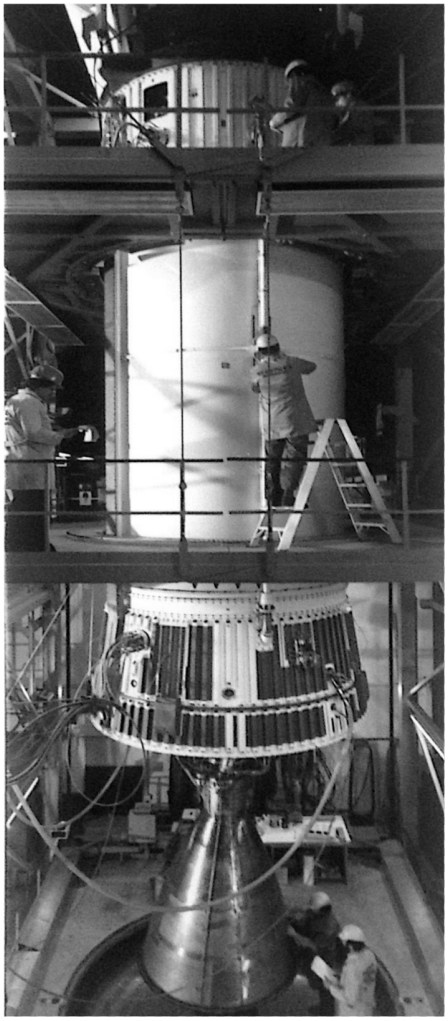

Figure 4 - Ariane 1, in HAEU, ESA, Documents, 24781

IV. *Les Américains* and the European independence

Ariane's inauguration was recalled by d'Allest with powerful words, which highlight the strong opinions that many French officials held toward the US behaviour. He described the launcher as "an extraordinary opportunity for everyone and for Europe, and was the beginning of the great story of Ariane", endowing Europe with an independent launcher and without being "forced into

submission as we had been, ignominiously, by the USA."[250] In 1974, there was a widespread resentment among French officials toward the American monopoly on the satellite field. According to the French officials "les Américains, qui ont vu avec déplaisir l'Europe d'engager dans la voie d'une politique spatiale commune, encouragent évidemment les tendances favorables en Europe à l'abandon d'"ARIANE". Ils donnent à entendre que le lanceur européen sera, en fin de compte, inutile."[251] Something along these lines could be probably detected in a Memorandum prepared in 1974 for President Nixon in which it was suggested that "a more forthcoming US policy on launch assistance might undercut European interest in developing an independent launcher and might possibly lead to cancellation of the L3S"[252] In response to the US behaviour and the fear that some European country could change its stance, Edmond Nessler, President of the WEU Assembly, incited rhetorically his European partners:

> Do we wish to have a satellite launching capability so as to establish our own telecommunications systems or participate in surveying the resources of our planet? Then as many of us as possible should take part in the construction of a European launcher. Do we wish to exploit the oceans as the source of tomorrow's wealth? Here again we must unite our efforts.[253]

Despite the clear European fear of an American sabotage, it was not until the first launcher development phase that NASA and the US Space industry started to "consider the Ariane [as] a

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[250] In HAEU, OHES, INT053, p.4

[251] In CADN, BSG348/1305, Note pour le Ministre, 16 July 1974

[252] In FRUS, 1969–1976, Volume E-3, Documents on Global Issues, 1973–1976, eds. William B. McAllister and Edward C. Keefer, (Washington: Government Printing Office, 2009), Document 98.

[253] In HAEU, WEU 67, XX Ordinary Session Part 2, p.52, December 1974

serious challenge to their supremacy in the satellite launch services field." Precisely during the 1970s the US prominent position was secured by the noteworthy Space Shuttle coupled with the Delta and Atlas-Centaur launchers. According to the public statements made by US officials, "the main reason for this lack of concern was that ESA had initial problems obtaining cooperation among its members and readying the first Ariane for flight-testing."[254] This confidence in their capability remained extremely high until the end of the 1970s, when Ariane began to represent a real threat to the US. In 1986, the Americans admitted that Ariane was able to launch all current and planned U.S. commercial communications satellites.[255]

Ariane, in fact, offered several advantages in more flexible financing terms, launch-vehicle availability with respect to the delayed Shuttle program and the temporary suspension of the production of the US launchers Delta and Atlas-Centaur. Moreover, Ariane production facilitated the transfer of technology to its customers, especially later on through Arianespace, the first commercial space transportation company officially established in 1980.[256] Finally, the European spaceport based in Kourou, French Guiana, ensured a great advantage since its proximity to the equator—such as an extra velocity of about 200 meters per second imparted by the Earth's faster rotation at this latitude compared to NASA's Florida launch site.[257] In terms of competition, it

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[254] In CIA, Report, The Ariane Space Launch Vehicle: Europe's Answer to the US Space Shuttle, US Perceptions, July 1, 1983, p.2

[255] Memo, Commercial space working group to the EPC, re: transition plan yo encourage commercial ELVS, July 30, 1986, folder "Economic Policy Council meeting re: semiconductor negotiations & report on space" box OA 17748, Beryl Sprinkel Files, Ronald Reagan Library, p.14

[256] Krige et al., A History of the European Space Agency, 1958-1987, Vol. II, vol. 2 Chap. 11.

[257] In CIA, Report, The Ariane Space Launch Vehicle: Europe's Answer to the US Space Shuttle, Other Competitive Tactics, July 1, p.6

meant that the Western European governments were able to place heavier payloads into higher orbit increasing the satellites' life expectancy, in comparison to launches made farther north. In conclusion, Ariane was fully operational and ready to compete against the US Shuttle while NASA needed European cooperation in space in order to justify its shuttle cost-effectiveness. In the end, as in the case of the ESC in 1973, the US attempts to hamper the European independence were counterproductive and "helped to create a rationale for Ariane. The [US] actions strengthened *Ariane*" indirectly leading to the first launch from the European spaceport of Kourou in 1979, like JUICE will in 2029.[258]

[258] Chadeau, *L'ambition Technologique, Naissance d'Ariane*, 221"The ARIANE L01 Launch took place on 24 December 1979 at 17 hours 14 minutes and 38 seconds GMT. The mission was a total success." In HAEU, ESA, Documentation, 24778, ESA milestones 1973-2003, Joint ESA/CNES, Press release, December 24, 1979.

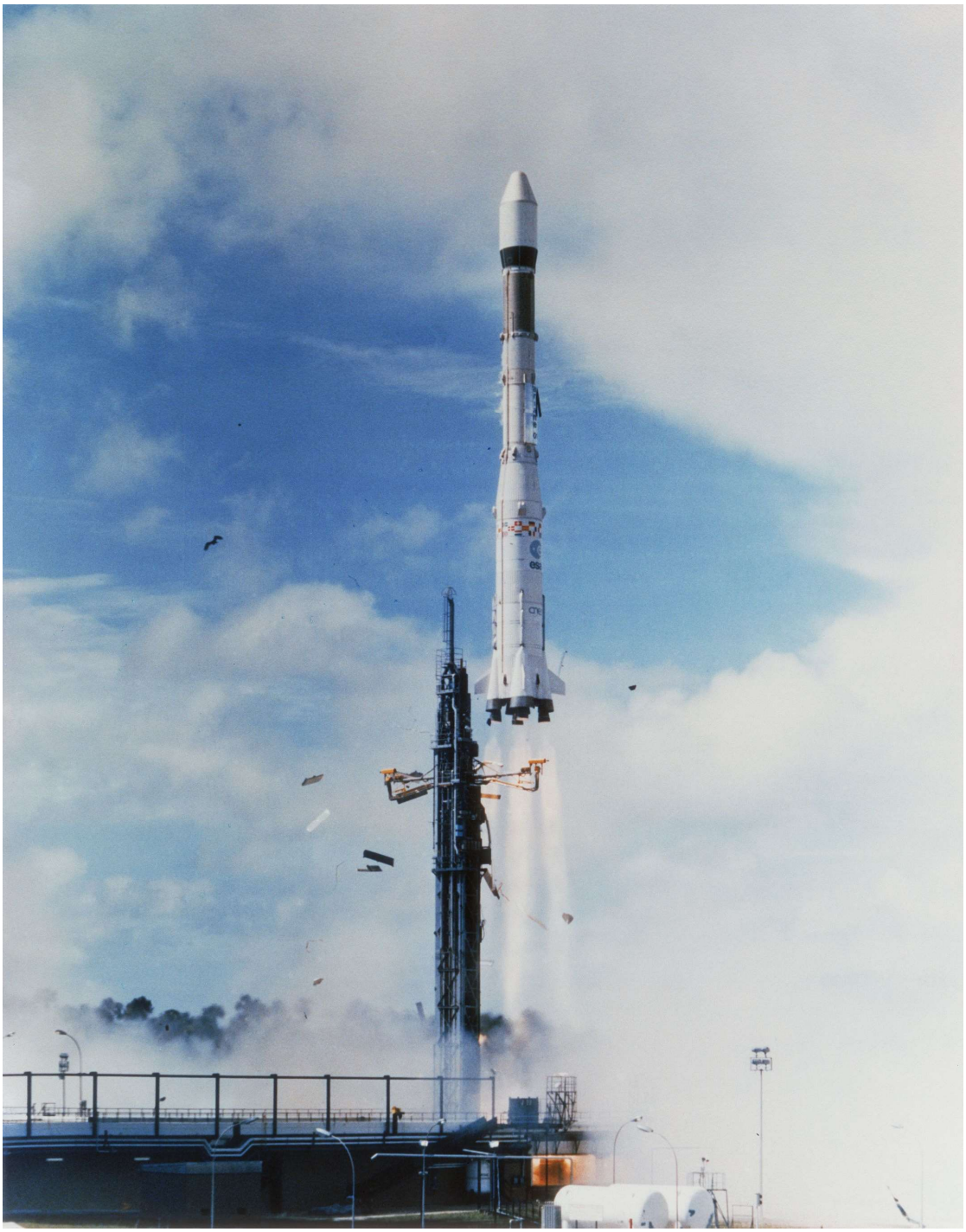

Figure 5 - First Ariane Launch, Photo Archive (ESA Publications), 1979

Chapter 4 – European Fighter Aircraft: a political plane intended to unify Europe

"By the mid-1960s Soviet equipment procurement had languished to the point where obsolescence was overtaking the theatre forces."[259] In the meantime, Americans' aircrafts were flourishing, and the European ones were attempting an initially clumsy cooperation in the combat fighters' sector. However, during the second half of the 1960s the whole scenario started to change. In the USSR, a developmental work on new and more capable fighters began. Initially with new improved versions of the MIG-21 Fishbed, more apt to offensive operations by carrying heavier payload and with an amplified range of fire, and later, at the beginning of the 1970s, the new NU-17 Fitter C, MIG-23, and SU-19 entered in service. The brand-new Soviet's aircrafts had radically improved their range, payloads, and avionics, but, more importantly, their operational flexibility. The improvement of the Soviet tactical air force was precisely what Western Europe needed to develop a combat aircraft in cooperation: operational flexibility that could satisfy all the demands.

In the early 1970s, new debates between Western Europeans took place over whether to buy an American or a European fighter aircraft. These debates focused once more on the prospect for a joint defence industry inquiring the role France would play in it, but also the involvement of West Germany. In fact, without the FRG it was difficult to imagine a successful development of a defence industry, and Bonn was more than willing to participate in joint defence undertaking. Since the end of the Second World War and the reconstitution of West Germany arms industry, Bonn has carefully avoided to produce and develop aircrafts nationally, preferring production under licences and international cooperation with its allies, such as the joint MRCA with the British and Italians

[259] In CIA, National Intelligence Estimate, Warsaw Pact Forces Opposite NATO, n. 155, September 4, 1975, p.35

(Ch. 1).[260] However, to face the new Soviet fleet and the new demands of the market, a new European combat fighter has to be developed.

This Chapter develops from the initial debates around the cooperation in the aeronautic sector, specifically the military one. It looks for the rationale behind the development of the Eurofighter project and tries to understand the national behaviours, different from the ones experienced for Ariane, and the following development of the combat aircraft. This Chapter highlights the differences between the other case study, specifically the roles played by France and the United Kingdom in this different theatre, and the historical contingencies of 1989 that provided an unexpected outcome for the Eurofighter.

I. "Une politique de l'aéronautique civile et militaire pour l'Europe"

The history of the Eurofighter is a long one and its beginning could be traced back in 2003, when it entered in operational service, or in March 27, 1994, when it took its first flight. In this specific historical narrative, the history of EFA starts On Monday September 17, 1973.[261] That day the members of the 'Commission Scientifique, Technique et Aérospatiale' of WEU met in Paris, at 15 rue de Vaugirard—close to the Jardin du Luxembourg, where Amaldi and Auger walked more than a decade before.[262] Here, the meeting was held at the 'Salle Médici' of the French Senate where

[260] In the 1960s, West Germany began developing government-owned weapons systems, such as the tank Leopard.

[261] Cfr. Ch. 1 I.b for the origins of EFA's predecessors combat fighters whose roots must be found earliest in the 1960s.

[262] Cfr. Ch. 2 II. a.i. The participants from the European firms were the following: in the first session: David L. Nicolson, President of the British Airways Board; Herbert Culman, President of Lufthansa; Pierre D. Cot, Director General of Air France; Anders Ahlstrand, President of Sterling Airways. In the second session: P.G. Willekens, Vice-President of AICM; Ludwig Bölkow, President of Messerschmitt-Bölkow-Blohm; Gerrit Coraelis Klapwijk, Director of VFW-Fokker; Roger Chevalier, Technical Director of Aérospatiale; Alessandro Pagni, Commercial

the representative of the major aeronautic firms debated on three main issues concerning Western European countries only:

1. the needs of the aeronautic firms in the global and European market;
2. the future of those firms;
3. the role of public powers and private sector in the protection of the aeronautic firms.

The main argument that emerged from the interventions of all members was the need to "accroire sensiblement la prospérité de l'Europe" through, according to Ludwig Bölkow, President of Messerschmitt-Bölkow-Blohm, the development of a production and a cooperation with an international character between the European countries.[263] In order to obtain such a cooperation, the Technical Director of SNECMA, Michel Garnier, suggested that "le futur de notre Europe aéronautique passe par le développement de ces budgets et par leur meilleure utilisation possible," especially in the Cold War framework.[264] In fact, in the 1970s, the guarantee of a sustainable, but effective budget for defence was felt as a pivotal base to develop highly technological and industrial

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Director of Aeritalia; Michel Garnier, Technical Director of SNECMA. In the third session: Jean Blancard, delegate of the French Ministry of Armies; D. Jones, Director Aeronautical Division, British Ministry of Commerce and Industry; B. Lathiere, Directo of Air Transport, French Minister of Transports; General P. Gallois, Director of Dassault-Bréguet; P. Cahuzac, Director of AICMA; A. Veil, Director General of UTA; Werner Knieper, President of Bundesverband der Deutschen Luft- und Raumfahrtindustrie; G.S. Hislop, Executive vice-chairman of Westland Aircraft Limited, Lorenz Schomerus, Department of Aeronautic Industry, FRG Ministry of Economic Affairs; R. Bulin, Director General of Eurocontrol; Jacques Block, Vice-President of the Western European Airports Association.

[263] In HAEU, WEU 138, A/P 6423, Une politique de l'aéronautique civile et militaire pour l'Europe, Ludwig Bölkow, Considérations sur la structure future de l'industrie aéronautique européenne

[264] In HAEU, WEU 138, A/P 6424, Une politique de l'aéronautique civile et militaire pour l'Europe, Michel Garnier, La coopération technologique intra-européenne et la coopération Europe-Amérique.

tools—therefore to allow future and prosperous exports in the aeronautic sector. On the long run and on a slightly different note, according to Gerrit Coraelis Klapwijk, Director of VFW-Fokker, a strong budget would have also guaranteed a social progress among the countries of the European Communities.[265] Taking into account these very fertile common grounds, the members of the Commission aimed at finalising the best practices for a common European aeronautic policy. This ambitious plan aspired to grant Europe the means to reach technological superiority and win the market. Harmonisation meant avoiding producing different combat aircraft, as it had been done in the 1960s with the Jaguar, Mirage, and Tornado.

The first step to take, and that was mostly largely supported by the officials of the Ministries of Transports, was the harmonisation of arms industries that would let to more coordinated products and a strategic position into the market. In order to accomplish industrial coordination, the Commission was inviting the national delegates to exhort their governments to create aeronautic consortiums and societies. Moreover, they had to leave the old sovereignty component behind in favour of a more transnational one if they wanted to compete in a world dominate by American and Soviet products.[266] This idea of competition and cooperation was shaped, as explained in Ch. 2, by the deep scepticism that was dominating the transatlantic relations.[267]

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[265] In HAEU, WEU 138, A/P 6407, Une politique de l'aéronautique civile et militaire pour l'Europe, Gerrit Coraelis Klapwijk, L'introduction de nouveaux appareils

[266] Some 80 percent of the aircrafts on the European market was from the US, some 15 percent was from Europe. Some 0.5 percent of the aircrafts on the American market was produced in Europe. See Armitage, *A Comparative Analysis of U.S. Policy toward European Defense Autonomy*.

[267] Wolfe, *Competing with the Soviets*; Eichengreen, *Global Imbalances and the Lessons of Bretton Woods*; Schulz, Schwartz, and London, *The Strained Alliance*; Mark Gilbert, *Surpassing Realism : The Politics of European Integration since 1945* (Rowman & Littlefield, 2003), chap. 6; Adams, *Between Cooperation and Competition*; Bluestone, Jordan, and Sullivan, *Aircraft Industry Dynamics*.

Despite the semblance of agreement in the room, the Italian position was slightly different from the wholeheartedly advocated desire for harmonisation, and possibly it was the most realistic one. As stated by the Delegate Administrator of Aeritalia, Renato Bonifacio, "l'industria aeronautica nella sua globalità, e a maggior ragione quella che si occupa di materiali per la difesa, prima di un fatto industriale è un fatto politico."[268] Bonifacio believed that in case of international cooperation a political condition was indeed necessary: the national intervention for funding, sales, and intergovernmental negotiations.[269] What Bonifacio meant, as argued by Alessandro Pagni, director of external relations of Aeritalia, was that the Italian industry was not willing to compete with the American one, but to cooperate with it.[270] The need of cooperation with the US was due to the benefits that would derive from it, from the advanced know-how to the prominent and stable market share. Moreover, because of the uncertain nature of the Italian economy and governance, Rome

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[268] In Renato Bonifacio, *Anni Di Aeritalia* (Roma: Nuovo Studio Tecna, 1991), 31; See also Guido Moltedo and Romano Prodi, *E l'Italia Prese Il Volo: Vita Di Renato Bonifacio* (Torino: UTET libreria, 2010); Enio Iezzi, *40 Anni in Volo: La Serie Del G.91 Dalla Fiat All'Aeritalia Sino al Museo Francesco Baracca Di Lugo* (Walberti, 1998); Gian Franco Frassetto, *Sviluppo strategico ed organizzativo dell'Aeritalia: gruppo aerei da trasporto* (Napoli: Liguori, 1991); Baldassare Catalanotto and Cesare Falessi, *I Vent'anni Dell'Aeritalia: 1969-1989* (Milano: Libri Scheiwiller, 1989); Società aerospaziale italiana, ed., *Aeritalia: Società Aerospaziale Italiana: IRI Finmeccanica*, 1985.

[269] In July, 1967 the Italian "Comitato interministeriale per la programmazione economica" (Cipe) established an ad hoc interministerial commission, the so-called Commissione Caron (1967-1969), by the name of the Commissioner, Giuseppe Caron. The Commission task was to find a solution for the aeronautical problems in Italy and to set a possible and fruitful industrial development of the Italian aeronautic firms. As a consequence of an industrial renovation, Aeritalia was established in Naples on November 11, 1969. Aeritalia, the Italian champion national, is the result of a merger between Aerfer, Fiat (Divisione Aviazione) and Salmoraghi. See Atti parlamentari, VI Legislatura, Discussioni, Seduta del 18 maggio 1973, n. 133, p. 7509; and HAEU, WEU 40 (1), doc. 674, pp. 338.

[270] In HAEU, WEU 38, A/P 6409, Une politique de l'aéronautique civile et militaire pour l'Europe, Alesandro Pagni, Situation actuelle et perspectives de l'industrie aéronautique, p.7.

could not sacrifice short-term advantages given by its transatlantic ally for the long path of the European construction, industrial and political. To conclude, the Italian argument was shared by other European producers of aeronautic components, such as engines, electronic devices, or airframes. From the meeting two main issues emerged: the strong will of cooperation and production of a common combat fighter, and the fear of clashing into a conflict of interests with the Americans.[271]

In 1974, the effects of the oil crisis were more tangible, and the number of aircrafts produced by single European countries and sold in the global marked was decreasing sharply. The President of the WEU Assembly, Edmond Nessler, believed that whether the crisis marked the decline of Europe or her recovery depended on the governments' determination.[272] However, who was taking stances and actions were the industrialists. In fact, resolute reactions were flourishing from them, as emerged from twenty-nine representatives of the aeronautic sector presenting their views at the conference organised by the newspapers Financial Times, Aviation Daily and Aerospace Daily, in San Francisco, California, on October 15-17, 1974.[273] Mark Lambert, the international editor of the journal "FLIGHT International", summarised the stances of the representatives as follow. Pierre J. Marion, Vice-president industrial affairs, Aerospatiale, called for unity and retaliation

> starting from the premise that Europe invented air transport and was overtaken by the USA after World War Two […] co-operation had proved necessary on cost and market grounds. He suggested that […] European governments must realise the benefits of an aircraft industry. European manufacturers must unite to avoid duplication. European

[271] *Ibid*.

[272] In HAEU, WEU 67, Proceedings, Twentieth Ordinary Session, second part, IV Minutes, Official Report of Debates, Sixth Sitting, Address by the President of the Assembly p.53

[273] This meeting was a follow-up of the conference organised by the Financial Times in London on May 1973.

> airlines must agree on aircraft requirements. European financiers must join to provide effective financing. […] Marion then embarked on a warning to the US that Europe could not continue to accept the USA's protectionist attitudes to aviation imports. Europe would have no alternative but to retaliate.[274]

After Marion, Dr Werner Knieper, chairman of the executive board, Zentralgesellschaft VFW-Fokker attacked vigorously the American protectionist outlook in aviation. He felt that recently there has been some criticism from the American side of the efforts undertaken by the Europeans to achieve closer co-ordination of the activities on the European level. Moreover, Knieper continued, "we do not accept American equipment as the only logical choice" and this has been interpreted as anti-American […] but never has there been any criticism to the effect that the United States were considered anti-European."[275] After Knieper's intense argument, Alessandro Pagni, "speaking at his own request in order to put a somewhat dissenting Italian view on Europe" stated that "Europe's aircraft industry could hardly survive on its own market and could not compete effectively with the USA. The Italian industry was strongly opposed to European notions of independence or opposition to the USA. Co-operation with the USA was advisable and necessary and did not "betray" Europe."[276]

The reconstruction of Mark Lambert of the FT conference suggests two layers of interpretation: first, that even though Pagni's industrial stance unvaried from the one exposed in Paris the previous year, he was now stepping into the shoes of a representative of the political will of Rome. The figure of the expert, the engineer, was now also the one who would deliver a political vision at national and international level. Second, San Francisco confirmed the preferences of the major aeronautic actors at the European level. Therefore, France, the Federal Republic of Germany, and

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[274] Mark Lambert, FT aerospace index, in *FLIGHT International*, n° 3412, Vol. 108, October 31, 1974, p. 618.

[275] *Ibid*.

[276] *Ibid*.

the United Kingdom, historically embedded in bilateral discussions on aeronautic cooperation, decided to start substantial trilateral debates on the development of a common combat aircraft that could compete against the US predominance. Italy seemed out of the game.

a. Trilateral meetings for a European plane: Paris, Bonn, London

At the time of the 1973 Salon International de l'Aéronautique et de l'Espace of Bourget, Paris, the European countries felt the need to renew their fleets of frontlines combat aircrafts for view of the following decades, especially France, the FRG, and the UK (Ch. 1). In fact, the current aircrafts, even the ones under productions, could not satisfy the forthcoming and unpredictable scenario of the Cold War, both technologically that militarily: the Anglo-French Jaguar (the product of a successful cooperation, but a commercial failure), the McDonnel Douglas F-4F Phantom used in West Germany, the French Dassault Mirage and, surprisingly, also the noteworthy Panavia Tornado. At the beginning of the 1970s, the British Air Staff anticipated the need for a superior air- and ground-attack aircraft, with a fair range-payload, and the ambitious Short Take-Off and Vertical Landing capability (STOVL) which required a cooperation. However, France and West Germany were not in need for such an aircraft, and while London needed it for the second half of the 1980s, France wanted it operational for the early 1990s at the earliest.

Therefore, the British Air Staff decided to drop the STOVL requirement and find a compromise to work on a programme that both the French Armée de l'Air and the German Luftwaffe would find interesting. A collaborative project was the natural step in order to produce an ambitious and competitive aircraft because of the large know-how and R&D investment of the three countries. Moreover, a trilateral project would not directly operate under the NATO jurisdiction—which would have been in the case for a higher number of participants—since France withdrawal from the integrated military command of the Alliance in 1966, but not from the collective defence of the

Alliance.[277] However, NATO requirements for procurements of aircraft from countries within the Organization had to be met in any case, and the amount of money to be committed was extremely high and for a long period ahead. Despite the different operational requirements and budgets, the three major countries of Western Europe decided to launch a trinational study putting together their experts into an endeavouring programme, the so-called European Combat Aircraft (ECA).

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[277] Stephanie Freeman, 'The Making of an Accidental Crisis: The United States and the NATO Dual-Track Decision of 1979', *Diplomacy & Statecraft* 25, no. 2 (3 April 2014): 331–55; Miller and Van Hook, *Foreign Relations of the United States, 1969–1976, Western Europe; NATO, 1969–1972*; Maurice Vaïsse, Pierre Mélandri, and Frédéric Bozo, *La France et l'OTAN* (A. Versaille, 2011); Birte Wassenberg and Giovanni Faleg, *L' Otan et L'Europe: Quels liens pour la sécurité et la défense Européenne?* (Peter Lang, 2010); Maurice Vaïsse and Clémence Sebag, 'France and NATO: An History', *Politique etrangere* Hors série, no. 5 (2009): 139–50; Valášek, *France, NATO and European Defence*; Jean-Sylvestre Mongrenier, *La France, l'Europe, l'OTAN : Une Approche Géopolitique de l'atlantisme Français* (UNICOMM, 2006); André Dumoulin, *France-Otan : Vers Un Rapprochement Doctrinal? : Au-Delà Du 40e Anniversaire de La Crise Franco-Atlantique* (Bruylant, 2006); Henri Burgelin, Centre d'études d'histoire de la défense (France), and Université de Paris I: Panthéon-Sorbonne, *L'Europe et l'OTAN Face Aux Défis Des Élargissements de 1952 et 1954 : Actes Du Colloque Organisé Par Le Centre d'études d'histoire de La Défense et l'Université de Paris I Panthéon-Sorbonne Les 22, 23, et 24 Janvier 2004* (Bruylant, 2005); Jolyon Howorth and John T. S. Keeler, eds., *Defending Europe: The EU, NATO and the Quest for European Autonomy*, Europe in Transition : The NYU European Studies Series (Basingstoke ; New York: Palgrave Macmillan, 2003); Maurice Faivre, *Le Général Paul Ely et La Politique de Défense (1956-1961) : L'Algérie, l'OTAN, La Bombe* (Institut de stratégie comparée: Economica, 1998); Beatrice Heuser, *NATO, Britain, France and the FRG : Nuclear Strategies and Forces for Europe, 1949-2000* (Macmillan, 1997); Maurice Vaïsse et al., *La France et l'OTAN, 1949-1996 : Actes Du Colloque Tenu à l'Ecole Militaire, 8, 9, et 10 Février 1996, à Paris* (Editions Complexe, 1996); Frédéric Bozo, *La France et l'OTAN : De La Guerre Froide Au Nouvel Ordre Européen* (Masson, 1991); Baumann and Committee on Atlantic Studies, *Europe in NATO*; Baumann and Committee on Atlantic Studies; Harold F. Davidson, *Industrial Technology Transfer: Proceedings of the NATO Advanced Study Institute on Industrial Technology Transfer* (Noordhoff, 1977); Carl H. Amme, *NATO without France: A Strategic Appraisal.* (Hoover Institution on War, Revolution and Peace., 1967).

The first rumours about this project came from the meeting of the Ministries of Defence inside of NATO, called Eurogroup, which was held in 1975.[278] The meeting was an attempted step to set up a European committee which formally would ensure that the arms trade between Europe and America would be in balance. According to James Callaghan, at the time British Secretary of State for Foreign and Commonwealth Affairs, during the Eurogroup meeting a British official

> was told by both the Germans and the Belgians that we and the Italians would soon receive an invitation to a meeting to discuss the possibility of a Future European Fighter bomber. According to Dr. Pfeffer (F.R.G.) the meeting in Brussels attended by Benelux, French and German representatives had been a total waste of time, and it was not clear why it had been called.[279]

As overheard, one year later, on June 23, 1976 an international meeting in London was held to debate about the ECA. The discussion was chaired by a UK representative and took place under the auspices of the Independent European Project Group (IEPG). IEPG was a military structure outside NATO that comprehended members from the NATO Eurogroup countries *and* France. The London meeting was the first of four, during which it was expected to examine in detail the possibilities for the collaboration on ECA. During the meeting, the primary interest of the three countries have been made clear. First, for Britain it will be the prospects of co-operation on Jaguar/ Harrier replacement for the late 1980s and "it has been officially stated that the aim is to make this a collaborative project if possible. One-year feasibility-study contracts have been let to British industry in the past two weeks but it is being left up to the individual companies to find partners."[280]

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[278] Eurogroup was created in 1968. The only country that was not part of it was France, hence the creation of the IEPG.

[279] In TNA, FCO 33-2610, FCO 091315Z, Future European Fighter Bomber, Confidential, Callaghan May 13, 1975

[280] See Combat aircraft for Europe, in *FLIGHT International*, n° 3511, Vol. 109, June 26, 1976, p. 1686.

Second, France's Delta 2000 was not expected to cover all needed roles—fighter and attack—and therefore had to be replaced for the late 1980s. Third, West Germany would replace its "Phantoms by a new type due to enter service in 1990. In spite of this, it is understood that Germany is not expected to take an active part in yesterday's meeting, preferring at this early stage to maintain only observer status."[281] While the FRG observed, the Soviet Union moved to even higher performance offensive aircraft, the AST 403. Eventually, the London meeting revealed the differences and common points of the individual European nations on their ideas and approaches about the ECA. At the end of the discussion, the three partner countries agreed that the first and fixed aim was the operational flexibility. The second one was a high thrust/weight ratio to achieve good combat performance and a decent payload. The third was to give priority to air-to-air role instead of the air-to-ground, in case of conflict in developing both.

As mentioned by Callaghan, Italy had also been invited in 1975. However, Rome remained loyal to its position, declaring that, because of its structural weakness and political turmoil, it could not afford a European cooperation. Rome, according to the Christian Democrat Giuseppe Bettiol, would continue to look towards Washington in order to avoid that it "s'affaiblisse et se désunisse plus qu'il ne l'est déjà"[282]. Probably, the transatlantic bond of Italy and the fear to 'go European' could be related to different interpretations.[283] First, the Italian foreign policy characterised by a

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[281] *Ibid*.

[282] In HAEU, WEU 40 (1), Septième séance, pp. 233-234.

[283] Vera Zamagni, *The Italian Economy* (Agenda Publishing Limited, 2018); Giulia Bentivoglio, *The Two Sick Men of Europe? : Britain and Italy between Crisis and Renaissance, 1976-1983* (P.I.E. Peter Lang, 2018); Zaccaria, *Italy in the International System from Détente to the End of the Cold War The Underrated Ally*; Valentine Lomellini, *Il Mondo Della Guerra Fredda e l'Italia Degli Anni Di Piombo : Una Regia Internazionale per Il Terrorismo?* (Le Monnier, 2017); Erik Jones and Gianfranco Pasquino, *The Oxford Handbook of Italian Politics*, First edition, Oxford Handbooks in Politics & International Relations (Oxford, United Kingdom: Oxford University Press, 2015); Roberto Aliboni, Istituto affari internazionali, and Istituto per gli studi di politica internazionale, *La Politica Estera Dell'Italia* (Il Mulino, 2017); Gianni Toniolo, *L'Italia e l'economia Mondiale:*

low profile; second, the interior affairs, often ambiguous and tormented by political and economic instability; third, the role of the national aeronautic industry in short-term creation of jobs and economic turn-over thanks to the American contracts.[284]

These interpretations were corroborated by Renato Bonifacio during the WEU Colloquium for a European aeronautic policy held in Toulouse on February 2-3, 1976. Bonifacio, industrial representative of Italy at the Colloquium, highlighted how the Italian choice was more political than industrial, how Aeritalia had a particular "vocazione", preference, for international cooperation, and eventually how meaningful the cooperation with the United States was "aldilà di un pericoloso atteggiamento autarchico in chiave unicamente europeista."[285] Bonifacio went even further, stating that the project of a harmonised aeronautic industry in Europe was bound to stay a

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Dall'Unità a Oggi, First edition. (Marsilio, 2013); de Leonardis, *Italy's Atlanticism between Foreign and Internal Politics*; Antonio Varsori, *La Cenerentola d'Europa? : L'Italia e l'integrazione Europea Dal 1947 a Oggi* (Rubbettino, 2010); Piero Craveri and Antonio Varsori, eds., *L'Italia Nella Costruzione Europea: Un Bilancio Storico (1957-2007)*, Storia Internazionale Dell'età Contemporanea 1 (Milano, Italy: FrancoAngeli, 2009); Federico Romero and Antonio Varsori, *Nazione, Interdipendenza, Integrazione : Le Relazioni Internazionali Dell'Italia, 1917-1989*, 1. edizione. (Carocci, 2006); Brunello Vigezzi, *Politica Estera e Opinione Pubblica in Italia Dall'unità Ai Giorni Nostri: Orientamenti Degli Studi e Prospettivedella Ricerca*, 1. edizione, Collana Politica Estera e Opinione Pubblica. Quaderni 5 (Milano: Jaca Book, 1991); Antonio Varsori, *Italian Diplomacy and Contrasting Perceptions of American Policy after World War II (1947-1950)*, EUI Working Papers 250 (Florence: European University Institute, 1986); Bino Olivi, *Carter e l'Italia: La Politica Estera Americana, l'Europa e i Comunisti Italiani.* (Longanesi, 1978).

[284] In instance, the cooperation started in 1969 between Aeritalia and Boeing in order to procude a three-engines, 200 seats aircraft, series B7x7. See in HAEU, WEU 40 (3), p. 3.

[285] Bonifacio, *Anni Di Aeritalia*, 21.

delusional one until a political union would have been reach.[286] To conclude, it was responsibility of the both the governments and the national armies to find a solution.[287]

If Paris, Bonn, and London wanted to actively involve Rome into the ECA project they had to be faster than Washington because, as argued at the WEU Assembly "l'un des plus grands secrets de l'efficacité des Américains réside dans la rapidité avec laquelle ils réalisent leurs projets", projects that Italy needed to strengthen its fragile position at home.[288] Despite the trilateral meetings between the Air staffs of France, West Germany, and the UK were going on, the general perception and anticipation on the European fighter in Europe was one of pessimism. In instance, the German Chancellor, Helmut Schmidt, affirmed that he did not expect anything from Western European countries in which nationalism was still "extrêmement vivace."[289]

Air Staffs meetings nonetheless, the situation was at a standstill and as far as the aeronautic cooperation was concerned, "aucun progrès réel n'a été accompli."[290] At the end of the 1970s, the European aeronautic industry was the 'sick arm' of Europe of which, using the words of the Dutch

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[286] "È possibile ipotizzare per il futuro una collaborazione a livello europeo? […] Il problema è squisitamente politico e non può certo essere risolto a livello industriale. Nel mercato militare infatti le posizioni reciproche tra industrie manifatturiere e utilizzatori risultano invertite rispetto a quelle tipiche del mercato civile" in Bonifacio, 24.

[287] To understand where Bonifacio's idea comes from, related to the Italian situation, see: Ddl n. 1589, December 22 1956, Dpr n. 554, June 14, 1967, Ddl n. 184, May 26, 1975 for "spesa per l'esecuzione di studi, ricerche, progettazione e avviamento alla produzione di aeromobili per percorsi internazionali."

[288] In HAEU, WEU 42 (1), doc. 704, p. 125. See also Vera Zamagni, *Finmeccanica: Competenze Che Vengono Da Lontano*, Storie Di Imprese (Bologna: Il mulino, 2009); Vincenzo Comito, *Le Armi Come Impresa. Il Business Militare e Il Caso Finmeccanica* (Edizioni dell'Asino, 2009).

[289] Helmut Schmidt during the Luxembourg Summit, April 2-3, 1976. Quoted in HAEU, WEU 42 (1), doc. 704, p. 124.

[290] Hugo Adriaensens, Belgian delegate at the WEU Assembly, in HAEU, WEU 46 (1), doc. 774, May 17, 1978.

delegate at WEU, van Ooijen, "on connaît la maladie donc souffre l'industrie aéronautique européenne; on connaît aussi le remède. Reste à savoir pourquoi le patient refuse le médicament. Pourquoi ne veut-il pas sortir de son isolement, aller dans le monde, prendre l'air et limiter un peu son envergure."[291]

II. The 1980s: A new decade to fly higher

In 1978, Rome joined the European Monetary System and continued to tighten its bond with Brussels. Without leaving the side of the US, the Italian delegation at the WEU was among the most enthusiastic supporter of Spinelli's proposal and of the development of a European industry for defence.[292] The support for a common defence was gathering momentum also among the aeronautic firms and in 1979, British Aerospace (BAe) and MBB sent a formal joint proposal to the governments of West Germany and the United Kingdom for the development of what was referred to as the European Combat Fighter. In the meantime, Dassault-Bréguet, BAe, and MMB joined forces officially to lead the feasibility studies for the definition of an ECF that would be acceptable for all firms and governments—whose Air Staffs had tried to achieve up to that moment. The final design presented by the three aeronautic firms on April 3, 1980 to governments—of Italy and Spain too—and stakeholders, envisaged a fighter with twin-engine, single-seat, and a canard-delta layout. The political and technical implications were such that, at the end of 1981, Dassault-Bréguet, BAe, and MMB had to renounce to the ECF project as it was presented at the beginning. Moreover, France, UK, and FRG were constantly and parallelly working on their national projects and in cooperation with the US.

The cooperation between Dassault-Bréguet, BAe, and MMB was part of a larger and more complex phenomenon. During the 1980s, a new industrial phenomenon emerged. Identical forms of

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[291] In HAEU, WEU 40 (1), Septième séance, Compte rendu officiel des débats, p. 250

[292] In HAUE, WEU 48 (1), Troisième séance, pp.93-116; Sixième séance, pp. 178-203. June 19-20, 1979.

industrial relations were looming all over the most industrialised Western countries: shared transnational societies, technology-driven—and not policy—were established. In instance, the American joint venture Pratt & Whitney, or the British Rolls-Royce in 1983. This new paradigm, that was leaning towards the standardisation and harmonisation of production, cut of costs, and smoother sharing of know-how, developed in a moment of growing tensions between the two superpowers. The relations between the US and USSR worsen drastically after the invasion of Afghanistan in 1979 and the following rhetoric of the US President-elect, the Conservative Ronald Reagan. Moreover, the plan for the Strategic Defence Initiative launched by Reagan together with the NATO military exercise Able Archer 83 were putting at risk the already frail international balance.[293]

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[293] Dietl, *The Strategic Defense Initiative*; Lisle A. Rose, *Able Archer 83. The Secret History of the NATO Exercise That Almost Triggered Nuclear War.*, 2017; Barrass, *Able Archer 83*; Saull and Halliday, *Rethinking Theory and History in the Cold War*; Jonathan M. DiCicco, *Fear, Loathing, and Cracks in Reagan's Mirror Images: Able Archer 83 and an American First Step toward Rapprochement in the Cold War*, 2011; Hayward, *The Age of Reagan*; Vojtech Mastny, *How Able Was 'Able Archer'?: Nuclear Trigger and Intelligence in Perspective*, 2009; Cheryl Hudson and Gareth Davies, *Ronald Reagan and the 1980s : Perceptions, Policies, Legacies*, 1st edition. (Palgrave Macmillan, 2008); Christoph O. Meyer, *The Quest for a European Strategic Culture: Changing Norms on Security and Defence in the European Union* (Basingstoke [England] ; New York: Palgrave Macmillan, 2006); Edward Reiss, *The Strategic Defense Initiative* (Cambridge University Press, 1992); Sanford A. Lakoff and Herbert F. (Herbert Frank) York, *A Shield in Space? : Technology, Politics, and the Strategic Defense Initiative : How the Reagan Administration Set out to Make Nuclear Weapons 'Impotent and Obsolete' and Succumbed to the Fallacy of the Last Move* (University of California Press, 1989); Volker Schiller and Germany (West) Bundestag Wissenschaftliche Dienste, *Strategic Defense Initiative (SDI) : Auswahlbibliographie (1979-1987)* (Wissenschaftliche Dienste des Deutschen Bundestages, 1988); Robert M. Lawrence and University of Colorado Boulder Center for Space Law and Policy, *Strategic Defense Initiative : Bibliography and Research Guide* (Westview Press; Mansell, 1987); David Z. Robinson, *The Strategic Defense Initiative : Its Effect on the Economy and Arms Control* (New York University Press, 1987).

This renewed theatre of fear, where the transatlantic ally was the one troubling the status quo and escalating the hostilities, revived the sentiment of mistrust the Europeans had at the beginning of the 1970s. They could not rely on the US guarantee for support anymore in case of a soviet invasion, but also economically, after the increment of oil prices by the OPEC countries with the second wave of oil crisis and the Kippur war in 1979.[294] Western Europe decided to intensify the intergovernmental meetings on defence and security independently from the United States.[295] In this landscape, the European Combat Fighter was among the most agile solutions on the negotiation table and Paris, Bonn, and London decided to give it another chance. Therefore, the three participants to the programme decided to announce it to the Farnborough International Air Show programme of 1982. The French, particularly, made clear their intention to build an advanced combat fighter ready to go into service by the mid-1990s. While pointing out that they had the ability to construct the aircraft independently the French invited their European partners to join the programme, but the British knew that the French wanted partners on their own terms.[296] Eventually, the Future European Fighter Aircraft (FEFA) was publicly introduced at international level and Italy and Spain showed their interest in being part of such an ambitious, but trilateral project.

a. A renewed "Trilateralism" between Paris, Bonn, London…and Rome.

Italy especially declared its interest in joining the programme already on February 9-10, 1982 during the International Aeronautic Consortium held at Lancaster House in London. The Italian

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[294] Basosi, Garavini, and Trentin, *Counter-Shock*; Daniel Yergin, *The Prize: The Epic Quest for Oil, Money & Power* (Simon and Schuster, 2011); Golan, *Yom Kippur and After*.

[295] See HAEU, WEU 56 (1), doc. 947, p. 152.

[296] In TNA, FCO 33-6305, Mipt: Future Combat Aircraft, Telegram number 572 from Fretwell to FCO, June 28, 1983, pp. 1-2

delegate, the General Luigi Barbato explained that Rome's willingness to cooperate was parte of a wider political and cultural ambition for the "constitution d'une Europe unie dont les diverses composantes nationales seraient intégrées, mais [obéissant] aussi à des exigences techniques, économiques et industrielles bien précises"[297] Barbato stressed the twenty-years long tradition of Italian participation in joint programmes, such as the Tornado, to highlight the strong commitment and interest Rome had in the military aeronautic sector at the international level. Differently from its predecessors, the General disapproved openly the American way as the solution for national problem because it would only disrupt "le processus fécond d'intégration européenne qui se déroule actuellement dans le domaine de l'aviation militaire."[298] Despite the general interest expressed by Italy, the meetings continued to be trilateral.

London especially was directing all her efforts on Paris, and so the British Ambassador in France at the time, Sir John Fretwell. He was in fact "absorbed by the development of French defence policy under the Mitterrand Government, and […] keen to take any opportunity it offers to develop the defence aspect of Anglo/French relationship."[299] Interestingly enough, Sir Fretwell admitted to

> find it difficult to conceal a sneaking admiration for French defence policy. By their own lights, it works pretty well. It commands virtually unanimous national support (not a point to be ignored at a time when

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[297] In HAEU, WEU 54 (1), doc. 916, pp. 247. Luigi Barbato served as Director General from April 13, 1980 to January 17, 1983 and was member of the Committee for the approval of the law for aeronautic budget n. 372 June 16, 1977. The vice-president of the WEU Assembly, Wilkinson, on Barbato : "on ne soulignera jamais assez la sagesse des propos du Général Barbato" in HAEU, WEU 54 (1), doc. 916, p. 248.

[298] In HAEU, WEU 54 (1), doc. 916, p. 248.

[299] Sir John Emsley Fretwell (June 1930-March 2017) was a British diplomat and Ambassador in France from 1982 to 1987. In TNA, FCO 33-6305, French Defence Policy: Recent Development, Sir John Fretwell KCMG, Paris, March 10, 1983, p.1

> the traditional consensus is breaking down elsewhere in Europe). It enables the French to combine an independent foreign policy with ultimate reliance on the insurance provided by NATO's integrated military structure, without requiring them to commit any of their own forces to NATO. And, even if French conventional forces have been weakening because of the budgetary restraints and the diversion of resources to the nuclear deterrent, France is able to retain a significant capability for out-of-area intervention in pursuit of her interests overseas.[300]

The Ambassador continued stating that, possibly, the "most striking development has been not so much Mitterrand's adherence to this traditional Gaullist policy", but mostly his readiness to "state publicly and so explicitly that French interests lie in the maintenance of NATO orthodoxy", such as the NATO double-track decision of December 1979 or the dangers of decoupling the US from Western Europe.[301] According to Fretwell such statements would have been unthinkable under

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[300] In TNA, FCO 33-6305, French Defence Policy: Recent Development, Sir John Fretwell KCMG, Paris, March 10, 1983, p.1

[301] In Sven Kramer, "NATO's weak points in implementing its two-track decision" by Hubertus Hoffmann (Bonn), Paper for the 9th Conference on the Atlantic Community held by the North Atlantic Assembly, Washington D.C. April 20-26, 1981, Box 90100, Box 2, Ronald Reagan Library; TNA, FCO 33-6305, French Defence Policy: Recent Development, Sir John Fretwell KCMG, Paris, March 10, 1983, p.2 The NATO Double-Track Decision meant that NATO would offer the Warsaw Pact a mutual limitation of medium-range ballistic missiles and intermediate-range ballistic missiles. However, in case of disagreement, NATO would deploy more middle-range nuclear weapons in Western Europe leading to the well-known Euromissile Crisis. On the Double-Track Decision see: Marilena Gala, *'The Essential Weaknesses of the December 1979 "Agreement"': The White House and the Implementing of the Dual-Track Decision.*, 2019; Freeman, 'The Making of an Accidental Crisis'; H. Nehring and B. Ziemann, *Do All Paths Lead to Moscow? The NATO Dual-Track Decision and the Peace Movement - a Critique (Vol 12, Pg 1, 2012)*, 2014; Ruud van Dijk, *'A Mass Psychosis': The Netherlands and NATO's Dual-Track Decision, 1978-1979*, 2012; Kristina Spohr Readman, *Conflict and Cooperation in Intra-Alliance Nuclear*

Giscard, but they were "all the more welcome for being so unexpected" because, he continued, despite elements of hypocrisy, there were signs that the French were starting to feel slightly uncomfortable with the contradictions of their own policy. In fact, he concluded, referring to the EDA and the several withdraws performed by Paris, "it is all very well for the French to claim the role of posing the question (e.g. over WEU and European Defence) and to leave it to others to respond."[302] Sir John Graham, the British Permanent Representative on the North Atlantic Council from 1982 to 1986, agreed with Fretwell: the French seemed to be having the best of all worlds: public consent, "dine à la carte" at NATO's table, independent foreign policy, and influence over Europe.[303] However, Graham wondered nevertheless whether the appearance was the reflection of the reality and to what extent such a widespread public support was attributable to the fact that the citizens were not entirely aware of the heavy burden the nuclear policy had on the conventional forces and, as a consequence, on the combat fighter project.[304] In fact, the delay on the latter was mainly due, according to Graham, to the difficulties Paris was facing in allocating new and past resources to its defence industry. This would explain why France would constantly tend to pick

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Politics: Western Europe, the United States, and the Genesis of NATO's Dual-Track Decision, 1977–1979, 2011; Colin Klein, *The Dual Track Theory of Moral Decision-Making: A Critique of the Neuroimaging Evidence*, 2011; Kristina Spohr Readman, *Western Europe, the United States, and the Genesis of NATO's Dual-Track Decision, 1977--1979.*, 2011; Susanne Peters and European University Institute Department of Political and Social Sciences, *Strategy and Security : West German Doctrines and Their Predominance in the Evolution of the NATO Dual-Track Decision of 1979* (European University Institute, 1989).

[302] In TNA, FCO 33-6305, French Defence Policy: Recent Development, Sir John Fretwell KCMG, Paris, March 10, 1983, p.2

[303] In TNA, FCO 33-6305, French Defence Policy, to Sir J. Graham Bt., KCMG, UK Delegate at NATO, 1983, p.1

[304] In TNA, FCO 33-6305, French Defence Policy: Recent Development, from John Graham to P.J. Weston ESQ, Defence Department FCO March 30, 1983, p.1

and choose specific areas for cooperation, a choice "often dictated by a fairly hard-headed assessment of what they can get out of it."[305]

This apparently delicate position of France was holding the British attention on the next steps to take also towards West Germany according to the development of a Franco-German dialogue. Sir Christopher Mallaby, a British diplomat in Bonn, was inquiring the British defence Department on the issue.[306] Mallaby was wondering whether they should seek to intensify the defence dialogue with the Germans or whether they should suggest tripartite consultations involving France as well, especially for EFA.[307] The diplomat openly pushed the Department towards tripartite discussions on defence matters because, he continued, if the Franco-German consultations—formally taking place under the bilateral Élysée Treaty—would unexpectedly "develop into something really fruitful, we might find it difficult to jump on the bandwagon once it was moving at speed."[308] Therefore, it would be more advantageous for London to have an alternative tripartite framework available, especially because the French had avoided arranging the tripartite meeting of defence ministers on equipment co-operation before the Federal elections. "That hurdle now been crossed, could we return to the charge on this idea, perhaps proposing a particular subject such as the

[305] In TNA, FCO 33-6305, French Defence Policy: Recent Development, from John Graham to P.J. Weston ESQ, Defence Department FCO March 30, 1983, p.2

[306] Sir Christopher Leslie George Mallaby GCMG GCVO (July 1936-) was a British diplomat, and then Ambassador in Germany from 1988 to 1993.

[307] In TNA, FCO 33-6305, Defence Consultations with France and Germany, from C. L. G. Mallaby to P. J. Weston ESQ, Defence Department, FCO, April 5, 1983, p.1

[308] Ulrich Krotz and Joachim Schild, *Shaping Europe : France, Germany, and Embedded Bilateralism from the Elysee Treaty to Twenty-First Century Politics* (Oxford University Press, 2015).

advanced combat aircraft?"[309] And so they did, but why the British were pushing for a trilateral cooperation?

London had two essential aims in mind: firstly, the British sought to foster the habit of "thinking trilaterally" in a way which would allow London and Bonn to influence Paris attitude and defence policy in a European direction drawing it into a more constructive military relationship with her Allies. Secondly, the UK believed that a more coherent Western European defence effort could only be achieved through a significant degree of cooperation between the UK, France and the FRG, and a trilateral cooperation would enable a better and collective use of the resources of the three countries. As far as Italy was concerned, the British would give Rome "an occasional input, but is not really in the same league" being aware that a trilateral cooperation would engender complaints from the smaller allies, and it would have to be handled discreetly.[310] The hard part was to convince the French to arrange the meeting of Defence Ministers, because it was apparently their turn to host and they did not seem much enthusiastic about it. However, there were several reasons why that moment was ripened to develop a trilateral cooperation on European defence policy:

1. The uncertainties in the American leadership that we have seen already at the beginning of the 1970s;
2. The fluidity in NATO strategy—characterised by emerging technologies, new tactical concepts, Reagan's "Star Wars" speech— that has created further uncertainty in West Germany;
3. The slowly growing positive public opinion in the France of Mitterrand towards NATO;

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[309] In TNA, FCO 33-6305, Defence Consultations with France and Germany, from C. L. G. Mallaby to P. J. Weston ESQ, Defence Department, FCO, April 5, 1983, p.2-3

[310] In TNA, FCO 33-6305, Defence Cooperation between the UK, France and the FRG, April 29, 1983

4. The anticipation of a second meeting of the UK, FR and FRG Defence Ministers following the one held in April 1982—the first since 1979.[311]

Hence, considering the international and domestic developments, the British Defence Department prepared a document in anticipation of the following meeting between Michael Heseltine, at the time Secretary of State for Defence, and Charles Hernu, French Minister of Defence, planned for July 15, 1983. This meeting was crucial in setting the tone for future cooperation.[312] In preparation of such a meeting, the British feared that the French were wooing the Germans, without exerting any sort of political pressure, yet, and, in the meantime, they were ignoring British attempts to engage them in serious talks about the FCA. Why would Paris adopt this untrustworthy attitude towards London?[313] According to the British, "there is evidence to suggest that the French have misinterpreted our eagerness to collaborate as being motivated by the fear that the French and the Germans are close to an agreement from which we would be excluded."[314] As a consequence, Paris would find herself to be in the strong negotiating position, with London as demandeur, and would

> force the UK into second place in a European military aircraft industry led by France. […] It is also worth bearing in mind that the French have always been willing to pay whatever it costs to maintain an independent

[311] The Defence Ministers met annually from 1977 to 1979 largely to discuss equipment matters.

[312] Michael Ray Dibdin Heseltine (March 1933) is a British Conservative politician and member of the Parliament from 1966 to 2001. He served under the governments of Margaret Thatcher and John Major, and was Secretary of State for Defence from January 1983 to January 1986. Charles Hernu (July 1923-January 1990) was a French socialist politician who served as Minister of Defence from 1981 to 1985.

[313] In TNA FCO 33-6305, Mipt: Future Combat Aircraft, Telegram number 572 from Fretwell to FCO, June 28, 1983, p. 2

[314] *Ibid*.

> defence programme and might will consider developing an advanced combat aircraft on their own despite the costs.[315]

This last fear of an only French-own programme was fed by the several past withdrawals that the UK had experienced in the 1960s and 1970s (Ch. 1). How can the British convince the French and avoid the catastrophe or a predictable withdrawal? First, London needed the support of the FRG, and second, it needed to disabuse the French of any idea that the British eagerness to collaborate sprang from fear of being left out of the programme. In order to convince the French, the British wanted to make them believe that their last aim was a definite independent programme "to leave them in no doubt that there are viable options open to us beside partnership with France." Another attempt was to strengthen their position with the Tornado partners and consolidate our domestic programme. Therefore, "when the French begin to look in earnest for partners in this venture we would be in a position to negotiate from a position of strength and exploit to the full their weakness on radar and avionics."[316] With this strategy in mind, the joint FCO/MOD paper on the defence relationship with France and Germany was prepared in anticipation of the meeting between Heseltine and Hernu. The paper gave an overview and a reflection of the complexities in developing bi- and trilateral relationships with the French. However, the paper did not aim at offering a blueprint for the way forward in these relationships, but rather identified the areas in which a measure of progress might be made, and with what tone.[317] That tone for subsequent developments was to be established during the meeting of July 15.

On the day of the meeting, Hernu and Heseltine discussed several topics, ranging from the differences in attitudes towards the Alliance to the French defence doctrine; from conventional

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[315] *Ibid*.

[316] *Ibid*.

[317] In TNA, FCO 33-6305, UK Defence cooperation with France and Germany, Loose Minute DS12/24/3, July 1983, pp.1-2.

defence cooperation (out of area, Host Nation Support) to nuclear matters. Most importantly, the two Ministers of Defence debated on:

1. Equipment collaboration: the development of the FCA and, almost as a negotiation, the British use of Ariane for the launch of Skynet 4. On this last point, apparently "Hernu had stressed the significance of using a European launcher" and had "emphasized French hopes that the UK would give careful consideration to Ariane as the launcher for Skynet 4."[318]
2. Limited joint co-operation: training and visiting the respective armed forces which would be pursued exclusively at Chiefs-of-Staff level.
3. Trilateralism: the arrangements for the next trilateral Defence Ministers' meeting.

According to Heseltine, the two Ministers agreed on "the harmonization of the operational requirements of the French and British armed forces, and thus of their equipment needs, particularly over the next generation of fighter aircraft."[319] Most importantly, the next tripartite Defence Ministers would be held in only two months.

[318] In MTF, TNA, PREM 19/1240 f72, Record of the Plenary session of the Anglo-French Summit, held at n°10 Downing Street at 1045 on Friday 21 October 1983. France: No.10 record of conversation (MT-President Mitterrand), October 21, 1983, p.5

[319] In MTF, TNA, PREM 19/1240 f72, Record of the Plenary session of the Anglo-French Summit, held at n°10 Downing Street at 1045 on Friday 21 October 1983. France: No.10 record of conversation (MT-President Mitterrand), October 21, 1983, p.5

i. The Italian exclusion from the game

On September 21, 1983, the French, German and British Ministers of Defence met in Paris after four years from their last meeting. The man behind this initiative was the Conservative Sir John Nott.[320] His intention was that the tripartite relationship should develop by considering both equipment and defence matters, but also resources management and strategy.[321] In fact, the outcome of the meeting was the general agreement on conserving the tripartite nature of these gatherings in order to achieve Nott's goals. Despite the benefits a larger collaboration would provide, the Ministers realised it was difficult enough to coordinate the activities of three countries, and there was no space for others. This was an important stance to embrace for the European cooperation and that would soon irritate the smaller European allies.[322]

Italy was the loudest resentful. "The Italians have taken every opportunity, including the meetings between Spadolini and Mr. Heseltine on 25 October and Amdreotti (sic!) and the Secretary of State on 31 October to express their disappointment at their exclusion from the meeting."[323] Moreover, Rome drew attention to its closer and early involvement in all aspects of the aeronautic activity in Europe, including questions of aircraft manufacture and procurement since the last series of tripartite meetings in 1977/79, but especially on the Future Combat Aircraft debates in which they were already participating via the Air Staff operational requirement talks. Protests notwithstanding,

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[320] Sir John Nott (1932-) served as Secretary of State for Defence from January 1981 to January 1983.

[321] In TNA, FCO 33-6305, Tripartite Defence Ministers' Meetings: Italian reaction, from FCO to Paris, telegram number 641, December 6, 1983

[322] In MTF, TNA, PREM 19/1240 f72, Record of the Plenary session of the Anglo-French Summit, held at n°10 Downing Street at 1045 on Friday 21 October 1983. France: No.10 record of conversation (MT-President Mitterrand), October 21, 1983, p.5

[323] In TNA, FCO 33-6305, Tripartite Defence Ministers' Meetings: Italian reaction, from FCO to Paris, telegram number 641, December 6, 1983

in late October Hernu and his German counterpart, Manfred Hermann Wörner, were still reluctant to expand the tripartite forum including Italy to meet Italian concerns.[324] The strong opposition to the Italian participation derived from three main reasons: "(a) The Italians have little to contribute to a dialogue which is essentially about the central region, (b) An Italian presence would have an inhibiting effect on the French, (c) It would encourage the Dutch and others to apply to join the group."[325] However, London, Paris and Bonn did not oppose to include Giovanni Spadolini, the Italian Minister of Defence, in a quadripartite meeting specifically on procurement issues, such as the Future Combat Aircraft. [326] After three months from the tripartite meeting, London, Paris, and Bonn were still considering how to respond to the Italian reactions with one voice.

On December 8, Hernu proposed three solutions: (1) that the WEU would determine a framework for discussion of arms procurement among the European allies; (2) to organise a meeting of WEU Defence Ministers in Rome in 1984 to celebrate the organisation's 30th anniversary; (3) To include the Italians exclusively in consideration of the FCA by maintaining the tripartite forum while arranging occasional quadripartite *ad hoc* meetings with Rome solely for the aircraft[327]. The Germans favoured Italian, but also Spanish participation in all future discussions on the Future Combat Aircraft and believe that one Ministerial meeting *à cinq* was actually necessary for such a project to be started in Summer 1984. Moreover, the Germans saw the WEU meetings "as a way

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[324] Manfred Hermann Wörner (1934-1994) was a German politician and diplomat. He served as Minister of Defence of West Germany from 1982 to 1988 and then served as the seventh Secretary General of NATO until 1994.

[325] In TNA, FCO 33-6305, Your tel 641 to Paris: Tripartite Defence Ministers Meetings, Telegram number 1124 from Bonn to FCO, December 8, 1983

[326] Giovanni Spadolini (1925- 1994) was a Republican Italian politician, the 44th Prime Minister of Italy from 1981 to 1982 and later Minister of Defence from 1983 to 1987.

[327] In TNA, FCO 33-6305, Tripartite Defence Ministers' Meetings: Italian reaction, from FCO to Paris, telegram number 641, December 6, 1983.

of saving Italian face, as well as satisfying French desires for greater WEU activity. But they see no connection between the proposed WEU ministerial meeting and the FCA, and think that to put FCA on the WEU agenda would only upset the Spanish."[328] Eventually, the British welcomed Hernu's idea as "an additional sop to the Italians" and Italy was in the game too.[329] A week later, on December 16, 1983 the Prime Ministers of France, Italy, Spain, United Kingdom and West Germany signed the agreement that would launch the preliminary phase of the FEFA project. The combat aircraft, according to the agreement, was meant to be produced in cooperation—at the unitary cost of about 22 million of US Dollars—and to be operative at the beginning of the 1990s.[330] This agreement different from the previous ones: for the first time since the end of the Second World War, *four* Western European countries signed a collaboration for the development of a common combat aircraft.

III. The road towards the Turin Conference of 1985

The year 1983 ended with the official agreement on the FEFA and a renewed escalation of the Cold War caused by Reagan's rhetoric and global events—from the "evil empire" speech and his Strategic Defense Initiative (SDI) to the Soviet fire on the Korean Airlines flight. The following year began with a new international scenario. Reagan entered his electoral campaign for his second term and Mikhail Gorbachev was elected General Secretary of the Communist Party of the USSR

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[328] In TNA, FCO 33-6305, Your tel 641 to Paris: Tripartite Defence Ministers Meetings, Telegram number 1124 from Bonn to FCO, December 8, 1983

[329] In TNA, FCO 33-6305, P.J. Weston of the Defence Department in "Tripartite Defence Minister meetings", December 19, 1983

[330] In HAEU, WEU 58 (1), doc. 971, 1984, p. 101.

in February 1984.[331] This new Cold War scenario led the Western allies to look for more adaptability in defence strategy and costs. In fact, the great unknown variable was the growth of threat coming from the USSR which meant growth of real costs in defence procurements. According to NATO's yearly studies, the Russians, as well as the Allies, were devoting some 14-16 percent of their GDP to military expenditure, probably as a consequence of Reagan's inflaming attitude.[332] Specifically, at the end of 1982 the WEU members were investing on national defence as follow:

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[331] Mikhail Sergeyevich Gorbachev (1931-) Russian politician, eight and last General Secretary of the Soviet Union of its governing Communist Party from 1985 to 1991. He served as President of the Soviet Union from 1990 to 1991. For Gorbachev's biography and political role see William Taubman, *Gorbachev : His Life and Times* (Simon & Schuster Ltd., 2017); Maria A. Rogacheva, *The Private World of Soviet Scientists from Stalin to Gorbachev* (Cambridge University Press, 2017); Chris (Research fellow) Miller, *The Struggle to Save the Soviet Economy : Mikhail Gorbachev and the Collapse of the USSR* (The University of North Carolina Press, 2016); Alexander von Plato and Edith Burley, *The End of the Cold War? : Bush, Kohl, Gorbachev, and the Reunification of Germany*, First edition. (Palgrave Macmillan, 2015); Wilson, *The Triumph of Improvisation*; Vladislav M. Zubok, *A Failed Empire: The Soviet Union in the Cold War from Stalin to Gorbachev* (University of North Carolina Press, 2009); Leopoldo Nuti, *The Crisis of Détente in Europe: From Helsinki to Gorbachev, 1975-1985*, Cold War History Series 23 (London ; New York: Routledge, 2009); A. S. Grachev, *Gorbachev's Gamble : Soviet Foreign Policy and the End of the Cold War* (Polity, 2008); Vladislav Zubok and Mario Rimini, 'Gorbaciov e Il Ruolo Della Personalità Nella Storia', *Ventunesimo Secolo* 5, no. 10 (2006): 9–48; Mikhail Sergeevich Gorbachev and Zdeněk Mlynář, *Conversations with Gorbachev : On Perestroika, the Prague Spring, and the Crossroads of Socialism* (Columbia University Press, 2002).

[332] The annual reports to the American Congress on allied commitments to defence spending (March 1982) and on allied contributions to the common defence (March 1982), submitted in accordance with the Levin Amendment to the 1982 Defence Authorisation Act pointed out that "collectively [the NATO allies and Japan] have 80% greater population, four times the GDP and more than double the per capita GDP of the Warsaw Pact" in HAEU, WEU 56(1), Explanatory Memorandum, submitted by Mr. Wilkinson, Rapporteur, Document 947, IV. The transatlantic debate, 1983, pp.139-140

WEU Members	Defence expenditure (official currency, 1983 value)	Defence expenditure as % of GDP in purchasers' values	Defence expenditure as % of % of total WEU	NATO figures
Belgium	127.901 million F.B.	3,3 %	3,31 %	$ 3,56 milliards
France	145.155 million Francs	4,1 %	26,45 %	$ 26,0 milliards
Federal Republic of Germany	54.554 million DM	3,4 %	25,84 %	$ 25 milliards
Italy	12.066 milliards Lire	2,6 %	10,46 %	$ 8,89 milliards
Luxemburg	1.976 million F.L.	1,2 %	0,05 %	$ 50,6 milliards
The Netherlands	11.932 million Florins	3,2 %	5,12 %	$ 4,93 milliards
United Kingdom	14.186 million £ Sterling	5,3 %	28,78 %	$ 28,66 milliards
Total WEU Members		3,8%	100.00	
United States	198.509 million $	6,6 %	222,04 %	

Figure 6 - National expenses on defence by WEU Members. The expenses are estimated on national currency units, at 1983 prices.[333]

[333] From NATO's study M/DPC/2 (82)24, published in December 1, 1982. In HAEU, WEU 57 (1), Dépenses nationales de defense des pays de l'U.E.O, Document 963, Annexe I, 1983, p. 300

The disproportion between the American expenses and the total amount of the WEU Members one was humongous. Moreover, the burden-sharing debate was arising largely through the perceptions of the United States, especially at Congress, of supposed shortcomings on the European allies' part. These shortcomings parts included inadequate contributions to what the US believed the allied defence effort should be. Hence, they meant the failure of the European allies to follow US economic and political relations policy with the Soviet Union and the Warsaw Pact countries.[334] Hence, NATO, and the Reagan Administration, were asking for an increased defence expenditure. However, a continued and growing investment in defence was not a sustainable position in the long run, neither for the Soviet nor for the Europeans. The British were protesting against this trend of rising costs of defence procurement often required by NATO—especially since further studies from the CIA seemed to indicate that NATO might have over-estimated the levels of Soviet expenditure.[335] Moreover, for the British Conservative government it was "ironic that the UK in particular and NATO in general fail to exploit the benefits of competition in the one area where our market philosophy should assist us most in our defence against the Soviet threat."[336]

This assertive American attitude was not unfamiliar to the WEU Members. Indeed, the Jimmy Carter Administration under had placed the same emphasis on the contribution to defence as the Reagan one.[337] Moreover, both the Democratic and Conservative Administrations stressed the need

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[334] In HAEU, WEU 56(1), Explanatory Memorandum, submitted by Mr. Wilkinsson, Rapporteur, Document 947, IV. The transatlantic debate, 1983, pp.139-140

[335] In TNA, PREM 19/1440, "The rising costs of defence procurement", from David Pascall to Mr. Coles December 13, 1983

[336] In TNA, PREM 19/1440, "The rising costs of defence procurement", from David Pascall to Mr. Coles December 13, 1983

[337] James Earl Carter Jr. (1924-) is a Democratic American politician who served as the 39th President of the United States from 1977 to 1981, and he was awarded the Nobel Peace Prize for his Carter Center. Cfr. Schulz, Schwartz, and London, *The Strained Alliance*; Betty Glad, *An Outsider in the White House: Jimmy Carter, His Advisors, and*

of standardisation and, or at least, of interoperability of allied equipment.[338] However, the differences were striking. On the one hand, Carter suggested that a large-scale intra-European could make Europe a true competitor for the United States. On the other hand, while the Reagan Administration constantly stressed the imbalance of trade between the US and Western Europe as an obstacle in pursuing cross-Atlantic industrial teaming it did not "mention the expediency of intra-European cooperation […] and, although on the one hand it proposes to repeal the Buy American Act, on the other hand it vigorously asserts the need for a 'major leadership role for industry' and a reduction in 'obstacles to direct industry-to-industry agreements.'"[339] Eventually. This tendency of the "United States Administration to assume that its approach East-West relations is the correct one for the alliance as a whole has left to an increase in consultation on defence and security issues among the European countries independently of the United States"[340]

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the Making of American Foreign Policy (Ithaca: Cornell University Press, 2009); Scott Kaufman, *Plans Unraveled: The Foreign Policy of the Carter Administration* (DeKalb: Northern Illinois University Press, 2008); Itai Nartzizenfield Sneh, *The Future Almost Arrived: How Jimmy Carter Failed to Change U.S. Foreign Policy*, vol. 5, Studies in International Relations (New York: Peter Lang, 2008); Olivi, *Carter e l'Italia*.

[338] In HAEU, WEU 56(1), Explanatory Memorandum, submitted by Mr. Wilkinson, Rapporteur, Document 947, IV. The transatlantic debate, 1983, p. 149. Also in HAEU, WEU 57 (1), La sécurité européenne et le partage des charges au sein de l'Alliance, Rapport présenté au nom de la Commission des Questions de Défense et des Armaments par M. Wilkinson, rapporteur, Document 959, Conclusions, November 7, 1983, p. 189

[339] In HAEU, WEU 56(1), Explanatory Memorandum, submitted by Mr. Wilkinson, Rapporteur, Document 947, IV. The transatlantic debate, 1983, p. 149

[340] In HAEU, WEU 56(1), Explanatory Memorandum, submitted by Mr. Wilkinson, Rapporteur, Document 947, IV. The transatlantic debate, 1983, p. 141

b. EFA's blueprint

In 1984 the members of WEU considered of utmost importance the development of the European defence industry, specifically the aeronautic one. Indeed, according to the WEU Assembly, "l'environnement aérien actuel de l'Europe occidentale requiert une extrême maniabilité. Rien ne présente plus d'importance pour l'avenir de l'industrie aérospatiale de l'Europe occidentale que la construction de ce nouvel appareil."[341] The Assembly of WEU was advocating for Dassault to join the British, German, and Italian partners in order to create a quadripartite association. Bearing in mind the challenge of such a venture, Europeans had to consider that "il n'y a pas de projet présentant une importance industrielle ou militaire plus grande que la construction du nouvel avion de combat dont les forces aériennes des quatre pays auront besoin." Eventually, if the Europeans would not act promptly, the Americans would propose one of their combat fighters that most probably might satisfy individual needs but will surely jeopardise the European industry as a whole. Finally, another valuable opportunity would be lost.[342]

Following WEU's resolute recommendation, the five European partners (London, Bonn, Paris, Rome, Madrid) started the feasibility studies on the FEFA. Slowly the national requirements of the partners began to converge.[343] A spectrum of desired characteristics was established in order to permit the agreement by the five Air Staffs of an Outline European Staff Target (OEST). OEST confirmed that the technology needed to design the desired aircraft existed: a single seat, twin-engine machine, smaller than Tornado, but larger than Harrier, with the flexibility to complement

[341] In HAEU, WEU 57 (1) Compte Rendu Officiel des Débats, Septième Séance, Wilkinson, 1983, p. 119

[342] In HAEU, WEU 57 (1) Compte Rendu Officiel des Débats, Septième Séance, Wilkinson, 1983, p. 119

[343] "The RAF's requirement for front-line aircraft has four essential components: a. long-range strike, attack and interdiction; b. shorter range offensive support including STOVL capability; c. long-range all-weather interception of the bomber threat for UK air defence; d. tactical air defence and ground attack capability in the Central Region, UK Air Defence and Flanks." The first three components' arrangements were advanced enough to meet the expected threat over the next 20 years in TNA, PREM 19-1440, MO 26/11/9, Future Fighter Aircraft, July 2, 1984, p.6

both. However, differences in design's requests soon emerged. The French, in instance, were pressing for a smaller and therefore less capable aircraft that was yet considered necessary by the British to counter Soviet's Fulcrum and Flanker. Moreover, France required a dominant share in any joint programme, unacceptable for the rest of the group, especially because the precise collaborative agreement on characteristics, performance and costs had not been met yet. Progress in 1984 has not been encouraging. The role of OEST was not clear yet, and the British were worried about whether the staff target reflected the threat or outlined the most appropriate solution to meeting the threat. Still, the FCA was considered by London as "the largest and most significant military procurement decision during this Parliament. At an expected minimum cost of £4 billion, we cannot afford to get it wrong" and should simultaneously examine other options because "at the moment this is a political plane intended to unify Europe."[344]

On July 1, 1984, the Defence Ministers of France, West Germany, Italy, Spain and the United Kingdom met in Madrid and approved the report produced by their national Armament Directors on the "European Fighter Aircraft (EFA-ACE)."[345] The Ministers signed also a Resolution on the need to develop and produce EFA, its engine, and weapon system for 1995: the Air Staffs had six months to deliver a collaborative "Technical and Industrial Feasibility Study". The feasibility study was expected to produce realistic estimates for the costs of every single phase of EFA in order to contain the final costs of the product.[346] Eventually, a new report on EFA by the Armament Directors was expected from the five Ministers in March 1985, when the next Ministerial meeting would take place.

As proposed by Hernu after the tripartite Ministerial meeting of 1983, a different Ministerial meeting was scheduled for October 26-27, 1984 in Rome (Ch. 2). The Italian government invited

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[344] In TNA, PREM 19-1440, David Pascall to Mr. Powell, Future Fighter Aircraft, June 4, 1984, p.1

[345] In TNA, PREM 19-1440, "Ministerial Resolution on the European Fighter Aircraft (EFA-ACE)", July 9, 1984

[346] In TNA, PREM 19-1440, MO 26/11/9, European Fighter Aircraft, Ministry of Defence to Prime Minister, July 19, 1984, p.2

the Ministers of Defence and Foreign Affairs of seven country members of WEU for an extraordinary session of the Assembly of WEU in commemoration of the 30th anniversary of the modified Treaty of Brussel. The Ministers signed the so-called "Rome Declaration" that ratified the institutional reform of WEU and inaugurated a new phase of activities and duties for the intergovernmental body. The Italian Ministers, Giulio Andreotti, Minister of Foreign Affair, and Giovanni Spadolini, Minister of Defence, used this meeting to reaffirm their position at European and transatlantic level on defence matters. On the one hand, Andreotti stressed that common defence and security policy were fundamental aspects of the European construction and that could eventually shape the European identity. On the other hand, Spadolini underlined the urgency in balancing the armament exchanges between Europe and the US since its deficit was a growing heavy burden to sustain. That deficit, Spadolini continued, was putting at risk the European collaboration and defence and was "shaking the most intimate fibres of the national sovereignty" of the Western European countries.[347] National sovereignty was one of the main problems for EFA indeed.

c. "No winners and no losers"

"A taste of what's to come" is bound to national sovereignty indeed—says the handwritten note of Heseltine in his minute on EFA delivered to Thatcher.[348] It was February 1985, and the submission of the Feasibility Study was postponed from March to late April, early May, and so the next five-nation Ministerial meeting. Apparently, according to the British Minister of Defence, the Air Staffs of the five industrial national champions had not achieved unanimity and had presented two

[347] Author's translation from the Italian "vibrare le fibre più intime della sovranità nazionale" in HAEU, WEU 59, Session extraordinaire, pp. 34-42.

[348] In TNA, PREM 19-1440, MO 26/11/9, European Fighter Aircraft, Ministry of Defence to Prime Minister, February 26, 1985

proposals: one from the British, German, Italian and Spanish national champions; and one from the French one, Dassault. While the airframes proposed shared several similarities and were conform to the weight specifications as previously agreed by the Ministers, the sizes of the engine were significantly different.[349] The French were indeed proposing an engine some 10% smaller than the other proposal and that would compromise EFA's performance and capability to meet the threat—namely Fulcrum and Flanker—but also the nations' need to re-engine the Tornado's air defence variant. Heseltine believed that Hernu's interest in seeking a collaborative programme was genuine, but that he was under tremendous pressure from the national industry, trade unions and Defence Department. However, he expected that a collaboration at five would only be possible under Paris leadership, and London could not allow it. Considering the French attitude, Heseltine notified Thatcher that, in case a European cooperation could not be secured, the British Defence Department had already undertaken independent studies of alternative options available to the United Kingdom. Assuming available funding from the national defence budget, the options would require an off-the-shelf purchase from the US.[350] Eventually, Heseltine concluded, "Hernu and I have agreed that a collaborative project can go ahead only on the basis that there can be 'no winners and no losers' in each of the three main sectors: airframe, engine and equipments."[351]

The Minister of Defence was not the only one to be concerned about France. Nicholas Owen, Thatcher's policy advisor, highlighted the fundamental and risky differences emerged between the

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[349] The weight had to be of 9 ½ tonnes basic mass empty (BME) with a tolerance of ¼ tonne upwards or downwards, in TNA, PREM 19-1440, MO 26/11/9, European Fighter Aircraft, Ministry of Defence to Prime Minister, February 26, 1985, p. 1

[350] Heseltine was referring to the F15, F16, F18 and F20 and to build an American aircraft under licence in the UK. In TNA, PREM 19-1440, MO 26/11/9, European Fighter Aircraft, Ministry of Defence to Prime Minister, February 26, 1985, p. 2

[351] In TNA, PREM 19-1440, MO 26/11/9, European Fighter Aircraft, Ministry of Defence to Prime Minister, February 26, 1985, p. 4

British and the French. These differences, Owen explained, reflected the different attitudes to military threats, exports, aeronautical engineering, and collaboration. Moreover, he continued, London has moved "dangerously far towards accepting […] that we need a new fighter at all" and a "weight limit of 9.5 +/-0.25 tonnes which, in the views of a number of experts, is too small to accommodate the power and the avionics which will enable this place to be effective."[352] In fact, the policy advisor continued

> to identify a Soviet attacker at a sufficient distance to launch missiles before he does, a radar of a certain diameter is required, located in the nose of the aircraft. This, in turn, affects the shape of the fuselage, the drag it gives rise to, the power required of the engine, and hence the weight of the aircraft. If one disregards these basics, we could end up with a Third World aircraft […] we are now doing the unhappy AEW Nimrod programme.[353]

Following Owen's line, Norman Tebbit, Secretary of State for Trade and Industry, shared the same fears, but to a greater—and mainly political—extend. Tebbit prospected that the French, "by ruthless exploitation of the weakness of our negotiating tactics" might destroy the British capacity to achieve a national programme. He dreaded the French would relegate London to a secondary position in the EFA project or worse "produce a French dominated project instead."[354] Tebbit's worries were such that he reported to Thatcher his doubts on Heseltine's enthusiasm for the EFA

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[352] In TNA, PREM 19/1440, European Fighter Aircraft (EFA), from Nicholas Owen to Prime Minister, March 14, 1985, p.1

[353] In TNA, PREM 19/1440, European Fighter Aircraft (EFA), from Nicholas Owen to Prime Minister, March 14, 1985, p.2

[354] In TNA, PREM 19/1440, European Fighter Aircraft (EFA), from Norman Tebbit (Secretary of State for Trade and Industry) to Michael Heseltine, March 14, 1985, p.1

that may led him to premature commitments, despite the Minister of Defence's assurance on the fact the British participation in the collaborative studies was entirely without commitment at that early stage.[355] Reassurance nonetheless, Tebbit wondered "why not ask Michael Heseltine why he (rather than the RAF and Bae) wants a new fighter"?[356] As a consequence, an informal meeting of British Ministers was arranged urgently to discuss some of the issues raised by the participation in the EFA project, the development of a national project, and the eventual purchase of a US aircraft—off-to-shelf or made in the UK under licence.[357] On April 30, 1985, the Prime Minister held an informal meeting with the Foreign Secretary, the Chancellor of Exchequer, the Trade and Industry Secretary, the Defence Secretary, and the Chief Secretary. A number of arguments were advanced in favour and against the EFA programme (costs, capability, production, job creation, threat effectiveness, etc.). However, the most fundamental question laid still in the room "how can we stop the French running rings round us?"[358] Eventually, Thatcher asked Heseltine and Tebbit to write a joint memorandum on EFA to resolve the differences and propose the best alternative.[359] The outcome of the paper submitted on May 2, was that both Heseltine and Tebbit were in favour to proceed with the EFA, at their conditions. London was boldly ready to face the next Ministerial meeting.

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[355] In TNA, PREM 19/1440, European Fighter Aircraft (EFA), from Michael Heseltine to Norman Tebbit, March 18, 1985, p.1

[356] In TNA, PREM 19/1440, European Fighter Aircraft, B, April 26, 1985.

[357] In TNA, PREM 19/1440, European Fighter Aircraft (EFA), from Peter Rees (Chief Secretary) to Prime Minister, April 2, 1985, p.2

[358] In TNA, PREM 19/1440, European Fighter Aircraft, A, April 26, 1985

[359] In TNA, PREM 19/1440, European Fighter Aircraft, Charles Powell (Private Secretary) to Richard Mottram Esq (Ministry of Defence), April 30, 1985, pp.1-2

On May 16, the meeting of Ministers of the Five Nations took place in Rome.[360] From this meeting, also the different stances of the partners became more transparent. Apparently, Wörner was amazed by the way the British had played a fair and straight game in the pursuit of the EFA, in fact at no stage there was any divergence between the British and German position. This perception gave him more confidence and commitment into the project, especially after Chancellor Kohl—who wished to give the French every chance for cooperation—scheduled a meeting between Wörner and "Mitterrand to urge him to take a more sensible view" on the European cooperation.[361] Italians and Spanish did not play a great role in the meeting, still, the firsts stated firmly their position next to the British, and the seconds, waiting for an answer to their pending status as European member, were quietly evaluating the best offer, politically and industrially. The French decided to expose themselves more. Indeed, it was now clear that the French industries seemed "unwillingly to make this genuinely collaborative effort and appears more interested in getting the rest of us to join their prototype ACX proposals," the Rafale. If the Five made only limited progress in Rome, Paris was "very much out on a limb", and London emerged as the leader of the European collaborative project, of EFA.[362]

Several meetings took place during the summer of 1985, and a new deadline was set to decide on the EFA: by July 15, the five countries should produce an agreement on the final feasibility study that sees "one aircraft with a BME of 9.5 tonnes, plus an allowance for 140kg of equipment, plus

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[360] In TNA, PREM 19/1440, European Fighter Aircraft (EFA), from Michael Heseltine to Norman Tebbit, March 18, 1985, p.2

[361] In TNA, PREM 19/1440, MO 26/11/9, European Fighter Aircraft, from Ministry of Defence to Prime Minister, May 17, 1985, p. 2

[362] In TNA, PREM 19/1440, MO 26/11/9, European Fighter Aircraft, from Ministry of Defence to Prime Minister, May 17, 1985, p. 2-3

a contingency of 110kg."[363] A compromise on the weight was clearly reached to satisfy the French concerns, however, this compromised seemed a remote acceptable solution for them. The other countries were now considering going ahead, if necessary, leaving France behind.

Finally, on August 1, 1985 the national armament directors of West Germany, United Kingdom, Italy, Spain and France met again in Turin. At the Turin Conference, the five partners were divided over the final feasibility study, and following disagreement over the aircraft, its development and the industrial management, led the Germans, British, and Italians to continue the project, whilst the French and Spanish reserved their final decision within a fortnight.[364] Eventually, Spain refused to cooperate bilaterally, or better, as a junior partner, with France on Rafale and re-joined the Panavia group in September.[365] France, on the other hand declined to re-join the EFA, despite Hernu's wishes for a European solution, and would continue to pursue her own independent path. Paris officially withdrew from the project and announced the development of its government-owned combat aircraft that could completely satisfy its operational requirements, the Rafale.[366]

After the Turin Conference, the four remaining countries cooperated rapidly to start developing the EFA under two brand-new consortiums, Eurofighter and Euroject Turbo GmbH formed

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[363] In instance, the meeting in London during the IEPG one on 17 and 18 June, in Milan and Bonn at the end of July. In TNA, PREM 19/1440, MO 26/11/9, European Fighter Aircraft, from Ministry of Defence to Prime Minister, June 18, 1985, p. 3

[364] In TNA, Ministry of Defence (hereafter DEFE) 72/403, "Spain would be ready to take part in the construction of the new European Combat Airctaft", The French position, from Le Monde, August 11-12, 1985.

[365] In TNA, DEFE 72/415, EFA, from G.G. Wetherell to Mr. Cleghorn (Defence Department), October 29, 1985.

[366] Gérard Dubey, *La Complémentarité Des Approches Historique et Anthropologique Pour l'analyse Des Mutations Socio-Techniques : L'introduction Du Rafale Dans l'armée de l'air*, 2019; Romain Mielcarek, *La Diplomatie Du Rafale*, 2018; Pierre Affuzi, 'L'Europe de l'armement, Encore Une Exception Française', *Critique Internationale* 6, no. 1 (2000): 29–37.

respectively in June and September 1986. These two consortiums led the following—not easy, and surely delayed—project on the path already walked during the Panavia experience.[367]

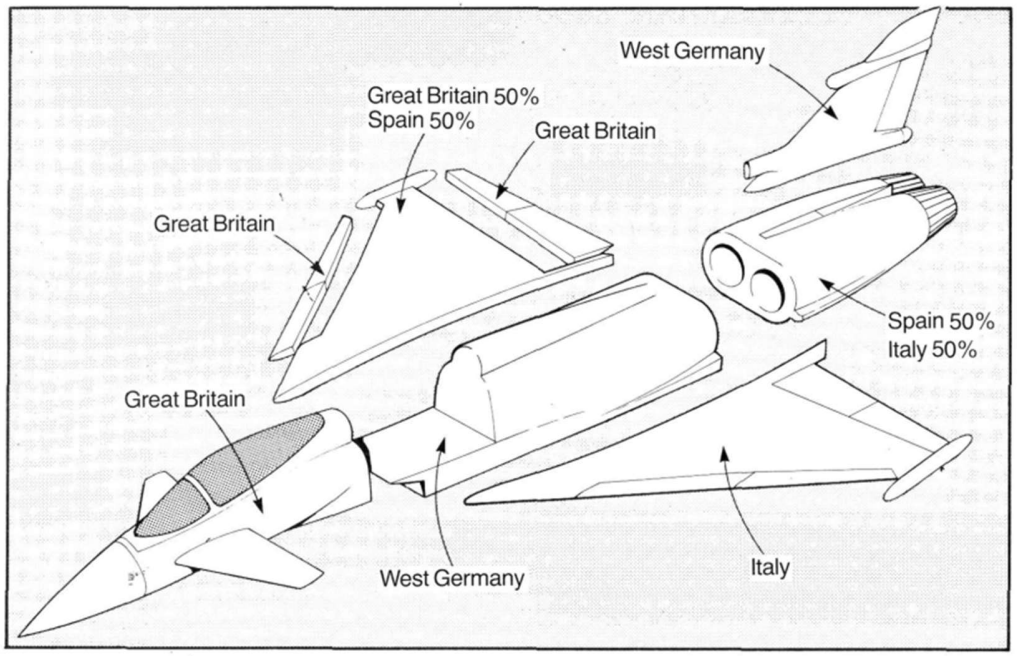

Figure 7 – Work division among the four Members of the EFA project[368]

[367] The consortium was composed by the British Jagdflugzeug GmbH of Bae, the German MBB/Dornier (renamed Daimler-Benz Aerospace, DASA in 1992), the Italian Aeritalia (later merged with FIAT and renamed Alenia) and the Spanish Construcciones Aeronauticas SA, CASA. Another consortium was established later that year to produce the engine of the EFA. The Eurojet Turbo GmbH was formed by the British Rolls-Royce, the German MTU-München, the Italian Fiat-Aviazione and the Spanish ITP. Being EFA a project composed by more than three NATO members, it fell under NATO's jurisdiction and a NATO European Fighter Management Agency (NEFMA) had to be established to comply with the Alliance's regulations. Cfr. Susan Willett and Københavns universitet Center for Freds-og Konfliktforskning, *Eurofighter: White Heat of Technology or White Elephant.* (COPRI, 1998).

[368] In *FLIGHT International*, 'UK takes EFA initiative', November 14, 1987, n° 4088, Vol. 132, p.9

As with the Panavia Tornado programme, the four members split the workshare on the manufacturing of the EFA's components accordingly to each country's planned number of purchases: 250 aircrafts (33% of workshare) for the United Kingdom and West Germany, 165 aircrafts (21% of workshare) for Italy, and 100 aircrafts (13% of workshare) for Spain. Once all was set, the Cold War came to an end and the whole project suffered the lateral effects of the end of a long era. Already in 1990, the Germans were coping with budgetary issues looking for cheaper off-the-shelf alternatives to the EFA. One year after the tumultuous fall of the Berlin Wall, Volker Rühe, German Minister of Defence, threatened to withdraw from the programme because of financial problems and later decided to drop the number of purchases from 250 to 140 aircrafts. Germany was not the only country that was experiencing complications. Italy as well dropped her purchases from 165 aircrafts to a number between 90 and 130, and so Spain down to 72-84. Throughout the whole year 1992, the four countries debated on the political outcome of such a problematic programme in the post-Cold War. In December, a reborn—namely, cheaper and more flexible—EFA emerged, the notorious Eurofighter 2000 (EF 2000) as we know it today. EF 2000 DA.1 (development aircraft n.1) prototype had its successful first flight test on March 27, 1994.

Despite the moment of success of the European defence cooperation on EFA, once more Paris had decided to 'go alone'. This decision was a set-back for Western Europe, forcing it to rethink its defence policy and the project itself. Expectedly, it represented a heavy burden for the other countries at national level—politic and money wise—that engendered several delays. Equally, but more broadly, at the European level it led to a painful swing against the hope of a European identity and construction—as Andreotti wished for in Rome in 1984—fostered by a project led by not less than five countries. Eventually, despite the inability to establish a multilateral cooperation and a successful low-cost production for the 1990s, the EFA project was, and still is, the first combat aircraft entirely produced by four European countries. As far as the defence cooperation is concerned, national sovereignty played a role too important and heavy to make the French post-war attempt of an EDC close to reality, still today.

Figure 8 - EFA in 1992[369]

[369] In *FLIGHT International*, 'EFA in-service date could slip to 1998', March 4-10, 1992, n° 4308, Vol. 141, p.16

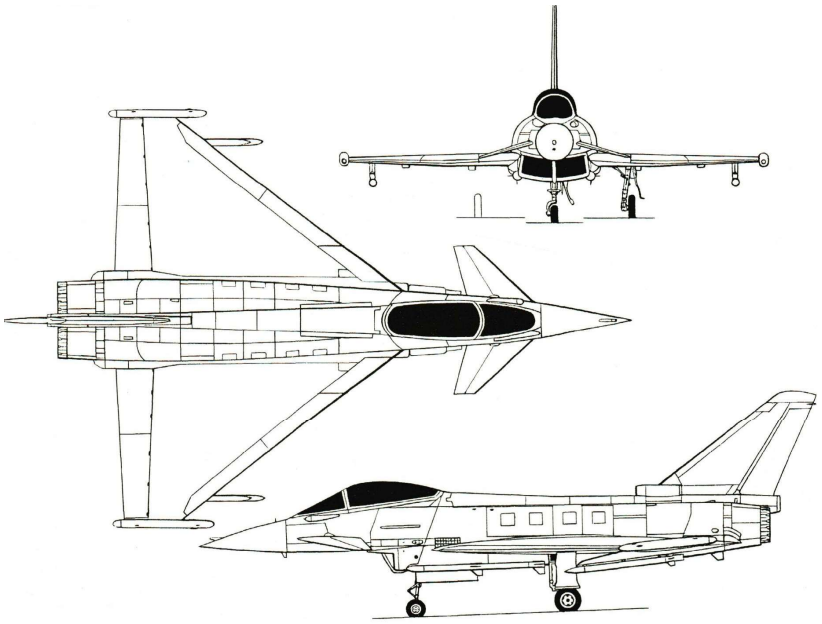

Figure 9 – EF 2000[370]

Figure 10 - EF 2000 details[371]

[370] Hugh Harkins, *Eurofighter 2000: Europe's Combat Aircraft for the New Millennium* (Aerofax, 1997), 40.

[371] Harkins, 29.

Annex - Examples on Air and Space: United Kingdom and Italy

In the 1970s, Italy and the United Kingdom were the two most problematic countries in Western Europe on the economic spectrum—Italy on the political one as well.[372] This Annex aims at providing two examples strictly liked to the aerospace industry and based on how national problems had an impact on several levels—such as governments, civil society, industries, intergovernmental organisations, and the United States. Specifically, this section looks at: 1) the relations between the UK and the Trade Unions, and how they pushed towards a stronger European cooperation in the aeronautic field; and 2) Italy and ESA, and how the domestic economic and industrial problems led Rome to lobby ESA in order to achieve more convenient deals within the European space cooperation.

I. Air: United Kingdom

As a consequence of the several crises that affected bitterly the Western European countries in the 1970s, the belief of full employment smoothly faded away while the confidence in a self-regulated market was taking the stage.[373] In fact, unemployment in Western Europe was incrementally low

[372] Bentivoglio, *The Two Sick Men of Europe?*; Tarantelli and Willke, *The Management of Industrial Conflict in the Recession of the 1970s*.

[373] Barry Eichengreen, Global Imbalances and the Lessons of Bretton Woods (MIT Press, 2010); Mr Harold James, International Monetary Cooperation Since Bretton Woods (International Monetary Fund, 1996); Fiona Venn, The Oil Crisis (Routledge, 2016); Daniel Yergin, The Prize: The Epic Quest for Oil, Money & Power (Simon and Schuster, 2011); Milton Friedman, «The Role of Monetary Policy», The American Economic Review 58, n. 1 (1968): 1–17; A. W. Phillips, «The Relation Between Unemployment and the Rate of Change of Money Wage

and the Trade Unions could not receive the same fruitful profits while bargaining with their employers for higher wages because, in the meantime, profits and investments were gradually declining. In retrospect, the decline experienced at the beginning of the decade was not as bad as it appeared at the time, but the contrast with the post-war period of flaring growth was enormous.[374] Despite the crises, the Community's intention of "attainment of full and employment in the Community" was made clear in the First Social Action Programme adopted by the European Council on January 21, 1974.[375] Furthermore, the 1970s experienced a swift development of technologies that drastically changed labour concepts and preservation through the introduction of increasingly mechanised tools and the shift towards the service sector. Uncertainty due to the potential job losses was the main concern of the trade unions organizations since they were witnessing the service sector growing while the industrial one was sharply decreasing.

This example focuses on the British government desire to nationalise aerospace industries, on the general increase in unemployment, and the testy nature of industrial agreements by shading light on the difficulties met by the British civil society and aerospace experts, specifically, trade unions and air staffs, in influencing the national government on the decision-making process for achieving a stronger European cooperation. This section is structured as follows. First, it shows the consequences of industrial aeronautic allocation on employment rate. Second, in light of the relation between aeronautic industry and jobs, it investigates the role played by the Trade Unions during the 1970s and 1980s in pushing towards the Europeanization of technology under the

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Rates in the United Kingdom, 1861–19571», Economica 25, n. 100, (1958): 283–99; Irving Fisher, «I Discovered the Phillips Curve: "A Statistical Relation between Unemployment and Price Changes"», Journal of Political Economy 81, n. 2 (1973): 496–502.

[374] I.e. in 1971, the unemployment rate in the United Kingdom was some 3.6 percent

[375] The Social Action Programme, Bulletin of the European Communities, Supplement 2/74, COM(73) 1600, See: Vincent Dujardin et al., *The European Commission, 1986-2000: History and Memories of an Institution* (Publications Office of the European Union, 2019), vol. 2.24 October 1973.

Thatcher era of privatization and economic liberal strategy. Specifically, I analyse the importance of the aeronautic sector for the European employment rate and the action led by the major aerospace workers' unions to secure jobs through a 'European solution.'[376] The complementary presence of national particularities and European attempt of harmonization acts jointly with the experts' attempts of Europeanize the aeronautic industry. The final purpose of this example is to make visible the 'hidden' agents of change by using history of technology as further lens to overcome the boundaries of European integration studies and its complex process.

a. Europeanization of Technology

Industrial cooperation in the aeronautic sector has often been a key driver of economic growth and a solution for job creation. Since the 1940s, some of the first steps of industrial collaboration between European countries were already underway, and specifically during the 1960s the major Western European countries found themselves all in need of renewing their military fleets.[377] As a result of this necessity, in 1969, Panavia Aircraft GmbH was established by the United Kingdom, Federal Republic of Germany (FRG), and Italy with the purpose of developing a new fighter aircraft ready to be in service in the early 1980s, the Tornado.[378] Eventually, the project was finalized and was on its way to be produced as a result of a transnational work-sharing which took place in all three partner countries.[379] This scattered production allowed—even for a short-term

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[376] In TNA, FV 17/308, Interavia AirLetter, n°10, 406, December 1983, p.3

[377] Eric Bussière, Michel Dumoulin, and Sylvain Schirmann, *Économies Nationales et Intégration Européenne: Voies Etétapes*, Studien Zur Geschichte Der Europäischen Integration (SGEI) 3 (Stuttgart: F. Steiner, 2014), 51.

[378] Lake and Crutch, *Tornado*; Napier, *Tornado Over the Tigris*.

[379] The multi-role combat aircraft's center fuselage was produced by Messerschmitt-Bölkow-Blohm GmbH, its tail and front fuselage by British Aircraft Corporation, and its wings by Aeritalia. Tornado was ready to fly for the first time as a prototype already on August 1974 and to be involved in military operations by 1981. When at least

period—a considerable amount of jobs to be sustained, created and reallocated as necessary even when a precious project came at its end.[380]

b. Trade Unions and the European Solution

Since the 1960s, efforts of European industries for a stronger cooperation in both military and civil projects – such as the mergers among national defence industries – became more frequent and, as mentioned before, they produced tangible results during the 1980s and 1990s. Still, there were many difficulties and missteps encountered during the negotiations phase, and the process of 'Europeanization' of technology in the aerospace sector was always put at risk. Among many obstacles, the Colloquiums organized by the WEU during the 1970s had often highlighted that the Europeanization of technology was complicated and slowed firstly by the testy nature of industrial agreements, secondly by the general increase in unemployment, and thirdly by the British government desire to nationalize aerospace industries.[381] Considering that

> l'industrie aéronautique européenne occupe une place particulièrement importante dans l'économie de la Communauté [et] que l'Europe absorbe quelque 20% du marché mondial de l'aviation civile, elle n'a

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three countries participate in a military program it falls directly within the NATO remit. It can be defined as European cooperation within a NATO framework and rules under which the European countries can operate.

[380] Southern Italy allocation of aircraft industry could be an outstanding example. In 1969, the Italian champion national Aeritalia was founded according to the political pressure engendered two years earlier from the 'Comitato interministeriale per la programmazione economica' (CIPE) and the Commissioner Giuseppe Caron. Specifically, Aeritalia was founded in Naples with the intent of developing the Italian macro-region of Mezzogiorno through the establishment of new manufacturing area.

[381] The first Colloquium, 'Aeronautical policy colloquy' was held in Paris on 17-18 September 1973 (in HAEU, WEU, 138); the second, 'European aeronautical policy' was held in Toulouse on 2-3 February 1976 (in HAEU, WEU, 176).

produit en 1974 que 7% de la production mondiale. […] C'est donc un véritable cri d'alarme.[382]

In addition to this troubled situation, the financial consequences of the European disarranged industrial policies were mammoth while thinking that one single American plane was averagely built and sold five times more than a European one. This enormous gap was essentially due to the different national policies that would have continued to prevail in absence of a resolute political pressure towards the creation of a unified market in the civil and military aeronautic sector that put together producers and users. As the graph below shows, the aerospace sector in the EEC employed a total of 406.605 workers in 1973 down from 435.553 in 1969; around 200.000 of these workers were employed in Britain.

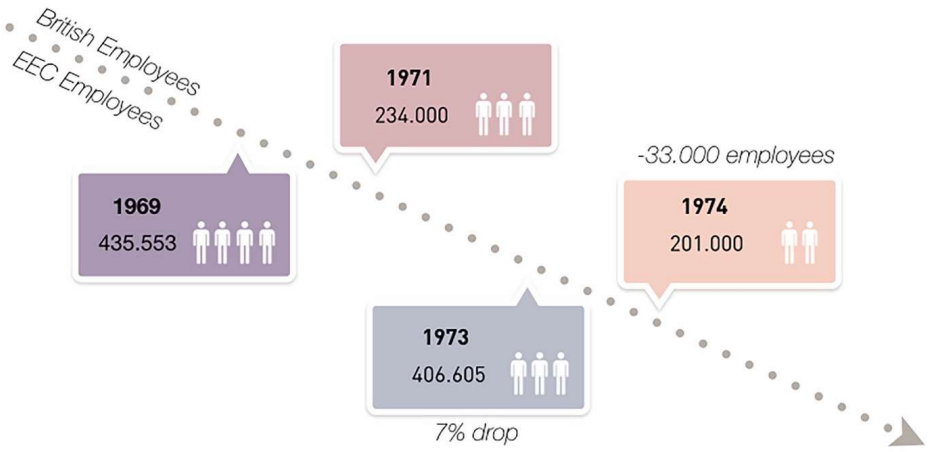

Figure 10 - British and EEC Employees' drop from 1969 to 1974[383]

[382] In HAEU, WEU 41(3), doc. 691, L'industrie aéronautique européenne, Rapport, 1 December 1975, 21st ordinary session, II part, Annexe II, p.2

[383] In HAEU, WEU, AS 33, p.4 and Annexe I, Emploi et productivité, p.18

This 7 percent drop was in fact essentially due, according to the WEU data, "à une diminution volontaire de l'emploi dans l'industrie britannique, qui est passé de 234.000 personnes en 1971 à 201.000 en 1974."[384] This trend, according to the WEU, was reflecting the development of the production and the endurance of national particularities over the European harmonization. The British lay-off of approximately 33.000 aerospace employees was a highly important data because the mentioned British workers represented half of the European working force.[385]

European countries were not the only ones affected by the crisis: the employment rate in the aerospace sector was dropping also in the United States and in Canada.[386] Still, the productivity, expressed as added value or turnover per person employed in the European industry was, at average, half of the American one. While the US job flexibility allowed its industries to overcome the crisis of the 1970s and improve their productivity, Europe had not chance to apply structural flexibility policies because of the traditional employment-related issues of job protection, health, safety, and equal work, which were crucial aims of the EEC political agenda. Indeed, the mid-1970s were marked by the first clear reference to a goal of 'full and better employment' that arose in the Council Resolution of January 21, 1974 for the Social Action Programme Resolution.[387] The program, which was pragmatically upgraded in 1978 and 1984, was evidently focused on health, hygiene, and safety issues more than on unemployment. Despite a European project in the

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[384] 8 percent drop in HAEU, WEU 41(3), 1 December 1975, 21st ordinary session, II part, Annexe II, p.5; 7 percent drop in HAEU, WEU 42(1), Une politique aéronautique européenne, doc. 704, pp.133-134

[385] While the French employees in the aerospace sector were approximately more than 100.000, the German 40.000, and the Dutch 8.000

[386] In HAEU, Altiero Spinelli (hereafter AS) 33, Annexe I, p.18, drop in the United States (-32,3 percent, from 1.402.000 in 1969 to 948.000 in 1973), and in Canada (-31,9 percent, from 44.400 in 1969 to 30.200 in 1973) with the exception of Japan (+12,6 percent, from 23.100 in 1969 to 26.026 in 1973).

[387] See http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A31974Y0212(01)

aeronautic sector would have had an extensive influence on the technological development and the employment rate, it was not receiving attention from the Communitarian level. In 1979, when the Afghanistan was invaded by the USSR and the second oil shock hit the global economy, the British Government witnessed the national unemployment rate crossing sharply the two million in four years, from 1.4 million in 1978 to 3.2 million in 1982. At the beginning of the 1980s nothing had changed: unemployment was on the rise and national peculiarities were still impeding the Europeanization of the aeronautic sector. From the beginning of 1980 to the autumn of 1986 the unemployment rate showed no sign of a sustained decline, and that little decline was from nothing less than 3,120,000 or 11.2 percent of the workforce.[388]

"The old illusions have melted away. Nationalisation does not improve job satisfaction, job security or labour relations - almost all the serious strikes in recent years have been in state industries and services" states the Conservative General Election Manifesto of the Conservative Party in May, 1983.[389] The British Prime Minister, Margaret Thatcher, was pushing for a privatization policy that would eventually have decreased the labour unions power. Akin was the tough approach taken by Norman Tebbit, Secretary of State for Employment from September 1981 to October 1983. Tebbit, a former official of the British Airline Pilots' Association, and a registered trade union, wanted to put an end to the unions power as much as the Prime Minister. In achieving his goal, in 1982 he introduced his package of reforms. The Employment Act was designed to create a balance of power

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[388] "In each month of May of the Thatcher era, the seasonally adjusted figure for unemployment in the United Kingdom was 1,087,000 (4.1 per cent) in 1979, 1,223,000 (4.6 per cent) in 1980; 2,129,000 (8 per cent) in 1981; 2,490,900 (9.3 per cent) in 1982; 2,783,000 (10.5 per cent) in 1983; 2,891,900 (10.5 per cent) in 1984; 3,032,000 (10.9 per cent) in 1985; 3,116,600 (11.2 per cent) in 1986; 2,874,000 (10.3 per cent) in 1987; 2,343,300 (8.3 per cent) in 1988; 1,819,000 (6.4 per cent) in 1989; and 1,610,900 (5.7 per cent) in 1990" in Geoffrey K. Fry, The Politics of the Thatcher Revolution - An Interpretation of British Politics 1979 - 1990, Palgrave Macmillan, 75–76.

[389] In MTF, Thatcher Archive, Conservative General Election Manifesto, 18 May 1983, http://www.margaretthatcher.org/document/110859

by chipping away from the trade unions their immunity from liability and imposing them fines for strikes' damages, but also to narrow the definition of 'trade dispute' and 'legal strike' while raising the compensation level for unfairly dismissed.[390] The disappointment bitterly grew along with a series of strikes, the most of them in the public sector. Six months after the Conservative General Election Manifesto was published, a symbolic protest took place in London. According to The Guardian story of November 28, a week of action had been organized by the aerospace workers in order to save the British industry and it had been led by the major trade unions in the aerospace industry: Amalgamated Union of Engineering Workers (AUEW), and its branch, Technical, Administrative and Supervisory Section (TASS).[391] In 1970 the AUEW was founded via the merging of three Unions, the Amalgamated Union of Engineering and Foundry Workers, the Constructional Engineering Union, and the Draughtsmen's and Allied Technicians' Association, but further incorporation followed during the decade. Amalgamations were becoming gradually common among unions since they had to answer to financial adversities cutting costs, such as administrative burdens, while guaranteeing services and efficiency. The composite nature of the AUEW is a mere example among more than 40 mergers that happened in that decade and led to the foundation of organisations based on sections, autonomous but cooperative, as in the case of the TASS, founded in 1913, merged into the AUEW in 1970 and dissociated from it in 1985 as a result of unsurmountable divergences.[392]

The author of The Guardian story, Malcolm Pithers, believed that the British Aerospace workers were starting their campaign to win government support and funding in order to save their jobs and the British industry since the importance of the aerospace industry was strategical both economic-

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[390] Available online: http://www.legislation.gov.uk/ukpga/1982/46/pdfs/ukpga_19820046_en.pdf

[391] *The Guardian*, 'Aerospace workers campaign to save industry', 28 November 1983, p. 2

[392] Arthur Ivor Marsh and Victoria Ryan, *Historical Directory of Trade Unions* (Ashgate Publishing, Ltd., 2009), Vol.2.

and job-wise.[393] Specifically, the main purpose of the Unions was to draw "attention to potential job losses if a number of projects is not maintained or initiated. The theme of the union's campaign is that responsibility for these projects must rest with the Government, which should, it is argued, provide financial support or orders."[394] The Unions protest was validated by the highlighting fact that many aerospace projects were seeking for national launch aid, among them the British Aerospace had applied for subsidies towards its participation in the Airbus A320 programme, and Rolls-Royce too was waiting for the Government approval and aid in its share for the V2500 engine, an international cooperation project.[395] At the time the Government recognized the economic and strategic importance of the aerospace industry, and was carefully appraising the application of the aircraft manufacturer by checking if there was economic viability of the project and commercial return on the investment. However, it had no intention of taking a rush decision on the matter: it was nothing but the "Europeanization of an F[uture] C[ombat] A[ircraft] [that was] gathering momentum."[396] Accordingly to the momentum on a FCA, for Michael Heseltine, Secretary of State for Defence from 1983 to 1986, the preliminary feasibility studies led by the Air Staff discussions suggested a high degree of common interest with the European partners. Heseltine expected more parallel discussions on industrial aspects to take place because the project was very

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[393] *The Guardian*, 'Aerospace workers campaign to save industry', 28 November 1983, p. 2.

[394] In TNA, FV 17/308, 'Aerospace industry: Week of Action', Mr. Agnew (AIR Division 2b) to Mr. Hardbattle (Parliamentary Branch), 28 November 1983

[395] Peter Pugh, The Magic of a Name: The Rolls-Royce Story, Part 3: A Family of Engines (Icon Books Ltd, 2015); E. Chadeau, Airbus, un succès industriel européen (Paris: Rive Droite, 1996); Douglas A. Irwin e Nina Pavcnik, «Airbus versus Boeing revisited: international competition in the aircraft market», Journal of International Economics 64, n. 2 (2004): 223–45.

[396] In TNA, FV 17/308, Mr. D. A. Bolger, Official of Air Division AIR2B to Mr. Baker and Mr. MacTavish, 18 November 1983

significant for all the European parties involved.[397] Being in need of such an aircraft, affirmed Chris Drake, the National Organiser–Aerospace of TASS in December 1983, the British government should be the financial responsible for the procurement of the aircraft and "if the Government is not prepared to do this in defence of the nation–who should?" Drake's argument went on to blame the lack of cooperation in the European project and affirming that "unless the British Government is willing to be equally committed and involved, then the European concept may not be the true collaborative partnership which will be mutually beneficial, and indeed essential to the future of Britain's aircraft manufacturing capacity."[398] As its last request to save jobs, in case of production of a European aircraft, TASS asked the Government to eventually allocate the final assemblage on British soil.

The 1980s proved how difficult it was to "put together a European strategy which would be favourable to quadripartite (France/UK/Germany/Italy) combat aircraft project"[399] In the attempt to overcome these adversities and the standstill that was characterizing the European industries, one more action came from the British trade unions. By sending a note to the European Metalworkers' Federation and to the European Commission the Unions tried to push for increased cooperation at the European level, arguing that a European program would strongly influence the employment rates. In their letter, the Unions harshly criticized the lethargic nature of the cooperation among aircrafts builders and aircrafts companies, but also their lack of will for the establishment of a common organization or institution able to operate in the Single Market. Undeniably, according to the Unions, lack of agreements among the main European air forces and national industries had "killed the last project for a European Combat Aircraft."[400] A solution was

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[397] In TNA, FV/308, The Future Combat Aircraft, 11 July 1983, p.3

[398] *Financial Times*, 'Future fighter aircraft', 28 December 1983.

[399] In TNA, FV/308, Mr. A.J. Pryor Air 2 to Mr. Baker Air 1, 15 November 1983

[400] In TNA, FV 17/308, Interavia AirLetter, n°10, 381, November 1983

perceived as necessary for the sake of the employers and the European integration. Trying to contrast this deadlock, trade unions and aerospace experts, such as air staffs and industrialists, persisted to work and solve this cooperation dilemma.[401]

A glimpse of light started to be seen in Bonn at the end of 1983. After intensive negotiations, the Chiefs of the air staffs of the United Kingdom, France, Germany, Italy, and Spain signed the provisional agreement to produce the FEFA. The combined efforts of Trade Unions, industries, and aerospace experts, helped to push for a "significant step towards a new multi-national European combat aircraft," that is to say the agreement on the Outline European Staff Target by five Western European countries.[402] As requested by TASS in late 1983, in May 19, 1985 Margaret Thatcher asked for a "fair arrangements for production" and allocation of jobs during the meeting with Helmut Kohl, German Chancellor from 1982 to 1998. Thatcher argued that the United Kingdom had a developed engine technology, and since France and Germany had already "the headquarters of collaborative aircraft projects […] she hoped that this would be taken into account in deciding the location of the headquarters of the European Fighter Aircraft project." [403] The British Prime Minister real challenge was against the French. For them, "there was no point in their getting into a European relationship, except on their own terms" being it an engine production or an industrial allocation, vented the Italian Minister of Defense Giovanni Spadolini to Thatcher.[404] At the time,

[401] In HAEU, WEU 42(1), Une politique aéronautique européenne, doc. 704, pp.133-134

[402] In TNA, FV 17/308, Interavia AirLetter, n°10, 381, November 1983, for OEST see Glen Segell, The Defence Industrial Base and Foreign Policy (Glen Segell Publishers, 1998), 130.

[403] In MTF, From the Private Secretary, Prime Minister's meeting with Chancellor Kohl: other subjects, 19 May 1985, p.2

[404] In MTF, Note for the record of a meeting with Senatore Spadolini, 29 March 1985, p.2

she did not know that in three months, France would have withdrawn from the FEFA project and would have announced its own national program: The Rafale.

To sum up, the 1980s recession in the United Kingdom, part of a worldly decline of all the major economies, "lasted for five consecutive quarters but employment continued to fall for around three and a half years after the start of the 1980s recession," precisely by 2.4 percent.[405] Reacting to the considerable inflation engendered by the energy crises, the British government increased taxes and adopted a tightening monetary policy. At the end, it took eight years for British employment level to return to the one the UK had at the beginning of the 1980s recession. The debates on unemployment among Trade Unions and Government during the 1970s and 1980s went along with the impressive technological development that occurred in those decades, and the aeronautic project were the ones craved by the British Trade Unions to secure and create jobs during the 1970s and 1980s. Taking under consideration the British Airways jobs only, between 1984 and 1990 employment rate rose from around 35,000 to 50,000.[406] Eventually, the so-called 'European solution', confirmed to be an economically viable proposal and assured a return in investment that allowed aerospace industries to participate in the development of new technologies, in the production of new aircrafts, in the competition on the global market as a European producer.[407]

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[405] Jamie Jenkins, «The Labour Market in the 1980s, 1990s and 2008/09 Recessions», Economic & Labour Market Review 4, n. 8, 2010.

[406] British Aerospace was privatized in 1981, British Airways in 1987, Rolls-Royce in 1987, and the British Airports Authority in 1987.

[407] In TNA, FV 17/308, Interavia AirLetter, n°10, 406, December 1983, p.3

c. Final remark

"L'Europe est la dimension impose à l'économie par la technologie" the sociologist Henri Janne wrote in 1970.[408] His thought concisely catches the strong interdependence between European countries in technology, economy, and politics which is partially what this section has tried to narrate through the analysis of the role played by the British Trade Unions, specifically AUEW and TASS, in the European aeronautic cooperation and, in a broader sense, in the European integration process. However politically impeded the unions were, the pressure they engendered on the British Government helped the aerospace industries to achieve their goal of coordinated and funded European projects, even if backed by different motivations and necessities—namely, creation of new jobs or gaining of new share of the global market. Different interests notwithstanding, the very common path covered to reach them was a stronger cooperation at the European level. Industrialists, air staffs, and aerospace industry workers were all bounded around the same idea that only a coordinated strategy between the major countries in Europe could have satisfied governments and their citizens, economically, technologically, and socially. Thus, it can be assumed that a greater cooperation in the aeronautic sector was among the tools the Trade Unions and air staff used to reach their goal in influencing the political decision-making process in national and foreign policy. This last assertion humbly helps to have a better comprehension on the influence projected on politicians by the experts and civil society. In conclusion, while politicians delegated important decisions for lacking cognitive skills to experts—namely, air staffs or industrialists—these non-governmental actors were among the major players in shaping the European aeronautic cooperation during the 1970s and 1980s.

[408] Henri Janne, «Mutations de la société moderne», Bruxelles: FGTB, 1970, 29.

II. Space: Italy

Since the mid-1974, the Italian economy showed a very slow growth of activity and a steep decline in productivity. In fact, when demand was falling in several major OECD countries, the Italian government was shifting its economic policy to a distinctly restrictive stance.[409] In 1975, Italy experienced its deepest recession since the early 1950s. The national authorities tried to fight the recession by shifting their monetary and fiscal policy towards a more expansionary stance, and then again towards a more restrictive one in late 1976—and again in early 1977. According to the International Monetary Fund (IMF), during the first half of 1976 Italy had the highest rate of inflation (17 percent) and the lowest rates of output expansion (4½ percent) among the larger industrial countries.[410] Eventually, at the end of 1977 the steep currency's depreciation started to dwindle, and Italy began its recovery only in 1978.[411] The effects of such economic turmoil had direct consequences on the relations between Italy and ESA. Primarily, it put at risk the agreed flow of annual financial contributions from Italy to the Agency that would ensure ESA basic activities to continue, such as research on new technologies and development of existing projects. Secondly, it would threaten Rome's industrial participation in the ESA programmes, thus jeopardizing the opportunity to increase productivity for Italian industries. Furthermore, Italy was not receiving the agreed *juste retour* from the contracts already signed with the Agency—an

[409] Organisation for Economic Co-operation and Development (hereafter OECD), Economic Survey, Italy, 1976, p.5 "Paradoxically, the low level of activity has not caused a steep rise in unemployment, as agreements were reached between management and labour to reduce working hours rather than dismiss large numbers of employees."

[410] In IMF, Annual Report 1976, p.4. Italy was followed by the United Kingdom with respectively 13 percent and 5 percent.

[411] The recovery was sustained by a moderately expansionary monetary policy and a "marked growth of private fixed investment and private consumption" in OECD, Economic Survey, Italy, 1980, p.5

important source of benefits for the Italian economy and job market.[412] In fact, Italy's industrial return was not performing as expected.[413]

Already in 1973, it was discussed that the industrial return on major programmes to which a country would participate, such as Spacelab, should be totally based on the entire project, while for average programmes, the acceptable return should be around at least 80 percent and over five years.[414] Ironically, it was precisely from the contracts of the Spacelab program that the "unfair" return was most palatable. Spacelab's major importance as a programme derived from its very nature: it was a small reusable laboratory developed by ESA in order to fit into the Space Shuttle's cargo bay and to allow experiments in space.[415] According to the Spacelab Agreement, in line with the general debate on the topic, each Member States should expect an industrial return equal to their share (100 percent), meaning a return coefficient of 1.[416] This coefficient was calculated as the result of the amount of contracts given to the countries divided by the amounts of contributions paid by them. It was qualitatively defined as follows:

$$\text{Return coefficient} = \frac{\text{amounts of contracts let}}{\text{amounts of contributions paid}}$$[417]

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[412] The fair return is the formula according to which each Member State gets economic benefit out of the ESA projects, meaning that the percentage of country's contracts had to be bounded to its own contribution in the projects.

[413] Lesley Jane Smith and Ingo Baumann, *Contracting for Space: Contract Practice in the European Space Sector* (Ashgate, 2011), chap. 8. See: HAEU in ESA.B.A-04 - Spacelab, from 19 June 1975 to 20 February 1976

[414] In HEAU, ESC-1001, CSE/CS/ESA(73)10, Add,1, "Views of the Eurospace members on problems connected with industrial and contract policy", Industrial and contract policy, A.13, E - 4210 Rev. 1, 21 June 1973, p.5

[415] Lord, *Spacelab*; Russo, *Big Technology, Little Science*; Sebesta and Agency, *Spacelab in Context.*

[416] In HAEU, ESRO, ESRO-7073, ESRO/NASA Memorandum of Understanding (MOU) for SPACELAB, 1973

[417] *Ibid*., p.2

However, only some 55 percent of the contributions payed by the Members States was going back to the European industries, and Rome started to act in this respect.[418] The Italian Delegation decided to lobby ESA to intervene with corrective actions towards this imbalanced situation. Among the actions proposed by the Italian Delegation to find acceptable solutions for both Rome and ESA, there were two main ideas:

1. to increase the share of contracts awarded to its national industries—mainly Aeritalia and Selenia—especially after that the Lira's depreciation had increased by 20 percent the Italian yearly contribution to ESA;[419]
2. to reduce the Italian financial contribution to ESA – which, apparently, was Rome's preferred options.

The division appointed to consider the Italian proposals was the Financial Division (FD) of the Agency. The FD was considering these two options while exploring different solutions for the Italian return problem. While the Division was stating its strong intent to solve the return problem, the Italian Delegation announced that it would have not be able to approve the 1977 budgets in case the requests were not met. The annual mandatory budgets required unanimity, and therefore a compromise was imperative to avoid a crisis.[420] Moreover, it was direct responsibility of the Director General to submit a solution to the ESA Council in case the overall return coefficient of any Member State was to be found below 0.8, namely the lower limit defined by the ESA

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[418] In HAEU, ESA 6921, Relations with Italy 1, 1975-77, DA/IP/GD/HM/7255, "Comparison between Italian contributions and related industrial return (1968-1974)", 11 July 1975. In 1975 the Industrial Policy Committee (IPC) assumed the task of placing of the contracts, in HAEU, ESA.A-03

[419] On Aeritalia see: Bonifacio, *Anni Di Aeritalia*; Frassetto, *Sviluppo strategico ed organizzativo dell'Aeritalia*; Catalanotto and Falessi, *I Vent'anni Dell'Aeritalia: 1*; Società aerospaziale italiana, *Aeritalia*.

[420] In HAEU, ESA 6921, FIN/HF/MEC/13557, "New proposals for Italy", 7 September 1976

Convention.[421] The DG that had to solve the imbalanced situation of Italy within ESA was Roy Gibson, DG of ESA from 1975 to 1980.[422] The so-called "Italian question" became one of the most debated and recurrent issues of the second half of the 1970s.

a. Triangular Meetings

On September 23, 1976, Gibson met with the Christian Democrat Mario Pedini, Minister for scientific research, his Undersecretary Giorgio Postal, and the Chief of Cabinet, Dr. Antonio Mancini.[423] According to the DG, the meeting was entirely defined by the "Italian grievances" on the return problem with a particular concern over the poor return on the Spacelab programme. Furthermore, Gibson complained, even when the Italians were not mention the return problem, Pedini was repeatedly emphasising "that he was expecting a rough ride in the Parliament during the ESA Convention ratification process."[424] At the end of the meeting, the DG and the directorate hoped that the Italian authorities would be willing to compromise and would not block any financial matters connected with the 1976 budget solely to see their requests fulfilled. This hope was

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[421] "The overall return coefficient of any Member State is found to be below the lower limit defined in Article IV.6, the Director General shall submit to the Council proposals designed to redress the situation within one year" in ESA Convention, Article V.1

[422] Roy Gibson, educated at Oxford University and the London School of Economics, was Deputy Director of the Technical Centre (ESTEC) from 1967 to 1971, Director of Administration ESRO from 1971 to 1974, and Acting Director General in 1974 and 1975.

[423] On Giorgio Postal see: Mauro Marcantoni and Danilo Fenner, *Giorgio Postal* (Fondazione Museo storico del Trentino, 2010); On this meeting see also: Zaccaria, *Italy in the International System from Détente to the End of the Cold War The Underrated Ally*, 237.

[424] In HAEU, ESA 6921, Relations with Italy 1, 1975-77, DG/RG/mtf/13732, "The 'Italian question'", 23 September 1976, p.2

nourished by Mancini's assurance that Pedini intended to "follow the French and German example of putting most of their money into ESA."[425] In Gibson's opinion there was "no doubt that the Italian authorities intend to use their veto on the 1977 budgets to the full" in order to focus attention to the return problem, to decrease its annual contribution, and to increase its industrial return.[426] However, he hoped that, after the meeting with Pedini, Postal, and Mancini, Rome would be aware of how damaging its veto *also* on the 1976 budgets would be for ESA, and the ongoing and future projects.

On 30 September 1976 another meeting was held between Gibson, Postal, and the Italian Delegation at ESA to discuss the return problem.[427] The Italians stressed that a just return was an indispensable basis for the future Italian collaboration with the Agency and, as a sign of goodwill, the DG replied that he was ready to review all the programmes and to point the cases where the collaboration with the Italian industry could be improved.[428] As a matter of fact, the DG did review the programmes—such as Spacelab, ExoSat, Aerosat, ABM, and Telecom—and the first one, Spacelab, appeared to be the more problematic one. In fact, the Italian return on this programme was projected at 13.6 percent while its initial contribution was of 18 percent.[429]

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[425] *Ibid*., p.2-3

[426] In HAEU, ESA 6921, Relations with Italy 1, 1975-77, FIN/HF/MEC/14467, "Visit of Mr. Postal", 29 September 1976, p.4

[427] The Italian participants were: Undersecretary Giorgio Postal, Minister Magliano, General Di Porto, Ing. Marchei, Dr. Bianchi, Dr. Lops, Dr. Capitanio in DA/IP/GD/AB/15.041 in HAEU, ESA 6921 - Relations with Italy 1, "Summary of decisions taken and actions raised during the meeting between ESA and Undersecretary Postal, accompanied by the Italian delegation", 30 September 1976, p.4

[428] DA/IP/GD/AB/15.041, p.3

[429] Letter from Pedini to Gibson. Pedini's data are based on the document "ESA/CB/SL min. 10" in HAEU, ESA 6921, Relations with Italy 2, 28 April 1977

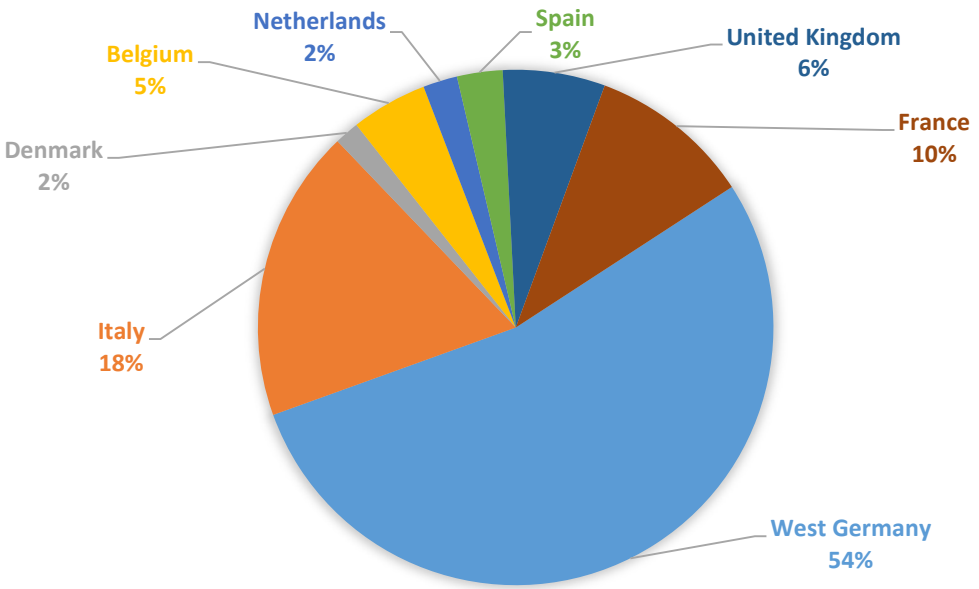

Figure 11 - Percentage contributions of Member States to the Spacelab programme in 1973[430]

This outcome was in strict conflict with the Spacelab protocol (article 8, II) that envisaged for each participant an industrial return equal to their share. Gibson knew that he had to act because, in case such imbalance would persist further, he would have to submit to the Council remedies that would have precedence over ESA's rules governing the placing of contracts.[431] In the attempt to change the downward trend of the Italian return on Spacelab, ESA ensured a net transfer of work to Italian industries worth about 2 MAU.[432]

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[430] In LAC, ESA Annual Report 1973, p.105

[431] Article V.2 of ESA Convention

[432] MAU (Million Accounting Units), the accounting unit is equal in value to the ECU at the middle of the previous year. The D/SL and his team have agreed on the transfer of work in HAEU, ESA 6921 - Relations with Italy 2,

On February 25, 1977, a new triangular meeting between ESA, the Italian authorities, and the Italian industries was held in Rome.[433] During this meeting, Postal confirmed the 'old' stances: Rome remained in favour of European cooperation in space, but was not satisfied with the industrial return, despite the efforts and results obtained by the Executive in the past months. Italy wanted its industries to participate in the future international programmes because "Italy is for Europe" Postal continued, "but "European" programmes should be agreed to if this support is to be maintained."[434] On the other side of the table, the studies led by ESA had traced five causes for the deterioration of the Italian return problem in the Spacelab programme:

1. The increased costs of the programme;
2. Italian industries subcontracting the US for important part of the Programme – whose money invested on the American industries to facilitate the work of the Italian ones were considered by ESA as part of the Italian industrial return;
3. The lack of interest and competitiveness of some Italian industries that moved important tasks to other foreign industries;
4. The impact of the change in exchange rates;
5. The participation in the IPS programme without any task being assigned.[435]

"Status of Programmes likely to be mentioned at the triangular meeting in Rome on 25 February 1977", 23 February 1977, p.1

[433] Meeting held at the Italian Ministry of Scientific Research. List of Participants in HAEU, ESA 6921, Relations with Italy 2, DA/IP/GD/FLP/3849, "Triangular Meeting between ESA, the Italian Authorities, and Italian Industry", 2 March 1977, p.6. Among them: Postal, Mancini, Porpora, Trella, Dondi, Sacerdote.

[434] *Ibid*., p.4

[435] In HAEU, ESA 6921, Relations with Italy 2, SL/MB/AB/fm9669, 3849, Letter from Gibson to Pedini, 15 June 1977

Clearly, two out of the five causes here presented were strictly linked to Italy alone (2 and 3) and its recurrent strong relation with the US. Despite the several solutions proposed by ESA and Rome none of them could assure Italy of a complete recovery of the return inadequacy. Furthermore, another complication required to be considered as part of the Italian problem. In fact, along with the return problem, Italy was fined by ESA of 487.637.830 Lire (in 1977 value) as a penalty inflicted for the delayed payment on the 1976 contribution for the financial year—when Italy threatened to put a veto on it. That was a penalty that Italy was not willing to pay, even at the cost of looking for an arbitration procedure. Accordingly, Gibson brought the issue to the attention of the Finance Group (FG), the Administrative and Finance Committee (AFC), and the Council—that voted against any lift of the penalty—and finally of the Italian authorities from whom he did not receive any cooperative response, but relentless requests for the fee to be erased in consideration of changes in prices and conversion rates. The DG, probably overworked by such prolonged haggling, strongly urged Mario Magliano, Minister Plenipotentiary, to accept the decision taken by the FG, AFC, and the Council.[436] Despite the Council's verdict and Gibson's pressure, Magliano pursued his intention to appeal to the idea of an international arbitration, something that had never happened in 20 years of space activity in Europe. From that moment onwards, the relations between Gibson and the Italian Delegation drastically embittered, and the standstill remained.[437]

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[436] In HAUE, ESA 6921, Relations with Italy 2, FIN/440/NBS/PF/16897, Letter from Roy Gibson to Mario Magliano, 16 November 1977, p.2

[437] Gibson writes to George van Reeth, Director Administrative, describing the Scientific Advisor of the new Italian Minister, Ing. Cammarano, as someone who, "like so many of his compatriots […] seems convinced that Italy has been maltreated over an extensive period." in HEAU, ESA 6921, DG/RG/fjd/8339, Relations with Italy 3, "Relations with Italy", 9 June 1978

b. Gibson's proposal: Towards a solution

In mid-1978, Italy's geographical return from the Spacelab programme was still inadequate, at some 85 percent. On the other hand, Italy's veto of the scientific and general budget of 1978 was still a threat to ESA's relations with NASA with whom the cooperation was crucial for the develop of the existing projects. In October, Gibson sent an urgent telex to Postal in the hope of drawing his "attention to the quite disastrous consequences which would result if the council were unable to approve the 1978 science and general budgets". Gibson believed that the Council, AFC, and SPS would not be so inclined towards a sympathetic consideration of the several requests filled by Rome, however justified they may be from the Italian perspective.[438] Efforts nonetheless, the DG received the usual answer from Rome concerning the yearly contribution fee and the return problem. Rome stance was as steady the ESA one. In fact, in 1979, according to the study led by the AFC, Italy's position in the Spacelab program was still extremely poor with a return coefficient of 0.63 instead of the ideal 1, while it.[439] It is important to highlight that it was Spacelab itself that determined the mediocrity of Italy overall position, and excluding the Spacelab programme from the calculation, Italy's return coefficient would increase to 0.97. However, Spacelab was too much of a worthy programme to be dropped. Unfortunately, it seemed that no viable solution could meet Rome's requests. "Enough is enough!"[440] outburst Gibson.[441] Apart from Gibson's diplomatic

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[438] In HEAU, ESA 6921, Relations with Italy 3, "Telex from Gibson to Postal", 27 October 1978

[439] "Italy's overall return coefficient for the period 1 January 1972 to the end of the first quarter of 1979 was 0.83 (the lower limit of this coefficient being fixed at 0.80 under the ESA Convention). Compared with the ideal situation (coefficient = 1) this coefficient corresponds to a shortfall amounting to approximately 32 MAU" in HAEU, ESA 1247, Italian return problem, ESA/AF(79)40, "Administrative and Finance Committee", 28 May 1979, p.4

[440] In HEAU, ESA 6921, Relations with Italy 3, "Letter from Bacchetti to Gibson", 29 March 1979

[441] Handwritten note on the letter received in 1979 from the Ambassador Fausto Bacchetti, in HAEU, ESA 673, ESA/C(79)159, "Italian Return Problem", 30 November 1979

fatigue, the Italian return problem was recognised by all delegations as a problem that was severely handicapping the Agency's governance and penalising the other Member States, even the ones not participating in the Spacelab development programme.[442]

The situation seemed to worsen when the Italian Delegation announced that it would, with immediate effect, block all payment of contributions to Spacelab in order to prevent the Italian situation from being further aggravated. This new threat to international cooperation raised once more protests on the part of the other national delegation. However, ESA reassured their members that the withholding of contributions by any member state was without any legal foundation.[443] It was during the summer of 1979 that the Member States' delegations discussed how to actively solve the Italian return problem during the Council meeting on 25-26 July of 1979. At the Council meeting, Gibson presented his proposal to solve the Italian problem based on eight actions, all of them so inextricably linked that, according to him, "to deal with only some of the points would inevitably lead to the matter re-appearing on the Council agenda in a short while", something that no one wanted, not least the Italian delegation.[444] While the actions proposed by Gibson were involving all the participants to the Spacelab Programme, four out of eight were strictly direct to Italy.[445] The points 4), 5), 6), and 8) were basically giving more space of manoeuvre to Rome to state an acceptable return shortfall, and also re-directing the Italian's requests of adjustments of its current and future contributions, on projects and budgets, directly to the Council of ESA, excluding them from the Spacelab programme. These points were probably an attempt to compromise with

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[442] *Ibid*.

[443] In HAEU, ESA 1247, ESA/AF(79)40, Add.1, Italian return problem, "Report on discussions in the AFC", 12 June 1979

[444] In HEAU, ESA 6921, ESA/C(79)103.add.1, Relations with Italy 3, "Director General's proposal", July 1979

[445] The eight actions are listed in HAEU, ESA 6921, ESA/AF(79)40, add.1 and ESA/C(79)103, Relations with Italy 3, "Italian Return Problem" Paris, 13 July 1979, pp.2-3

the Italian delegation and to avoid any direct interference between the domestic problems and the international projects.

By late 1979, all the delegations agreed upon Gibson's proposal: Rome was ready to drop its veto and to finally consider the approval of the level of resources and the 1979 Budget of the Agency.[446] Ultimately, the relations between ESA and Italy had perceivably improved, especially under the newly-appointed Italian Minister of Research, Vito Scalia and his Chief of Cabinet, Dr. Umberto Vattani. As a matter of fact Gibson was even "agreeably surprised by the Minister's attitude and his knowledge of our affairs" after over an hour and a half meeting held in October.[447] Furthermore, in October the Italian Government had approved a National Space Plan providing funds for the 1980-1983 period, and at the same time Gibson's proposal was transformed into an official Resolution.[448] In this atmosphere characterised by a potential positive trend, ESA Technical Director, Massimo Trella, openly distrusting his compatriots, did not see a prompt solution coming anytime soon because even though the Italian delegation might obtain a "psychological satisfaction" from the last developments and solutions, Rome will surely not solve the fundamental problem of the competitiveness of Italian industry. Furthermore, Trella broodingly highlighted that some Member States were "hiding behind Italy" to get actual reductions in their activities within ESA.[449] Trella's fears were justified by the fact that four years had passed since the first debate concerning the Italian return problem and several complications had arisen from it and that have touched different facets of the Agency.

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[446] In HEAU, ESA 3979, AS-RI(79) 3079, "Declaration of the Italian Delegation", 2 April 1979

[447] In HEAU, ESA 6921, Relations with Italy 3, "Visit to the new Italian Minister", 15 October 1979

[448] In HAEU, ESA 6921, D(80)66, Relations with Italy 4, Letter from Prof. Luciano Guerriero to DG Erik Quistgaard, 10 September 1980

[449] In HAEU, ESA 6921, TF/648/2.01/MT/ev, Relations with Italy 4, "Italian Return Problem", 5 December 1979

Haggling notwithstanding, on January 23, after very long and difficult negotiations, Gibson's proposal, turned into the Resolution ESA/C/XXXIX/Res.2, was voted unanimously.[450]

c. Final remark

Ultimately, a compromise had been reached. In the end, in order to restore the balance in Italy's favour, an amount of the order of 25 to 30 MAU was necessary along with a more rapid allocation of industrial contracts to Italy considering its delicate domestic economic and political situation. Gibson ended his mandate that very summer of 1980 and left his legacy and duty to Erik Quistgaard.[451] It took three more years to fulfil the obligations imposed by Resolution ESA/C/XXXIX/Res. 2. Eventually, the Italian return on Spacelab was considered satisfactory and so it was its national Delegation when the industrial return reached 1.02 at the end of 1983.[452] Even if Italy incurred debt with ESA of 487.637.830 Lire, combined with the hectic economic situation at home, its Delegation was able to lobby the Agency at its highest level. By using the inadequacy of the industrial return problem as a normative leverage, Italy managed to achieve different intents to soften the already difficult domestic balance. Among them, Italy wanted: firstly, an adequate return coefficient; secondly, several contracts for its national industries; and thirdly, a reduction of its annual contribution to ESA. In the aftermath of these bargains, as a matter of fact, the Italian

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[450] The central actions of this Resolution, mainly directed towards Italy's financial and industrial return problems, were: 1) a reduction from 18 percent to 1 percent in Italy's contribution to the 120/140 percent slice of the Spacelab programme, with the difference to be met by other participants; 2) "8 MAU of extra work", meaning industrial allocation or transfer of work, over the period 1980-1983; and 3) a contribution reduced by 12 MAU between 1980 and 1983 in HAEU, ESA 6921, FIN/GA/MEC/3966, Relations with Italy 4, Italy's industrial return, 15 April 1981

[451] Erik Quistgaard was the second Director General of ESA from 1980 until 1984.

[452] In HAEU, ESA 7032, ESA/C(83)95, The Italian industrial problem and the normalisation of industrial statistics on the geographical distribution of contracts, 14 October 1983

return problem had also changed the Agency and its way of communicating towards its Member States in the future. ESA would communicate in a more transparency and at a greater frequency on the distribution of industrial contracts and on the return trend.[453] To conclude, after several years of relentless political and technical haggling, mostly engendered by the instable and critical economic situation in Italy, the final (re)solution was signed, and "le mot *fin*" was ultimately written at the end of the Italian dispute.[454]

[453] In HAEU, ESA 8375, ESA/IPC(84)74, Industrial Policy Committee, 7 November 1984

[454] In HAEU, ESA 6921, AS-RI(81) 2074, Relations with Italy 4, "Note de la Delegation Italienne", 31 July 1981, Italicised by the author

Conclusion – European Strategic Integration in Air and Space

The creation of knowledge is a social process. Sharing knowledge is partially cooperation and partially willingness to improve the world around us. As this thesis has shown, in the specific field of the European aerospace sector cooperation meant joint production of know-how and projection of national and European power in and outside European borders. Furthermore, cooperation meant a balanced and solid employment of diplomacy and foreign policy that laid further foundations to a sector that hiddenly fostered the European construction process, from the late 1960s to the mid-1980s. In fact, 1986 was a remarkable year for Europe and its hidden integration process. In January, Spain officially signed her participation in the EFA project while joining, along with Portugal, the European Communities. One month later, the Giotto spacecraft mission launched by Ariane 1 completed its last flight after eight months in orbit while the Single European Act (SEA) modifying the Treaty of Rome was signed in Luxembourg and The Hague.

The beginning of 1986 is also the year in which the research of this work comes to an end. Lack of diverse documentation, especially on the EFA and its purely military aspect, did not allow this study to proceed further and deeply until the end of the Cold War. In fact, this research aimed—and still does—to continue in the direction of interpreting how crucial events of the mid-1980s and early 1990s impacted the cooperation in air and space. On the one hand, it wants to delve into the necessary reassessment of the EFA's industrial requirements during the post-Cold War market, and on the military consequences in and outside NATO's jurisdiction. On the other hand, it aims at understating the strengthened cooperation on space between international actors and the growing role of ESA in the post-Cold War international arena. Most importantly, its ambition is to continue to trace the French and British behaviour in the aerospace sector and the European political framework.

This thesis is meant to serve as the basis for such an ambitious future project. Composed by four Chapters, this work has first outlined the historical background and events around which the main

organisations and actors played their pivotal role in the following Chapters. Moving from the attempted establishment of the EDC to the successful one of the WEU, the first two Chapter have traced the bi- and trilateral European cooperation on combat aircrafts before the development of the EFA and the cooperation on a European launcher before Ariane. However, the main attempt the first two Chapters have constantly outlined is the history of defence and space policies—backbones of the whole research—in reference to France and the United Kingdom. Along these lines, it was possible to highlight the presence of a *fil rouge* that would stress the reiterated attitude of the two countries on 'Air' and 'Space' issues in the following Chapters and Annex as well. The microcosm where the *fil rouge* was observed the most was the Assembly of the WEU.

Moving from certified formality to perceived informality, in the three decades after its establishment, the Assembly of the WEU has sought to contribute to the development of European cooperation in the area of defence and aeronautic policy. In the face of many setbacks and difficulties in European integration in the area, such as the resistance of national governments to give up their sovereignty, the WEU provided important channels through which governmental, parliamentary and industrial actors could pursue various political aims in the broader context of European cooperation in foreign, security and defence policy. Especially the WEU Assembly's hybrid character helped to deal with member states' sensitivities about the relationship between foreign and security policy, and the aim to safeguard their national sovereignty. Chapters 1 and 2 have analysed the importance of the WEU as a forum for informal exchanges among national delegates, thus contributing to the reconciliation of conflicting governmental interests, and helping to achieve integration within Europe. Specifically, the official debates and policies concerning the aeronautics sector have demonstrated be characterised by various spheres of informality – such as unofficial meetings between industrialists and their governments, and WEU attempts to denationalise aeronautics industries to incorporate a defence dimension into the European integration process.[455] Furthermore, it has highlighted European diplomats' perceptions of the WEU and its role in European defence cooperation, as emerged from the diplomats' informal meetings. The

[455] Remacle, *La PESC, l'UEO et La CIG*, 147.

analysis of these meetings provided crucial insights into the intended development of the WEU, and its perceived value during previous decades. The most appreciated aspect of the WEU Assembly, even during its dormant period, was shown to have been the colloquial environment it offered, a benefit considered by the delegates to be so precious that they sought to see this asset cemented and to a certain extent institutionalised through a revival of the WEU. Indeed, the renewed organisation continued its activities in fostering European integration, industrial and defence cooperation.

Hence, the section on WEU in Chapter 2 is a first attempt to highlight the informal character of an intergovernmental organisation the informal nature of which has arguably been the key for its long period of activity, and for the recognition of its worth by its members. Further research applying different approaches and building on a variety of sources—such as archival documentation and, for instance, interviews with contemporary witnesses—is needed to gain a better understanding of the Assembly and its influential role in the European integration process through informal meetings and channels, considering that too often during these WEU meetings "the microphones were switched off and the recorders/interpreters were not present."[456] Eventually, the first two Chapters provided important insights into the case of how scientific communities operated individually from policymakers to reach independence from the United States. Moreover, also into intergovernmental bodies within which European cooperation were not attained through the gradual formalisation of informally established procedures, but instead through the acknowledgment and strategic usage of informal channels by a variety of actors. Major results undertaken by these actors' efforts gathered momentum in 1973, as the last two Chapters 3 and 4 highlighted.

In November 1973, Julian Critchley, British delegate at the WEU Assembly declared that "the real price that Europe has to pay for the fact that the Americans and Russians are coming together" is

[456] In TNA, FCO 33/5232, 'British policy towards the Western European Union': 9. Record of an informal meeting of the WEU Permanent Council at the Foreign Office, 7 October 1981, London.

to achieve a certain amount of independence from the United States. Consequently, and most importantly, Critchley continued, "Europe must alter the nature of her relationship with America in order to preserve the American interest in her security and survival."[457] As the last two Chapters have shown, Ariane and the EFA are partial results of this altered relation. Eventually, at different levels, the European launcher and the European fighter guaranteed world-wide competitiveness for Western Europe by harmonizing technological development, industrial production, structures, and market requirements, exactly as advocated in the 1973 debates.[458]

The journey toward this ambitious goal embodied by Ariane and the EFA was not an easy one. The Europeans encountered serious problems concerning different financial and strategic needs, and independence became a purpose with apparently no viable solutions. The motives that led participating countries to agree to build common and independent European launcher and fighter varied wildly. France's main reason was a combination of mistrust of the Americans coupled with a yearning for independence—in telecommunications satellites and armament procurements—and a desire for a leading position in Europe. [459] West Germany, on the other hand, wanted to reinforce its industrial policy and have a say in the French decision-making process. The British, hewing closer to the Germans, and entering the European Common Market, did not want to be excluded from the table either but, in the case of EFA, to lead the negotiations. In both projects, London hoped to involve its firms with highly advanced technological projects and to occupy a predominant position in Europe. Meanwhile, for the smaller stakeholders, launcher and fighter were tools to ensure contracts, create jobs, share know-how, and gain political influence in a constantly more integrated Europe.

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[457] In HAEU, WEU 57, XIX Ordinary Session, Part 2, November 1073, p. 93

[458] See also HAEU, ESA, Documentation, 24751, 1975, p.7

[459] Agency, *A History of the European Space Agency, 1958-1987, Vol. I*, 266; Roger M. Bonnet and Vittorio Manno, *International Cooperation in Space: The Example of the European Space Agency* (Harvard University Press, 1994).

The bulk of these major problems emerged during WEU, ESC, and Ministerial meetings, as well as in private conversations, spanning from technicalities to the commercial availability of the two projects. Paradoxically, in the end, each country had to tie itself to a multilateral cooperation in order to achieve its goal, thus limiting its sovereignty while at the same time increasing its degree of independence from the American monopoly. However, French sovereignty proved once more to be stronger than the eagerness for a European cooperation in the defence field. In the words of as Jean-Bernard Raimond, French ambassador in the USSR:

> C'est avec une régularité qui rappelle les retours constants de la comète de Halley vers la terre, mais à un rythme incomparablement plus fréquent, que le problème de l'intégration militaire et politique des États-membres de la C.E.E. est, lors des rencontres des dirigeantes de ce pays, posé.[460]

Once more, the *fil rouge* that characterised France in the previous decades was clearly discernible.

Entering the scene as the last act of the opera is the Annex. It provided two minor case studies on 'Air' and 'Space' in support of the major ones and the thesis as a whole. Most importantly, the two examples aimed at contributing to the symmetric structure of the work, implementing it by introducing different actors and rationale behind the decision-making process of the Western European countries—namely trade unions and financial problems respectively in the United Kingdom and Italy. Both the examples aimed to unveil the intersection between several players – technological development, economic crises, aerospace experts, civil society, and politicians – that have shaped the European construction, or fragmentation, process through a transnational tool: aerospace. On a similar note, the transnational nature that partially characterises these actors is a powerful component when directly applied to the field of technology, as much as it is the national

[460] In 'A 2 Vitesses?', Pravda, October 28, 1985, p.1. Quoted in CADN, 1930INVA/5019, La sécurité et la défense européenne, Monsieur Jean-Bernard Raimond, Ambassadeur de France en U.R.S.S. à Son excellence Monsieur Roland Dumas, Ministre des relations extérieures, Moscou, le 28 Octobre 1985 A/S.

one. Therefore, the moment in which this work defines as 'transnational' the specific subjectivity of an actor, it considers it in retrospect, and it is aware that transnational networks are not completely separated from the domestic level. To conclude, these examples were an attempt to pursue an intermingled analysis in the ground of inquire contemplating that, ultimately, continuity and rupture, national and transnational, operate together.

To conclude, while I have always attempted to maintain a balanced structure between the sections on "Air" and "Space" in order to make apparent the reiterate pattern pursued by France, two main differences could always be found, whether the reader looks into the case studies, major or minor, or into the historical background of the intergovernmental bodies here studies: the actors. Curiously enough, the documentation on 'Air' has always led me though the WEU as the main actor behind the debates on the EFA—probably because of the lack of non-disclosed military material that I hope to read in the nearest future. On the other hand, despite the amount of organisations, countries, and firms involved in space activities, the real actors emerging from the documents are *men*—scientists or policymakers—who were, in fact, *the* makers. Finally, this thesis and its men contributes a piece of the puzzle to a better understanding of the construction of Europe and its cooperation, in 'Air' and 'Space'.

Archival Sources

- AN - Archives Nationales (Paris, France)
  - Archival collections: Service de documentation (secrétariat général du Gouvernement); Service des industries de communication et de service; Conseiller technique auprès du ministre de l'Industrie; Direction des programmes aéronautiques et de la coopération (direction générale de l'aviation civile); Sous-direction de l'espace (direction générale des stratégies industrielles) (1986-1997); Ministère ou secrétariat d'État chargé de la Recherche; Service des industries de communication et de service; Département Terre, océan, espace et environnement (départements scientifiques et techniques, direction générale de la recherche et de la technologie).

- ACS - Archivio Centrale dello Stato (Rome, Italy)
  - Archival collection: Archivi degli Organi di Governo e Amministrativi dello Stato, Ministero dell'aeronautica (1915-1973): Ministero del Bilancio e della Programmazione Economica (1950-1972), Ministero della Difesa (1912-1987); Archivi degli Organi Legislativi Dello Stato: Leggi e Decreti dello Stato.

- CADN - Centre des Archives Diplomatiques du Ministère des Affaires Etrangères (Paris, France)

- CIA - Central Intelligence Agency (online)
  - Archival collection: General CIA Records, National Intelligence Council (NIC) Collection.

- CNES - Centre National d'Etudes spatiales (Paris, France)

- FRUS - Foreign Relations of the United States

- Archival collection: Western Europe; Foundations of Foreign Policy; Documents on Global Issues.

- HAEU - Historical Archives of the European Union (Florence, Italy)
  - Archival collection: Jean Monnet Duchêne, Jean Mussard, Altiero Spinelli European Space Agency, European Launcher Development Organisation, European Space Research Organisation, Western European Union, European Preparatory Commission for Space Research, Oral History of Europe in Space, European Space Conference.

- IMF - International Monetary Fund (online)
  - Archival collection: Annual Reports

- JCL - Jimmy Carter Presidential Library and Museum (Atlanta, Georgia)

- LAC - Library and Archives Canada (Ottawa, Canada)
  - Archival collection: Europe

- NARA - National Archives and Records Administration (College Park, Maryland)

- TNA - National Archives of Kew (London, United Kingdom)
  - Archival collection: Cabinet, Prime Minister's Office, Foreign and Commonwealth Office, Ministry of Defence, Department of Trade and Industry.

- RL - Reagan Library (Simi Valley, California)
  - Archival collection: White House Staff and Office Inventories

- MTF - The Margaret Thatcher Foundation (online)
  - Archival collection: Prime Minister's Office, Thatcher Archive

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CRS – Comité de Recherches Spatiales

CRS – Consiglio per le Ricerche Spaziali

DEFE – Ministry of Defence

DG – Director General

DMA – Délégation Ministérielle pour l'Armement

ECA – European Combat Aircraft

ECS – European Space Conference

EEC – European Economic Community

EMS – European Monetary System

ESA – European Space Agency

EDC – European Defence Community

EF or EFA – European Fighter Aircraft

ELDO – European Launcher Development Organisation

ESRO – European Space Research Organisation

FCO – Foreign and Commonwealth Office

FD – Financial Division

FRG – Federal Republic of Germany

FEFA – Future European Fighter Aircraft

FF – French Francs

FG – Finance Group

FRUS – Foreign Relations of the United States

GEERS – Groupe d'Etudes Européen pour la Cooperation dans le Comaine des Recherches Spatiales

HAEU – Historical Archives of the European Union

IEPG – European Project Group

IMF – International Monetary Fund

INTELSAT – International Telecommunications Satellite Organization

JCL – Jimmy Carter Presidential Library and Museum

JUICE – Jupiter Icy Moons Explorer

LAC – Library and Archives Canada

LAFWG – Legal, Administrative and Financial Working Group

LAS – Large Astronomical Satellite

LIIIS/L3S – Lanceur de 3e génération

MAU – Million Accounting Units

MoU – Memorandum of Understanding

MBB – Messerschmitt-Bölkow-Blohm GmbH

MBT – Modified Brussels Treaty

MTF – The Margaret Thatcher Foundation

MRCA – Multi-Role Combat Aircraft

NARA – National Archives and Records Administration

NASA – National Aeronautics and Space Administration

NASA – North Atlantic Treaty Organization

OECD – Organisation for Economic Co-operation and Development

OEST – Outline European Staff Target

OHES – Oral History of Europe in Space

PREM – Prime Minister's Office

RL – Reagan Library

RAF – Royal Air Force

SDI – Strategic Defense Initiative

SEA – Single European Act

SLV – Space Launch Vehicle

STC – Space Technology Committee

STOVL – Short Take-Off and Vertical Landing capability

STV – Satellite Test Vehicle

STWG – Scientific and Technical Working Group

TASS – Technical, Administrative and Supervisory Section

ECSC – The European Coal and Steel Community

TNA – National Archives of Kew

UDMH – Unsymmetrical dimethylhydrazine

UKVG – United Kingdom Variable Geometry

WEU – Western European Union

Sara Venditti

New Wings for Europe

Western European Strategic Cooperation and Integration in the Aerospace Field: Ariane and Eurofighter, 1973–1985