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The shaping of the high tech military industry in southern Europe: a view from Spain

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Abstract

This contribution seeks to investigate the mechanisms and factors of the conversion of a segment of the civil industry of a European country into a defence industry from the perspective of the company's history and through a case - Marconi Española - which lacks a historical monograph. This chapter of the defence industry is being developed at the same time as the process of integration of Spain into Europe. The text is structured in five main sections. The first traces the characteristics of the defence industry in Spain, the second refers to the conversion of Marconi Española under the American multinational IT&T, the third to the entry into the scene of the French multinational Alcatel, the fourth to the turn with new managers and the last to the integral remodelling of the Spanish defence industry. The work is substantially framed within the burning debate on global balances, European subordination or the role of national states (European Parliament, 2016, pp. 14-20). The work is based on primary business and administrative sources, as well as on a newspaper library and secondary literature.

Introduction

The European Commission sees the defence industry as a strategic sector, highly innovative and focused on engineering and avant-garde technologies, whose cutting-edge research has generated significant benefits in civil sectors such as electronics, space and civil aviation. The sector is key to Europe's security and development as a world leader in manufacturing and innovation because of its capacity to generate direct and indirect employment, added value and exports¹.

Even if the statement originates from an institution of great relevance, we cannot consider it as a doctrine but as the basis of an open controversy on a question whose complexity does seem to attract a wide consensus (Office of Technology Assessment, 1990, pp. 77-83)². For some, in contrast to this optimistic statement, the very nature of the technology involved leads to different assessments. Indeed, unlike in the 1960s and 1970s, the gap between military and civilian technology meant that expenditure on military technology was less and less reversed in the latter³. An ongoing debate is the interrelationship between economic development in general, industrial innovation in particular and security (Brauer and Dunne (2004); Gummett and Stein (2014)). In this regard, it is worth highlighting the critical trend in evolutionary economics, which points to the high opportunity costs of the military industry, the emphasis of technology on products rather than processes and the encouragement of corporate aversion to risky investments (Nelson, 1993).

¹ European Commission (2009), pp. 8-9. Scholars add a number of characteristics of the defence industry, such as its registration in a market that functions imperfectly and is therefore subject to significant inefficiencies; its high costs, in particular because of the considerable weight of innovation in the sector, and the high opportunity costs of this activity: Martí (2013), pp. 169-182.

² This complexity can be explained by the marked differences between nation-states in industrial policies, rules governing the defence business, stages of technological sophistication and levels of civil-military industrial integration (from the USA, which is largely separate, to Japan, which is highly integrated).

³ Hearing of the Minister of Industry and Energy, *Journal of Congressional Sessions (JoCS)*, 130, 12 May 1987, pp. 4894-4.930; *BIT*, May-June 1987, p. 27.

The paradigm centered on defense technology overrides the specific era of East-West confrontation. In fact, it embodies an essential feature of contemporary defence, due to the uncertainties surrounding the international emergence of a security market⁴.

In the two last decades of the 20th century, the defence industry was the scene of a series of transformations that, led by multinational companies, profoundly altered its structure. A brief list includes domestic and international mergers, acquisitions and the formation of new companies (Deutsche Aerospace, 1989); strategic alliances and industrial cartels; arms production unaffected by controls and budget cuts; and increased exports. As a result, adjustment strategies were imposed, including layoffs and the sale of arms production facilities or subsidiaries⁵.

In more recent years, the sector was made up of four giants - BAE Systems, Airbus, Finmeccanica and Thales. In addition, there were more than 2,500 small and medium-sized companies, mainly concentrated in six EU countries, including Spain, not including those producing systems and auxiliary equipment, which are located throughout Europe. In more recent years, the sector was made up of four giants - BAE Systems, Airbus, Finmeccanica and Thales. In addition, there were more than 2,500 small and medium-sized companies, mainly concentrated in six EU countries, including Spain, not including those producing systems and auxiliary equipment, which are located throughout Europe⁶. In spite of its importance, the European defence industry is the smallest fraction of the world defence market, led by the United States - 40% of total exports in 1990 - and Russia. Once this basic panorama has been drawn, it is not hidden from anyone that security and defence policies in general, and R&D policies specifically, obey strategic, industrial, institutional and ideological logics⁷. This is where the burning debate on global balances, European subordination or the role of nation states takes root. This is where the burning debate on global balances, European subordination or the role of nation states takes root⁸.

Taking the debate as an essential framework, this article investigates the mechanisms and factors of the conversion of a segment of the civil industry of a European country into a defence industry and through an example - Marconi Española (Spanish Marconi) - which, unlike others, lacks a historical monograph⁹. Methodologically, it combines the perspectives of the history of technology, business and politics. This episode of the defence industry coincides with the process of integration of Spain into Europe. The text is structured in four main sections. The first refers to the restructuring of Marconi Española under the North American multinational IT&T, the second to the entry into the scene of the French multinational Alcatel, the third to the turn with new managers and the last to the integral remodelling of the Spanish defence industry. The whole project is based largely on primary business, parliamentary and administrative sources, as well as on a newspaper library and secondary literature.

The defence industry in Spain

A comprehensive case study requires that the general considerations outlined above for the sector be kept in mind, to which specific considerations can be added, such as the complexity of the products and the diversity of interests involved¹⁰.

⁴ Bellais (2013), pp. 59-78.

⁵ Brzoska et al. (1992), p. 24. Not being driven by competition, defence and security remain specific markets: Bellais (2013), pp. 59-78. Defence multinationals succeeded in replacing intergovernmental cooperation with a new cooperative relationship between defence companies, especially in the West. The mechanism was to establish transnational networks of company relations that encompassed co-production/development, partnerships and subcontracting arrangements that created increasingly formal, integrative and permanent arms production systems: Kurç and Neuman (2017), pp. 219-227.

⁶ European Commission (2009), pp. 8-9. By 2014, it directly employed nearly half a million people, generated up to 1.2 million indirect jobs, had a turnover of EUR 97.3 billion and invested heavily in innovation; EU countries: France, Germany, Italy, Spain, Sweden and the UK: European Commission (2014); for EU policy, see Guay (1997), pp. 404-421.

⁷ Karampekios et al. (2017).

⁸ European Parliament (2016), pp. 14-20.

⁹ Piccini (2011).

¹⁰ It is crucial for the economic-industrial interests and for the defence and foreign policy of the country: Hearing of the Minister of Industry and Energy, *JoCS*, 130, 12 May 1987, pp. 4,894-4,930.

In its fundamental features, the Spanish defence industry was defined by its reduced size in the double aspect of size and number of companies. It was an industry that specialized in the production of goods of a low technological level and, at the same time, was highly dependent on foreign technology, mainly of American origin. In 1986, this sector had a turnover of 156,000 million pesetas, which represented a fall of 18.6 % with respect to 1983.

Almost a third of the total turnover of the sector was destined to foreign trade, in the form of export or co-development operations involving invoicing to companies in foreign countries. In Spain, employment generated by the defence industry - direct employment of 30,300 people and a similar figure for indirect employment - was around 1.6% of total industrial employment. Its relative weight on the industrial structure was considerably less than in other European countries. The sector had a mixed public-private business structure, with a predominance of public enterprises. These, grouped around the Instituto Nacional de Industria (National Institute of Industry), accounted for the bulk of the sector's total production value (64 %), no doubt due to the strategic nature of the sector. Private capital, which was in a minority, therefore maintained a presence in almost all the wide and diverse range of products in this industry, with the exception of shipbuilding. Of these, electronics was possibly the most rapidly developing sub-sector with the greatest technological challenges ahead¹¹. It is worth emphasising at this point the fact from the outset that this sub-sector was part of a branch of activity - electronics - whose size in Spain was far from the power of the so-called 'big four' of Europe, i.e. Germany, France, the United Kingdom and Italy, which together accounted for 70% of the European market¹².

Obviously, the defence industry was dependent on defence policy. The socialist government in office described the defence industry, which had been in place since the beginning of its term, as restrictive, extremely harsh on export licences and economically costly. The Government's objective was to ensure that defence efforts financed national development and also increased the country's technological and logistical autonomy. This industrial defence policy had limitations of two kinds: market on the one hand, and technological on the other, since Spain did not have all the necessary technology or the capacity to maintain a sufficient rate of technological updating in all areas. Any alternative was subject to the non-nuclear orientation, which involved basing defence on armies equipped with conventional weapons. Therefore, their superiority and defence capability depended mainly on the capacity for selective and precise response, which required a technological superiority aimed at self-sufficiency in the supply of the armed forces. From a purely industrial point of view, it brought significant technological benefits to the industry as a whole, a large part of whose technological developments are fed by advances in the defence industry.

The variant chosen by the government entailed long-term planning and funding of R&D. It required the use of the compensation mechanism to promote access to technological content in imports, without forgetting to strengthen the cooperation of the army and the defence sector with the industry of other allied countries as a way of making certain technological developments affordable. This was the reason that led to the intensification of international cooperation programmes and, singularly, Spain's presence in the Independent European Programme Group, then chaired by Spain.

In the Government's view, industrial policy should take account of this defensive policy and, in addition, help to implement it through a major effort to adapt its planning and investments to the future needs of the armed forces, promoting consultation and a vast agenda of reorganization, restructuring, specialization and investment. The beneficiaries of the scheme were to be national defence, industry in general and the balance of trade on the import-substitution side¹³. The electronics and aerospace industries, a substantial part of the defence sector in Spain, benefited from industrial policy in the 1980s, as they were considered to be the driving force behind the country's reindustrialisation.

¹¹ Hearing of the Minister of Industry and Energy, *JoCS*, 130, 12 May 1987, pp. 4,894-4,930. Note the various subsectors: warships; aircraft and space; transport vehicles and armoured vehicles; artillery; light weapons; ammunition and explosives.

¹² Fletcher (1993), p. 39.

¹³ Hearing of the Minister of Industry and Energy, *JoCS*, 130, 12 May 1987, pp. 4,894-4,930. See the various subsectors: warships; aeronautics and space; transport vehicles or armoured vehicles; artillery; light weapons; ammunition and explosives.

Until the middle of the following decade, the Spanish defence industry suffered cuts with mixed results in the transfer of facilities and employment to civil sector activities. According to reputable international organizations, on the occasion of the Stockholm International Peace Research Institute (SIPRI), military spending fell steadily from the end of the 1980s. For its part, government R&D budgets prioritised defence research programmes over civilian research agendas¹⁴.

The Spanish defence industry has undergone substantial changes in recent years by virtue of a threefold movement of concentration of industrial assets through mergers and acquisitions, the entry of foreign companies into Spain and the creation of a significant number of ancillary industries (basically SMEs), as well as the setting up of several technological-industrial clusters (Table 1)¹⁵.

Table 1. Changes in the Spanish defence industry

Company created	Merger	Comments
INDRA (1973)	CESELSA and INISEL	INISEL: concentration of several INI electronics companies
AMPER PROGRAMAS	Marconi Española and participation of Thales	Thales: French company one of the four European leaders ¹⁶
NAVANTIA (SEPI)	IZAR and Astilleros Españoles, S.A.	IZAR, formerly Empresa Nacional Bazán de Construcciones Navales
General Dynamics European Land Systems Santa Bárbara Sistemas	Acquisition of Empresa Nacional Santa Bárbara by General Dynamics ¹⁷	General Dynamics: North American
EADS CASA	Integration of CASA	CASA: result from the merger through takeover by CASA and Hispano Aviación
CASSIDIAN	EADS CASA's subsidiary	Responsible for the Eurofighter programme in Spain
CASA Espacio EXPAL	subsidiary EADS CASA	integrated into ASTRIUM of EADS ¹⁸
IVECO	Acquisition of Empresa Nacional de Autocamiones (ENASA)	in the same way as the Italian Iveco's strategy in the great European powers, France, Germany and the United Kingdom, to become the European market leader
Industria de Turbo Propulsores (ITP)	Participated by SENER and Rolls Royce	aircraft engine manufacturer; participates in intra-European industrial consortia EUROJET, MTRI and EUROPROP

Source: Based on the text and Méndez (2013), pp. 26-28.

¹⁴ A French official report (Collin, 1999) also notes a decline in military spending in volume and as a proportion of GDP; other sources (Casellas (2003, p. 44) point to increased military spending in the late 1990s due to costs associated with the professionalization of the armed forces and new procurement programs.

¹⁵ Among the technological-industrial clusters, the following stand out: AEROMADRID, AEROPOLIS in Andalusia, HEGAN in the Basque Country, Associació Barcelona Aeronàutica i de l'Espai (BAIE, 2000) in Catalonia and the one in the Valencian Community: Méndez (2013), pp. 26-28; *Ara*, 17/12/2015. BAIE, currently in decomposition, describes the aerospace sector as an engine and disseminator of new technologies and new knowledge thanks to high rates of investment in R&D compared to other sectors - around 14% of turnover: De Dalmau (2009, p. 9) considered the aeronautics industry to be a strategic industry as a key pole of economic activity (high-tech, labour-intensive, foreign trade-oriented), at the heart of globalisation with an important integrating function and at the heart of political power, with a bright future: Collin (1999).

¹⁶ AMPER (2007), p. 22.

¹⁷ Nitsche (1960).

¹⁸ Created on 29 December 1998 as a public limited company under Dutch law; in July 2000, it brought together the activities of Aerospatiale Matra, Daimler Chrysler Aerospace AG (DASA) (with certain exceptions) and Construcciones Aeronáuticas S.A. (CASA): European Aeronautic Defence and Space Company (2001), p. 17.

The restructuring of Marconi Española under the North American multinational IT&T

Marconi Española was a company with its roots in the cradle of the Spanish electronic industry. With that name, it was born in 1935 by successive transformations of the old Compañía Nacional de Telegrafía sin Hilos (1910), beneficiary of the Marconi patent exploitation license and in Talleres Electromecánicos C. E. (1917). The entry of public capital made INI the main shareholder, with 43.26 % of the total capital, followed at a distance by a group of banks, with one third of the shares. This pre-eminent position was reinforced when the Institute again increased its investments in 1951¹⁹.

Marconi Española was the IT&T subsidiary specialized in the production of telecommunication equipment and electronic systems - professional, civil and military - as well as railway and airport traffic control and security installations²⁰. In 1975, its share capital and reserves amounted to 2,081 million pesetas and the workforce at its factory in Villaverde, near Madrid, stood at 3,570 employees²¹. In a similar way to IT&T's other subsidiaries in Spain, Marconi depended heavily on supplies to the Spanish National Telephone Company (CTNE), the monopoly operator of telephone services, which held a minority shareholding in that company²².

Already in the late 1960s, IT&T planned to restructure Marconi Española, which was experiencing serious difficulties, most likely at the expense of SESA²³. The early 1970s were marked by a contraction in the pace of sales growth. With the country in recession in 1975, Marconi Española suffered a 17% reduction in the number of hours worked compared to 6.9 million in previous year. In spite of this, personnel expenses grew slightly more than that -18 %- with the consequent increase in the wage cost per productive hour. In addition, the workshops continued to operate at a low level of efficiency, which weighed on costs by PTA 36 million. In 1975, sales fell in real terms, i.e. discounting the weight of inflation. Internal reorganisation measures, cost cuts and improvements in the production processes made it possible to maintain the profit per productive hour²⁴.

Let's define the profile of the company. Early in the 1980s Marconi Española specialized in three main fields, headed by the growing branch of CTV and automotive, well ahead of professional electronics, signaling and others. The telephone material was the least important activity and, more important, in 1984 it had ceased (Graph 1)²⁵.

¹⁹ Calvo (2014), p. 127.

²⁰ On the advertising posters it was stated: "We live together. We need each other. Directly or indirectly we help each other. We, Spanish Marconi, work for you, because you are our reason to investigate and create... Since 55 years, Marconi Española is at the service of the Spanish people": *Ingeniería Naval*, November 1973.

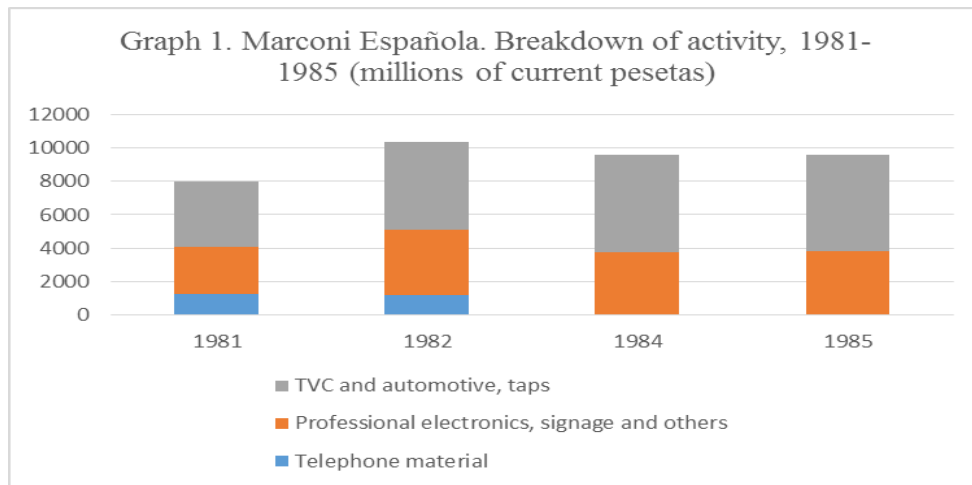
²¹ Marconi Española (1975), pp. 2-3.

²² *Official Gazette of the General Cortes (Boletín Oficial de las Cortes Generales, BOCG)*, 88, 30/4/1987, pp. 3,541–3,542. Marconi Española had a significant role in the configuration of CITESA under the control of IT&T since it had 15 % of the capital of CITESA.

²³ Calvo (2014), p. 174.

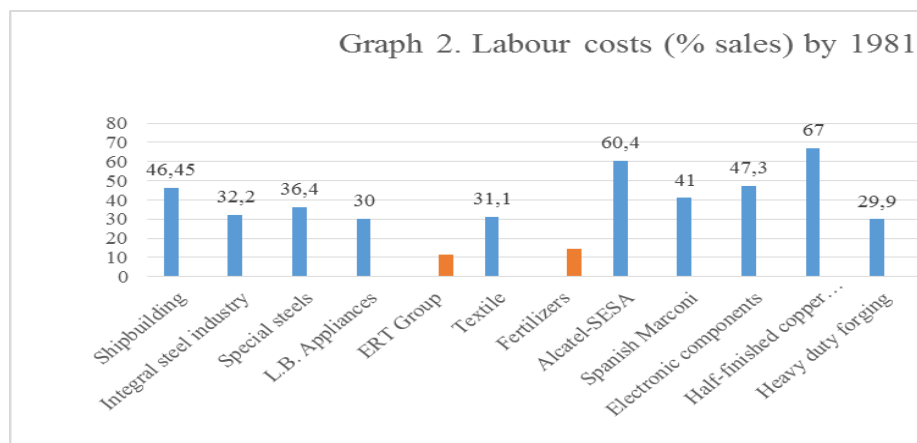
²⁴ Marconi Española (1975), pp. 2-3.

²⁵ Marconi Española, *Annual report(s)*.



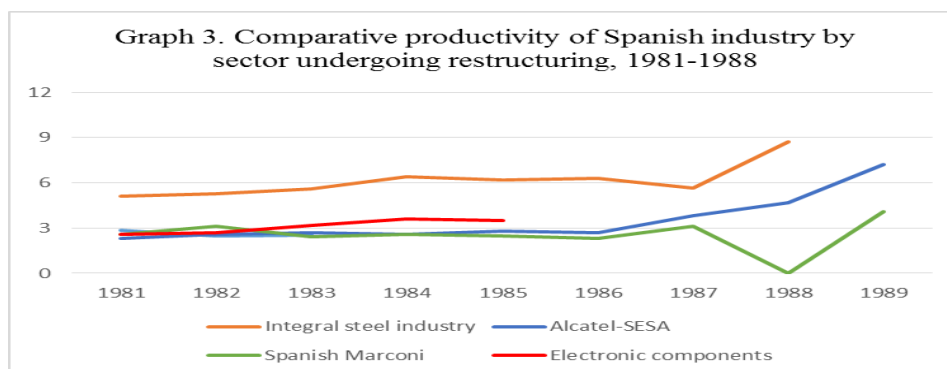
Source: Own from Marconi Española, *Annual report(s)*.

According to the size, measured by the turnover, Marconi Española was far from other sectors or ICT companies, such as Alcatel SESA (with 20,59 %), and it was closer to electronic components with 81 %.



Source: Ministry of Industry and Energy, Madrid (1987).

Costs dropped significantly from 1987. The cost structure of sales at Marconi Española showed a clear predominance of total personnel costs, measured as a percentage of sales²⁶. In perspective, compared to other companies of the same type, it presented Marconi Española as a company with moderate labour intensity. Always considering the sectors under conversion, the personnel costs of Marconi Española were 19.4 percentage points below those of SESA, 26 below those of the metal semi-processed products, 5.45 sor below those of the shipbuilding industry and 6.3 of the electronic components (Graph 2).



Source: Ministry of Industry and Energy, Madrid (1987).

Note: The year 1986 is an estimate.

²⁶ Marconi Española, *Annual report(s)*.

In 1985, Marconi Española's productivity was 1.47 times higher than four years before²⁷. Despite the alleged importance of the qualification of the labour force, due to its comparative productivity within the sectors under conversion, Marconi Española was far from the leading sectors and was slightly above Alcatel-SESA, an unstable position throughout the decade and with a tendency to distance itself (Graph 3). In terms of financial costs, Marconi Española was slightly above Alcatel SESA and, considering all the sectors undergoing conversion, it occupied an intermediate position between the very high financial costs of semi-processed copper and the relatively modest ones of textiles and special steels. The trend showed an increase throughout the 1980s. Finally, the percentage of investment of Marconi Española on sales in the period 1982-1987 was far from the one corresponding to the semi-processed copper products, but also to those of the complete steel industry and of the ERT Group. Its position was significantly lower than that of Alcatel-SESA²⁸.

Marconi was in fact the company where the alarms went off when it counted losses of around 815 million pesetas²⁹. Between 1978-1980, under the UCD governments and in the post-Moncloa pacts stage, Marconi Española implemented a restructuring and refloating policy that would allow it to reach equilibrium in the short term.

The plan included a set of measures, which affected the Group's general strategy and can be summarized in four: concentration of the maximum short-term risk in a single point (Marconi); reduction of personnel costs with staff cuts; strengthening of the export policy and improvement of the investment capacity of the CTNE through appropriate financial formulas³⁰. To these should be added a strategy aimed at diversifying production³¹.

Already in the concretions, IT&T requested substantially to the government the approval of a file of regulation of employment about two thousand seven hundred workers and official credit in amount slightly superior to 5,000 million pesetas³².

In the first measures Marconi Española chose to face the section with the most critical situation, whipped by a deadly whip of decreasing demand and high wage costs due to the number of unproductive people for that cause. Consequently, it announced a procedure for the integral regulation of employment of the staff of the telephone equipment division. As a result, the 1,300 workers would see their working hours reduced by one day per week and one week per month. The staff of that section should be gradually integrated into the other sections of the growing company, in particular those of professional electronics, radio-television and mechanical products. The social security authorities would be responsible for the payment of days not worked, estimated at ESP 184 million per year³³.

We owe Pedro Regatero, CEO of Marconi Española, a more detailed presentation of the state of the company in the early 1980s, which underlines aspects that have already been taken into consideration.

²⁷ Marconi Española, *Annual report(s)*.

²⁸ Ministerio de Industria y Energía (1987), p. 117.

²⁹ The communist representative pointed out a more serious situation for Marconi than that presented by other companies in the sector - lack of work at Intelsa and Standard, problems at CITESA -: *BOCG*, 288-1, May 13, 1980, pp. 597-598.

³⁰ We follow up closely the brilliant analysis of Luis Solana Madariaga, future president of CTNE and then PSOE deputy and vice-president of the Finance Commission of the Congress. This concentration of maximum risk in Marconi Española turned its managers and workers into a shock force -'legionaries'- of the IT&T Group: *El País*, October 17, 1979. The difficulties started from before: in 1976, 2,114 Marconi's workers went on strike: *El País*, 13 April 1976.

³¹ Marconi Española closed the 1979 financial year with a greater loss than that suffered in the previous year; sales amounted to 5,782 million (5,755 million in 1978), despite a sharp reduction in demand for telephone equipment, the main cause of the loss in the year: Marconi Española, Annual Shareholders' Meeting 1980, *ABC*, 13 July 1980.

³² Reply from the Minister of Industry and Energy to Luis Solana Madariaga (Socialist Group), *JoCS*, 233, 22 April 1982, pp. 1,359-1,360. In his analysis, the government representative pointed out two factors with a negative impact on employment in the sector, the first of which being a constant in subsequent government positions, regardless of the political sign: the introduction of electronic technology in telephone switchboards and the retraction of the demand for telephones in recent times in Spain.

³³ The unions announced pressure against the initial measure of the management, which materialized in presenting to the competent authorities the dismissal of four hundred workers during one year: *El País*, 30 April 1980.

As a subsidiary of the multinational IT&T, which with the other subsidiary Standard Eléctrica had 89% of the share capital, while the remaining percentage was shared between individuals and private entities and banks with 4% and 6%, respectively. Within the IT&T group, Marconi Española had several functions, reflected in the same number of divisions with their specific markets -consumer products (basically colour television), automotive and electromechanical products as well as tooling and mechanical parts manufacturing, railway signalling for Renfe and a professional electronics division, basically focused on the fundamental activities of mobile radio for the defence and the Navy. Finally, Marconi Española was still developing the manufacture of telephone material, an activity destined to disappear, which dated back to 1954 and had been growing until 1975, when this activity had a weight close to 80% in manufacturing material. Marconi Española's plans for the incorporation of professional electronics depended closely on the plans of the civil and military public administration. In view of the lack of them, it was very difficult to host other plans than the one of promoting the maximum growth. There were plans for the addition of consumer electronics, evidence of which was the arrival of color television in 1977, which allowed a five-fold increase in the initial 2% market share and a glimpse of bright prospects. To sum up, Marconi Española in the short and long term planned to focus basically on professional electronics and signage.

Added to the list was the automotive and electromechanical components manufacturing as well as consumer products, which was going to imply a considerable reduction of personnel³⁴. In technological practice, it manufactured several advanced equipment, including Skyguard and DME.

It was incorporating new manufacturing means, including high-precision measuring devices and Royonick tables for printed circuit board assemblies. The R&D section had achieved developments and modifications in radiotelephony and other products that could increase the possibilities of market introduction, such as the STR-12. In technological practice, it manufactured several advanced equipment, including Skyguard and DME. It was incorporating new manufacturing means, including high-precision measuring devices and Royonick tables for printed circuit board assemblies. The R&D section had achieved developments and modifications in radiotelephony and other products that could increase the possibilities of market introduction, such as the STR-12. In the first domain, it had developed synthesized radio telephones in its different versions of mobile base stations and repeaters of up to 20 channels and 10 W. The developments had been enriched with a battery charger applicable to light radio telephones whose approval was provided by the army. The armed forces were the recipients of projects for different versions of equipment for communications in digital cryptophony, as well as radio integration equipment for linking subscribers of a telephone network with radio telephones. The development engineering designed remote control solutions for communication systems of the same client. The company's objective was still to participate in the development of an automatic air traffic control system for civil aircraft. In the first domain, it had developed synthesized radio telephones in its different versions of mobile base stations and repeaters of up to 20 channels and 10 W. The developments had been enriched with a battery charger applicable to light radio telephones whose approval was provided by the army. The armed forces were the recipients of projects for different versions of equipment for communications in digital cryptophony, as well as radio integration equipment for linking subscribers of a telephone network with radio telephones. The development engineering designed remote control solutions for communication systems of the same client. The company's objective was still to participate in the development of an automatic air traffic control system for civil aviation³⁵.

In mid 1982, Marconi Española started a first redundancy procedure for the reduction of its staff, which was negotiated by the trade unions and then approved by the Directorate General for Employment. The agreement contemplated a special program of temporary leaves of various sizes -voluntary, compensated, early retirement and early retirement. As the excess staff continued to exist, a second regulatory file with similar worker support was received from the aforementioned body on November 4, 1982, which authorized the application of the standardization schemes set forth in the previous provision on compensated leave in 1983 and 1984.

³⁴ Audio of the session of the Committee on Transport, Tourism and Communications, Congress of Deputies, 2 February 1982

³⁵ Marconi Española (1982), pp. 8-9. The company won a tender worth 368 million pesetas to deliver 1,780 remote control units to the army, suitable for communication systems.

In addition, the Directorate General for Employment subsequently set the number of potentially affected workers at 784³⁶. As a second orientation, Marconi started a diversification process, aimed at manufacturing connectors through an American multinational and products for German automotive companies³⁷. As a second approach, Marconi started a diversification process, based on the production of connectors through an American multinational and of products for German automotive companies³⁸.

The Government's Delegate Commission for Economic Affairs of 20 July 1982 decided to support the conversion process through a set of fiscal and financial measures developed in parallel with the efforts of shareholders and companies. The Administration sought to prevent any short-term measures from failing to respond to a downward adjustment and to ensure that they fit into a general strategy aimed at improving and strengthening industrial activities in Spain. To discuss this medium-term strategy, a joint committee was set up between representatives of the company and the Ministries of Labour and of Industry and Energy, as well as the CTNE. In return, Marconi Española undertook to increase the share capital, to capitalize the loans granted by its shareholders in the amount necessary for the proper functioning of the company and to pay the debts to the Social Security in eight consecutive semesters³⁹. As foreseen in the plan, Marconi Española was capitalized for an amount of 1,404 million pesetas and investment programs in fixed capital for R&D were committed for the period 1980-1985. The company was authorized to defer the payment of the debts contracted with the social security until the end of June 1982.

The adjustment and advancement of manufacturing and maintenance programs for certain marginal activities and the increase in activity on certain production lines resulted in a reduction in surplus personnel at the end of 1982. However, during the year the decrease was 72 more people than expected⁴⁰.

The industrial reconversion carried out by the Government pursued a policy of reindustrialization by reallocating productive resources from declining sectors to production lines with a future. However, in the Government's view, the actions taken until then, far from covering the objective, had failed to channel investments aimed at achieving a reconversion of industrial assets. Due to various instrumental deficiencies, they had been limited to the financial and labour restructuring of the companies affected by the restructuring plans⁴¹.

Within this framework, Marconi undertook a reconversion process in 1984 without integrating its labour surpluses -as well as those of SESA- into Employment Promotion Funds, which were assessed in the First Reconversion Plan at 3,200. Marconi Española requested a temporary employment regulation -an initial period of one year- which was endorsed by the staff and approved by the Ministry of Labour. Within the multipartite agreement -UGT, the Administration and the two partners of the company, Telefónica and the multinational itself- for the IT&T group of companies represented the dismissal of 805 workers⁴².

³⁶ The company reviews the approval for the temporary suspension of the employment contract of 785 employees during an initial period of 6 months from December 1, 1982: Marconi Española (1982), p. 5.

³⁷ *El País (EIP)*, 30 April 1980. Marconi Española allied with Hughes Aircraft Company in a co-production agreement of a power module for the radar of the F/A-18 aircraft, which required a fully programmable digital signal processing and an increase in the size of the computer memory: *The Economist*, 311, 7,601-7,608, p. 11; *Defense & Foreign Affairs Strategic Policy*, 15, 1987, p. 10; Goree (1983), p. 4.

³⁸ Royal Decree 1380/1984, of 20 June, which declares the conversion of the IT&T España group of companies (Standard Eléctrica, S. A., and Marconi Española, Sociedad Anónima) provided for certain exemptions from the payment of Social Security contributions, as well as subsidies and tax benefits with respect to investments, operations and legal acts; tax benefits: 99 % rebate on taxes on capital transfers and documented legal acts imposing a tax on loans, equity loans, borrowings and capital increases; 99 % rebate on customs duties and taxes offsetting internal taxes imposed on imports of capital goods and tools for first-time installation; subsidy of ESP 400 million in 1984, ESP 500 million in 1985, ESP 500 million in 1986 and ESP 200 million in 1987: *BOE*, 177, 25 July 1984, pp. 21.876-21.877.

³⁹ Ministerio de Industria y Energía (1983), pp. 214-216.

⁴⁰ Marconi Española (1982), p. 5.

⁴¹ Ministerio de Industria y Energía (1983), p. 220.

⁴² *EIP*, 1 February 1984. In 1983, IT&T put the surplus workforce at 6,500 and threatened a possible suspension of payments at Marconi. On the part of UGT-Metal, the trade union response was to develop an alternative combining the reconversion/reindustrialisation binomialisation as the key to the agreements. At the same time, it sought to involve the Administration in the achievement of the priority objective: to avoid traumatic measures for the workers and to get out of the industrial crisis of the company: UGT Metal, March 1984, p. 2. IT&T maintained the commitments made through

Marconi experienced a reorganization by segregation of the production units into four independent legal entities controlled by the same number of IT&T subsidiaries, similar to what happened at different times in companies of the area⁴³. The company, specialized in automotive activities would remain under the control of the German SWF. Registered in 1986 under the name SWF Autoelectric, it would have a founding capital of 25 million pesetas, immediately expandable, 231 workers, all from Marconi, and would achieve sales of 13 055 million pesetas.

The assets in the consumer area would be controlled by Standard Electric Lorenz (SEL) as the main shareholder. The workforce and projected sales were estimated at 321 people and more than 38,000 million pesetas, respectively. SEL was again the main shareholder in another new company for signalling products, whose figures under the above headings would be 126 persons and some 6.2 billion pesetas. The defence activities would be covered by a company under the name of Marconi, S.A. with a capital of 4,500 million pesetas. SESA remained as the main shareholder (80%) but IT&T intended to encourage the entry of a new shareholder to take over the defence electronics activities, which would remain in the legal entity Marconi S. A. Such a technological and financial partner should have the capacity to inject capital in order to reduce financial costs and technologically update the facilities. It should also be able to provide the appropriate technology to compete in the company's new activities and to transfer this manufacturing activity to foreign markets in order to improve the profit and loss account and industrial occupation. The plan provided for 415 new jobs and sales of 37 billion pesetas. The planned investment in all the units during the five-year period 1986-1990, at an increasing rate, was around 2,545 million pesetas⁴⁴.

The lack of a technological partner led the Monitoring Committee of the group's conversion plan of May 1986 to adopt temporary emergency measures to ensure Marconi's survival until the end of the year while a definitive solution was found. These measures included a capital increase of PTA 3 000 million, fully subscribed by its current shareholders. Towards the end of the year, Marconi presented a new proposal for a viability plan to the Monitoring Committee, which rejected it, so the Ministry of Industry and Energy started negotiations with multinational companies in the telecommunications sector for the sale of the company. Already in 1987, Standard Eléctrica decided to freeze the guarantees to Marconi Española at the level they were at that time. On the other hand, the Marconi's shareholders meeting decided to appoint a single administrator to manage the company while looking for definitive solutions⁴⁵.

The relationships between Marconi and the public institutions involved were not at their best. The company blamed the public sector - INI and the Ministry of Defense - for hindering the restructuring plans of its electronics section. The first one would have reached through INISEL an agreement with the British Marconi Corporation, hindering the possibility of finding a partner for the Spanish subsidiary.

each of the various companies in the group, and the increase in Marconi's capital by ESP 4,5 billion backed up IT&T's commitment: Monitoring Committee for the agreement for the industrial conversion of the IT&T group of companies in Spain, Minutes of the meeting of 10 September 1985, Madrid.

⁴³ Standard Eléctrica (1986), p. 9. From a comparative perspective, in 1998, General Electric, which has owned Marconi Italiana since it acquired it from Marconi Wireless in 1970, underwent a major reorganization of its subsidiary. The electronic systems and defence sections were split into three new specialized companies, with the aim of boosting the new economy - Marconi Communications, Marconi Mobile and Marconi Services. The bursting of the dot.com bubble and the temporary setback of the new economy struck a hard blow to Marconi's prospects, which drastically reduced the Italian units: Tolaini (2010); see also Piccini (2011). Marconi Italiana maintained an alliance with CIT-Alcatel and ThomsonHearing of Engineer Raffaele Piccini (Società Marconi Italiana S.p.A.) and Engineer Roberto Chiari, sales manager for Italy of the civil telecommunications division, Senato della Repubblica -2- IX Legislatura, 6° Resoconto, 23 February 1984.

⁴⁴ Commission to monitor the agreement for the industrial conversion of the IT&T group of companies in Spain, *Minutes of the meeting*, 10 September 1985, Madrid; Marconi Española, *Memoria anual*, 1985; *El País*, 6/9/1985 and 23/4/1986; *Cambio 16*, 736-743, 1986, p. 38; *BIT*, May 1986, p. 99. SWF Autoelectric became IT&T Automotive Spain S.A. in 1995; three years later it was sold to Valeo, a French industrial group in the automotive sector. Scholars (Molas-Gallart, 1992, p. 64) pointed to an abandonment of Marconi by foreign capital in the mid-1980s.

⁴⁵ Standard Eléctrica (1986), p. 9.

Defensa would have reduced orders considered traditional, which is why Marconi asked the Administration for additional orders to maintain its 1986 sales at a level of not less than 4,926 million pesetas⁴⁶.

The relay of IT&T: Spanish Marconi under Alcatel

In fact, Marconi was a part of the creation of the European telecommunication holding company of the telecommunication equipment industry Eurotel to which the CTNE initially joined and from which it finally excluded itself because of changes in the French position and the failure to meet its aspirations. Closing an operation that involved the changeover from the American IT&T plants to a European-based company required that the puzzle be put right.

As far back as the complex negotiations during the gestation of the Eurotel holding company, the French government tried to build bridges with Telefonica to get it out of its reticence and into favour of the project. It had even shown itself willing to look for a partner or to facilitate the conversion of Marconi on condition that the CTNE confirmed its participation in the European holding company.

In this context, Marconi Española should stop manufacturing switching equipment and enter especially the defence sector and also the aerospace sector, reinforcing the role that the Spanish industry played with the French one as a subcontractor, co-producer or licensed producer⁴⁷.

After the creation of Alcatel by the merger between the French multinational Compagnie Générale d'Électricité (CGE) and IT&T, Marconi was incorporated to the multinational, together with Standard Eléctrica, a subsidiary of the IT&T group in Spain. The creation of the new giant, now based in Europe with a European base and French leadership, determined to reinforce its oligopolistic position in the world market, has once again brought Marconi's problems to the fore⁴⁸. Any solution had to reconcile a very intricate set of interests: those of the new giant Alcatel, those of the French industrial policy and the Spanish interests, which included the Government and the monopolistic operator CTNE.

Based on this approach, Alcatel, unrelated to the Spanish defense sector, considered the immediate sale or closure of Marconi. For the Spanish protagonists involved, i.e. Government and CTNE, avoiding it required looking for an industrial and technological buyer with activities in the defence field well seen by Alcatel, something against which IT&T had crashed.

The Monitoring Committee proposed to find a way out of the crisis situation rejected the viability plan proposed by the USA multinational and called on the parts involved to draw up a new plan with a deadline of the last day of March 1987. Among the decisions taken by the committee was the summons to the heads of the Alcatel group to increase Marconi's capital. With the failure to implement the 1984 conversion as a background - losses amounting to 1 300 million pesetas - Alcatel removed Marconi from the former IT&T group in Spain at a cost of 2 500 million pesetas⁴⁹.

⁴⁶ *EIP*, 24 April 1986. Marconi Co. was a global telecommunications equipment, services and solutions company, focused on the provision of optical networks, broadband routing and switching, and broadband technologies and value-added services; it had 11,000 employees (45,000 in 2001) distributed in major operations centers in the UK, Germany, Italy and the United States: Marconi plc, Archived 6/2001.

⁴⁷ *El País*, 13 September 1986; *Le Monde*, September 11, 1986. Marconi Española soon agreed with Crouzet, a subsidiary of Aérospatiale, a contract for the joint manufacture, within the programme of industrial compensations derived from the purchase of military material from this French company of a navigation system designed and developed by Crouzet: *BIT*, May-June 1987, p. 27. CASA, Aeronáutica Industrial SA (AISA), INISEL, Sener, Bemer, Gutmar, Ceta and Evac also benefited from the subcontracts: Martin (2014), p. 147. The units would be assembled at the Aérospatiale factory near Marseille (France), while some components would be supplied by the Spanish industry: *Le Monde*, 7 April 1986.

⁴⁸ Calvo (forthcoming).

⁴⁹ *EIP*, 13 October 1988.

The conversion continued in 1986⁵⁰. In this moment, the next year that IT&T failed in its attempt to find a technological partner for Marconi, Promotora de Negocios (PRODENESA), a company expert in management of companies in crisis, took over Marconi. The economic insolvency that was holding Marconi up led to a multi-party transitional agreement - Spanish administration, trade unions and shareholders - to clear the way for a definitive solution⁵¹. The partners concerned agreed on a coordinated departure with the Commission to follow up the abovementioned industrial conversion plan of the IT&T Group in Spain. The operation revolved around four axes, starting with contributions from the outgoing shareholders in the form of the cancellation of bank debts (more than ESP 500 million) in their entirety. To this was coupled the provision of the pension plan (Ptas. 1 046 million), additional financial contributions (Ptas. 1 132 million) and the cancellation of intercompany debts and compensation for losses⁵². From the corporate point of view, the commitments opened the doors to national companies with capacity, experience and prestige in the fields of communication and defense (AMPER and INISEL) as new shareholders of a newly created company between the multinational APT and AMPER that would absorb labor surpluses - between 400 and 500 positions - of Marconi Española⁵³.

The list closed with the handing over of the company's management in the transition period to a management company composed of people who, thanks to their experience, knowledge and skills, are able to guarantee Marconi's future on the basis of the indicated budgets and a feasibility plan. The solution agreed between Alcatel and the Administration for Marconi was approved by the Commission for the monitoring of the reconversion of IT&T Spain (R. D. 1380/84), which was informed in detail of the operation. The Government and the CTNE tempted Siemens, well placed to take over Spanish Marconi.

The operator, on the other hand, encouraged the multinationals Ericsson and AT&T to compete in the sales tenders to avoid it to get in the way of the creation of Alcatel NV. In addition to the list of companies with which negotiations were held to become Marconi's technology partner, several European and other companies joined the list - Ericsson, Thomsom, Matra, Hughes and Tadiran, an Israeli military technology company⁵⁴.

Marconi Española fitted perfectly into Ericsson's plans - well established in the Spanish market for switching equipment through the joint venture Intelsa and emerging in defense - to create a European telecommunications consortium that would integrate the Italian STET⁵⁵. Indeed, Ericsson seemed interested from the outset and maintained its willingness to fully assume the inherent risks - industrial, commercial, financial and technological. Specifically, it offered to subcontract some products with Marconi Española exclusively for the world market. In its plans related to the Spanish market, the multinational also welcomed the entry of AMPER and INISEL⁵⁶.

⁵⁰ Ministerio de Industria y Energía (1986), p. 32.

⁵¹ Congress of Deputies, Government Response, 108, October 3, 1987, p. 5.483.

⁵² More than 500 million pesetas in bank debts, 1,046 million in pension plans and 1,132 million in additional economic contributions.

⁵³ AMPER envisaged investing in its plants in the community of Madrid - the capital and three municipalities in the south. The project involved the incorporation of jobs, part of which were to be filled by workers from Marconi's restructuring: *Journal of Sessions of the Assembly of Madrid*, 957, 2 February 1995, pp. 20,878-20,891. Precisely the lack of guarantees from France to maintain the jobs at Marconi and SESA had been one of the reasons for the withdrawal of Telefónica from the European telecommunications consortium, then called Eurotel, which would lead to Alcatel: 'Hearing of the President of the Spanish national telephone company (Mr Luis Solana Madariaga)', Assembly of Madrid, 957, 2 February 1995, pp. 20,878-20,891; *Journal of Senate Sessions*, October 23, 1986; Calvo (forthcoming).

⁵⁴ *EIP*, 30 March and 17 June 1987; *Computer Business Review (CBR)*, 31/1/1989. High-ranking UGT metal representatives met with their Siemens union counterparts.

⁵⁵ Defense Systems was part of the seven business areas into which Ericsson's operations were divided, along with public telecommunications, corporate communications, cables, radio communications, networks, components and engineering and construction. Ericsson's MD 110, the central unit in the company's flexible communications systems, was the leader in the Nordic countries and had an important market in Spain, as well as in Austria, the Netherlands and Italy; Ericsson reinforced its position in the international market with an order from Spain for its weather radar system: Ericsson, *Annual report*, 1987, p. 2; 1985, pp. 9 and 38; 1986, p. 1.

⁵⁶ *ABC*, 19 July 1987. Ericsson was forced to deny that it had broken off negotiations to acquire Marconi España SA from Alcatel NV (*The Wall Street Journal*: Index, 1987, p. 24) and insisted on conditions including a guarantee that Marconi would maintain its position and access to the Spanish market: *CBR*, 26 May 1987. According to the initial plan,

For its part, AT&T, another of the pretenders, aspired to strengthen its presence in Europe in different branches of activity, a goal already achieved in part through the strategic alliance with Philips in telecommunications (APT), with Olivetti in computers and with CTNE in microelectronics (AT&T Microelectrónica)⁵⁷. APT was looking for an alternative in Spain to the failure of its attempts to acquire the French CGCT, which owned 16% of the French telephone market⁵⁸. This USA-Dutch consortium offered itself to CGE and the Spanish government as a potential buyer.

Siemens, together with Ericsson, made a definite offer to take over Marconi - whose debt would be taken over by SESA - assuming the costs of the workforce realignment, as a price for an increase in its market share in the switching sector in Spain. However, the government rejected Ericsson because it was based in a non-NATO country and therefore not integrated into the CoCom, the multilateral body that controls the sale of technology to the Soviet bloc.

The Swedish company withdrew from the negotiations as soon as it found that the market share offered by Telefónica was not in its interests. In the letter of intent, its plan to regulate employment was less drastic⁵⁹. Ericsson's candidacy had, as we know, the consent of CTNE, which was interested at the time in keeping the Spanish telephone exchange market in the hands of two suppliers. But Alcatel, opposed to the entry of a third supplier and to any step that would mean handing over Marconi to a possible competitor in the Spanish switching market, crucial for its plans in Europe, vetoed it, subjecting it to a definitive solution for SESA⁶⁰.

Alcatel preferred APT, as we know it is a joint venture between Philips and AT&T, even though APT decided not to enter the defence area. In the end, the French group CGE-Alcatel gave the Ministry of Industry the power to choose a buyer for its subsidiary Marconi⁶¹.

The new turnaround

The diversity of partners did not exactly favour solutions to the situation. Once the Ministry of Industry chose Ericsson as the buyer of Marconi, the parent company Alcatel started negotiations with it for the sale of its subsidiary. For its part, the management of the multinational in Spain did the same with Telefonica and UGT to unblock the positions. The union made support for the viability plan conditional on the signing of a three-year wage increase agreement -6% for 1987, and 140% and 160% on the consumer price index for the following two years-, which Alcatel rejected. Likewise, it demanded early retirement as a formula for cutting jobs -some 4,100 people- and the reduction of working hours.

AMPER and INISEL would take over 51% of Marconi through the formation of a consortium, while the APT group would take over the remaining 49%. This outcome allowed Marconi Española to remain in the hands of indigenous people although the operational management was in the hands of the foreign consortium: *BIT*, May - June 1987, pp. 14-15.

⁵⁷ *EIP*, 21/1/ and 2/4/1987. Alcatel launched the first digital system in 1972, followed soon after by Ericsson's AXE (Sutton, 2001, p. 137). The costly process of adapting its ESS 5 switchboards to Telefónica's needs initiated by AT&T required growth in a fraction of the key market within the strategy of multinationals: *EIP*, 2/4/1988. AT&T forged an alliance with Italtel in 1989 to develop products for all markets: Froehlich and Kent (1990), p. 153.

⁵⁸ In June 1985, CIT-Alcatel reached a preliminary agreement with AT&T and APT, which, with further modifications, meant the creation of a joint venture in the field of civil radio links at 50% with the subsidiary of CGE and APT. AT&T would close its plant in the United States to obtain supplies from the joint venture, with an order guarantee of USD 200 million over four years; the company would be comparable in size to NEC, the world leader in this sector: Rausch (1987), p. 49; France vetoed APT's purchase of CGCT: Froehlich and Kent (1990), p. 153.

⁵⁹ *BIT*, May-June 1987, pp. 14-15.

⁶⁰ *EIP*, April 2, 1988. Ericsson controlled 40 % of the Spanish market: *EIP*, 9/4/1987 Suard, a senior manager at Alcatel, denied the existence of a veto over Siemens but admitted having expressed to the Government concerns that a new supplier of switchgear might hinder the future of Standard: *EIP*, 23/6/1987.

⁶¹ *EIP*, April 3 and June 17, 1987. A further 500 million in overcharges were discussed; Alcatel took over 12 billion in liabilities from Marconi, including 1.04 billion disbursed to cover the hole in the pension fund and a further 1.2 billion as working capital. The press attributed the information to Ministry of Industry sources: *EIP*, June 26th 1987. In 1987, Telefonica announced its intention to add AT&T as a third telephone provider. Suard's visit to Madrid was an opportunity to express to the Government and Telefonica his concern about the possible opening of the switching market to AT&T: *EIP*, 2/5/1988.

For their part, Alcatel and Telefónica disagreed on the ways in which to articulate the sales agreements of the two companies for the following five years.

Alcatel proposed to set the total amount of sales to the operator - just more than three million lines - and the prices of products. Telefónica resisted the latter, for fear of possible noncompliance with delivery dates by Standard Eléctrica. In any case, there was a pre-agreement between the Administration, CGE-Alcatel and Telefónica whereby the operator accepted an increase in its purchases from Standard by some 32 billion pesetas. As regards the future owner of Marconi, the Commission for monitoring the conversion gave its approval to the choice of Ericsson, not without UGT putting the maintenance of the jobs before any other option (1,380). Alcatel, uninvolved in Marconi's future plans, put a limit on its participation in the restructuring of Marconi of 8,270 million pesetas, equal to the debt. The price of the operation and the complementary market share of switching and telephone lines that would correspond to the buyer were still to be determined⁶². At the turn of the year 1987, Marconi Española was going through an untenable situation, which was due to several serious reasons. To begin with, the accumulated losses over the last ten years were estimated at 15 billion pesetas (200/300 million pesetas per month), half of which were concentrated between 1984 and 1986 and were only partially mitigated by contributions from the shareholders⁶³. However, the shareholders could not bear the remaining part because it affected Standard, which was also undergoing reconversion. In addition to the list of reasons for the unsustainable situation, there was the fall in orders in the defence and related sectors, which made it impossible to maintain the company's activity. In the middle of 1987, Marconi Española's order book amounted to 3,143 million pesetas, more than half of which was to be delivered during the year.

The company was obliged to submit to as many tenders and awards as possible, with due respect to the rules of free competition inherent in the accession to the Common Market as well as to the Spanish legislation in force in defense of competition. The company was in a delicate financial situation, which coincided with a debt to the Social Security and to the workers. Alcatel and the Ministry of Industry were in favour of temporarily transferring Marconi to a Spanish company -Amper, INISEL, Gestiber or others-, as an alternative to gain time and close the sale with a foreign technological partner⁶⁴.

Ignoring the already mentioned interest of some big companies of the sector in Marconi Española, the owners of this company entrusted the consultancy firm Gestión Integral de Empresas (Gestiber) with the management of Marconi and, within it, with the elaboration of a strategic plan with the involvement of a technological partner. Gestiber presented a viability plan to the representatives of the Ministry of Industry, Alcatel -majority partner of the company- and the consortium ATT-Philips (APT) -potential technological partner.

Gestiber's plan was based on the estimation of a minimum business base and a staggered reduction of the workforce. On the one hand, it estimated total sales for the five-year period 1987-1991 of some 35,000 million pesetas, distributed equally between the telecommunications sector - sales to Telefónica - and the defense sector. Early retirement and voluntary severance pay would initially cut some 600 jobs, while new hires over the five-year period would bring the total workforce to some 1,100 people by 1991. The plan competed with Ericsson's claims, which planned to submit to Industry a letter of intent setting out the basic lines of a viability plan for the Alcatel subsidiary, in which it intended to involve Amper and INISEL as Spanish partners. The Swedish company planned to combine a reduction in personnel -less than that of the project presented by Gestiber- with a relocation of personnel, taking advantage of the ace of its subsidiary Intelsa, which would absorb some 300 workers from the Marconi⁶⁵.

⁶² *El País*, 10 April 1987. The Ericsson option was well regarded by Telefónica, which sought to acquire 5-10 % of the Swedish multinational's capital through an exchange with its own shares in Intelsa, the Spanish subsidiary of Ericsson. INI would have had some qualms about the possible concessions that the Ministry of Defence could make for the purchase of Marconi, since one of the reasons why Ericsson would be interested in this firm was the market represented by the Ministry of Defence: *La Vanguardia*, 18 and 5 February 1987.

⁶³ Congress of Deputies, Government Response, 108, October 3, 1987, p. 5.483.

⁶⁴ *BOCG*, D-108, 3/10/1987; *El País*, 4 June 1987.

⁶⁵ *El País*, 4 June 1987.

By agreement reached in June, Marconi would carry out a regulation of employment that would affect about 850 people, almost half of them destined to be integrated in the staff of the new telecommunications company formed by APT and AMPER. The presence of the former, previously reluctant, as mentioned, to enter the defense area, allowed to overcome the resistance presented by Alcatel, lately in very good relations with AT&T to enter the North American market. The planned location of the new plant was next to ATT-Microelectrónica, in ZUR de Tres Cantos (Madrid), and the bulk of its production would be absorbed by CTNE. The company would make initial investments of between 25 and 30 million dollars - between 3,200 and 3,800 million pesetas - and sales of 4,000 million pesetas, which could reach 8,000-9,000 million in 1990. Alcatel was assuming the commitments made to date by its subsidiary Marconi - 4,675 million in debts to it, 4,670 million in losses from 1984-1985, 1,047 million from a pension plan, plus another 500 million in bank loans - to which was added 1,000 million pesetas to cover the company's payroll until the viability plan was drawn up and a technological partner chosen.

Nevertheless, the negotiations got bogged down and the order to implement the plan and look for a foreign technological partner, who would guarantee the future viability of a Marconi reduced, fell on PRODENESA, a very young and small company specialized in refloating firms in difficulty, after Standard Eléctrica had waived its preferential right. Its mission was to take over the management of the company during the transition phase and to administer the viability plan⁶⁶. Alcatel complied with a bridge plan presented by the general director of that company -Julián Sancristóbal-, which made Marconi the company in charge of providing technological support to the armed forces, against the reluctance of the Ministry of Industry⁶⁷. The survival label was on the captive market of the Ministries of Defence and Interior, exports to several countries with the support of credits from the Development Assistance Fund and contracts guaranteed by the multinational company committed as a way of recovering its investment.

To round off, the participation of the public company INISEL and the company linked to CTNE, AMPER, with contributions of 5% of the share capital, was essential. In case of failure of the foreign partner, both would increase their shareholding weight until giving way to a hidden pseudo-nationalization. The surplus of labour caused by the reduction in size - 400 workers - seemed to be destined for early retirement or incentive withdrawals⁶⁸.

The change in the ownership of the shareholders of Marconi Española embodied three successive actions. An accordion operation to reduce the share capital to zero pesetas was followed by the capital increase to 10 million pesetas and the full subscription of the increase by PRODENESA. The aim was thus to lay the foundations for a non-traumatic solution for Marconi, which was free of financial burdens and provided with sufficient funds in the short term, relieved of labour surpluses and integrating defence activities with the technical and commercial support of INISEL and AMPER. This scheme foresaw the possible incorporation since 1985 of a technological partner, possibly a foreign one, as Marconi's shareholder, although the issues related to the amount and form of such participation were not fixed⁶⁹.

The new shareholding situation of Marconi Española crystallized when San Cristobal converted into capital the 2,500 million pesetas contributed by Alcatel at the time of the absorption of the company, accounted for until then as a debit item of Marconi to that exalted charge of the State Security. Therefore, he switched from creditor to owner by means of a capital increase to which INI and AMPER also contributed 5 % of INISEL's capital. 90% of the capital of Marconi Española, estimated at 10 million pesetas after a

⁶⁶ Strategic Management Research Center, Discussion Paper, University of Minnesota, 1988, p. 7; Congress of Deputies, 108, October 3, 1987, p. 5.483. PRODENESA was directed by Javier Undabarrena, linked to the State Patrimony by his position as financial director of SPANTAX. From PRODENESA (1984), which had a small business portfolio, the refloating of Spantax through IMPROASA, a State Heritage company, was known, together with some other actions considered unclear by the opinion: *EIP*, 26 June 1987.

⁶⁷ *El País*, 10 April 1987; *CBR*, 12 April 1987.

⁶⁸ Alcatel Standard Eléctrica competed successfully with multinationals in an international tender for the supply and assembly of 43,000 digital telephone lines in China. The project was financed in half by a Spanish loan from the development aid fund and a banking group - Banco Exterior de España, Banco de Bilbao and Hong Kong Bank: *ABC*, 13/10/1988. The Spanish government, through the Minister of Industry and Energy, sold in Paris the willingness to favor foreign investment, while advocating reducing administrative intervention in the industry: *EIP*, 6/10/1988.

⁶⁹ Congress of Deputies, 108, October 3, 1987, p. 5.483.

reduction to zero and subsequent increase, was in the hands of PRODENESA whose owner, Javier Undabarrena, acted as sole administrator. The new shareholding situation of Marconi Española crystallized when San Cristobal converted into capital the 2,500 million pesetas contributed by Alcatel at the time of the absorption of the company, accounted for until then as a debit item of Marconi to that exalted charge of the State Security. Therefore, he switched from creditor to owner by means of a capital increase to which INI and AMPER also contributed 5 % of INISEL's capital. 90% of the capital of Marconi Española, estimated at 10 million pesetas after a reduction to zero and subsequent increase, was in the hands of PRODENESA whose owner, Javier Undabarrena, acted as sole administrator⁷⁰.

From this operation, and with the accounts at zero, the new Marconi's managers embarked on the plans for the restructuring of the staff and the improvement of its order book, previous to a sale of Marconi. However, the business followed strange paths to the expectations marked by its management team.

In mid June 1987, Marconi Española started a file of employment regulation that was authorized by the General Direction of Labour in agreement with the Commission of follow-up and Control of the Conversion Plan for the IT&T group in Spain. The file affected 794 workers with a six-monthly scope and a termination date at the end of 1987. The cost of the scheme was covered by the statutory unemployment benefits paid by the National Employment Institute (INEM) for as long as the workers were legally unemployed. In early July 1987, the control group was determined to rescue Marconi Española after the sale of the company to Alcatel and hoped to resolve the operation before the last day of September⁷¹. Marconi Española gave visibility to the composition of its board of directors, headed as chairman by San Cristobal, absolute owner of Marconi Española through a policy.

Two partners of the firm who represented Alcatel's interests in the sale were added to the executive team as executive vice-president and general secretary and Undabarrena entered as managing director. The two members of the board were the representatives of AMPER and INISEL, and the purchase of 5% of the capital by INI is still pending approval⁷².

The financial restructuring was set in motion, subject to a strong imposition by Alcatel to avoid debts with financial institutions, with a funding contribution of 2,600 million pesetas from three different sources - two capital increases for a total of 1. The losses persisted - PTA 2 100 million - despite planned sales of almost PTA 15 500 million and a drastic cut in the workforce to 420-490 jobs between 1988 and 1991.

According to the forecasts, sales would be centralized in the areas of military communications, electronic warfare, avionics and missiles, radio navigation aids and joint manufacturing -Hughes Aircraft, IBM, Contraves and Mc Donnell Douglas-, a fraction called to lose relative weight⁷³. One of the central axes of the 1988-1991 feasibility plan, the entry of a multinational technological partner in Marconi, was postponed until the beginning of 1988. At that time, the relaunch would be under way and, above all, the new Marconi would have been connected to the general restructuring of the Spanish defence electronics industry, which was conditioned by its lack of size.

⁷⁰ Julián Sancristóbal got 90% of Marconi: Adanero et al. (2006), p. 561; *EIP*, 17 and 26 June 1987; *ABC*, 26 June 1987. The information points to a lack of transparency, sprinkled with assertions and denials; one sector of the press even pointed to scandalous edges: *ABC*, 24/6/1987; *EIP*, 24 October 1988.

⁷¹ The plan envisaged the entry of San Cristóbal in the capital of the future Marconi as a partner of PRODENESA and the appointment of him as president within a six-member board of directors at Marconi; San Cristóbal was considered fundamental due to the contacts that he had at national and international level as a former high ranking officer: *ABC*, July 2, 1987.

⁷² AMPER and INISEL were each given a voice: *EIP*, July 8, 1987.

⁷³ The plan provided for a return to profitability in 1991 thanks to a series of variables relating to turnover, staffing and financing. Discrepancies were observed between the heads of the Industry and Defence departments. The workforce was to be reduced from 1,230 employees to 485, including new recruits of some 65 people; the surplus was to be absorbed by the new joint venture between AMPER and ATP (450), redundancies (143), early retirement (195) and downsizing: *EIP*, 11/12/1987.

The forceps imposed by Alcatel led to serious financial difficulties for Marconi Española due to the progressive deterioration of its cash flow, a real talisman in the survival of the company since its sale, to the constant drainage of cash and to the practical impossibility of external financing on the market⁷⁴.

In the labour and commercial sphere, the horizon was darkening to a limit situation that caused a threat of exit by the minority partners, a route that is not recommended at the moment. In 1988 Marconi Española would lose about 1,000 million pesetas, an amount directly attributable to its net assets, which were around 1,900 million. In addition, it had to pay the payroll of 730 people, of whom only 446 were active, and the costs of the 320 early retirements approved in previous viability plans. In the commercial domain, the tone was one of weak demand, which meant that the public contracts won -714 million pesetas- and the immediate ones were a long way from the forecasts contained in the agreement between the company and the Administration after the landing of San Cristobal. On the other hand, there was a high level of exports thanks to the company's participation in international programmes.

The difficulties experienced in the refloating of the company and in their link with the integral remodeling of the Spanish defense industry froze the other key piece of Marconi's viability plan, as we know, the sale to a multinational technological partner capable of consolidating the business in the medium term⁷⁵.

The integral renewal of the Spanish defence industry

As we know, the Administration was promoting a project to reorganize the dispersed Spanish communications industry, a game that was played in different scenarios. The main players were AMPER, the industrial conglomerate in which the CTNE participated, and INISEL, the head of INI's electronic miniholding. Through the Ministries of Defence and Industry, the Government started to negotiate with the respective parent companies - CTNE and INI - the transfer of control of Marconi and of different areas of INISEL to AMPER.

The operation was completed with the transfer to AMPER of PESA Electrónica -INI's subsidiary specialized in the manufacture of professional television equipment but above all of INISEL's own military communications lines, assets of enormous strategic value as pieces of programs for the Ministry of Defence⁷⁶. The possible entry of Marconi into the industrial orbit of CTNE through AMPER would revive as a strategy the case of SECOINSA, a computer company sold by INI to the operator. This sale, which endorsed INI's withdrawal from the computer equipment sector, laid the foundations for the creation of a joint venture between CTNE itself and the Japanese company Fujitsu Limited⁷⁷.

For its part, AMPER, the industrial arm of CTNE, faced the challenge of promoting a diversification agenda in the short term, with the support of the semi-public operator and a solid financial situation. In the medium term, it had to reduce its dependence on the telephone terminal monopoly, which was being liberalized, by accessing new markets or manufacturing new products.

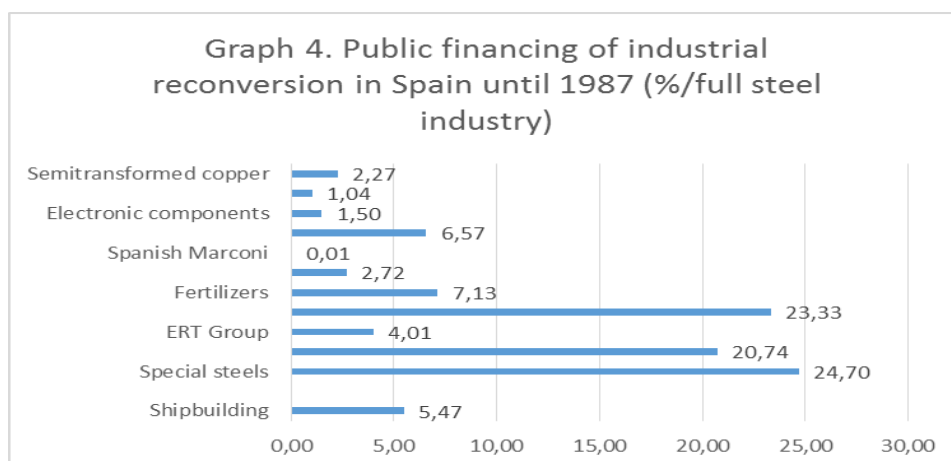
⁷⁴ *EIP*, 13 October 1988.

⁷⁵ The authorities feared a new crisis of the society and its derivation into a political scandal; INI, INISEL and AMPER were involved in the concern while Marconi's managers called for the fulfilment of the commitments: *EIP*, October 13, 1988. Marconi Española carried out a double audit, in order to know exactly the financial situation of the company and its net assets; it denied possible secret pacts or gentlemen agreements in the management of Marconi Española SA, while admitting commitments that affected mainly the order book and the workforce reduction: *EIP*, 27 October 1988.

⁷⁶ The ministers of industry and defence together with the presidents of INISEL and AMPER took part in the negotiations, while the owner of Marconi remained on the sidelines, although he was willing to hand over ownership of the company in the event of an agreement. Closing the operation involved combining a range of strategic, corporate, economic and labour interests, which were to be "matched like a bobbin lace". One of the key points was to clarify who bore the labor liabilities -the cost of early retirement- of the company: *EIP*, December 16, 1988.

⁷⁷ The computer industry was severely eroded by the component and software industries as well as by the transition from large to mini and micro computers and from proprietary to standardized platforms, independent of application vendors. In short, the equipment industry was suffering from a drain on added value and a reduction of core business to highly competitive, low-margin products: Suard (1993).

The alliances forged with various groups in the sector, such as AT&T, Philips Telecommunications in the Netherlands and the internationally dynamic Italian company Olivetti, were a step in this direction⁷⁸.



Source: Based on Ministry of Industry and Energy (1987).

In the overall aid of various types for reconversion, Marconi received only a small amount: 0.0057 % of the total in the form of subsidies and, in comparative terms, 0.01 % as compared with the full-scale steel industry (Graph 4).

The Spanish Government devised a two-stage plan to find a solution to the problems of the former IT&T subsidiary, which was suffocating from losses of some ESP 900 million. Towards the end of 1988, CTNE and INI reached an agreement in which the Government saw a definitive solution to the problems of Marconi Española. In an attempt to standardize the Spanish industrial policy to those of other European countries, this agreement aimed at fulfilling previous plans.

The deal involved the creation of two new large Spanish telecommunications and software holdings. The first one would be achieved with the aggregation around AMPER, a CTNE company, of a civil and military telecommunications industrial group, which would bring together the assets dispersed in Marconi Española, the communications activities of INISEL and Pesa Electrónica.

CTNE would thus gain access to the defence market, which was hitherto virtually unavailable and which INI was seeking to open. A new company was to be formed, owned 50-50% by AT&T-Philips and AMPER SA, the ambitious manufacturer of communications and office systems then looking for partners throughout Europe⁷⁹. The second would be carried out with the integration of CTNE ENTEL S.A.'s software company and INI's electronics company, Eria. The plan provided for a \$20 million concession from the Spanish government to Marconi through retirement and retirement, although 450 employees would be transferred to AMPER. CTNE would obtain \$430 million from INISEL's civil and military telecommunications operations and a future Ministry of Defence contract with Pesa Electrónica SA⁸⁰.

The Monitoring Committee was in charge of finding the concrete modality for the integration of Marconi's activities in this new Group. AMPER would probably absorb Marconi's active workforce (450 employees) and order book.

⁷⁸ Among the programs of the Ministry of Defence was the multi-million dollar plan for a tactical communications network of the Army (Radite), which would go into the orbit of AMPER, a partner of the Italian group Olivetti in the joint venture Olamtel: Cominotti and Mariotti (1989), pp. 130 and 171.

⁷⁹ *CBR*, 31 January 1989. The concrete modality of the integration of Marconi Española's activities into the new Group should be agreed upon in the Monitoring Committee and the incorporation into AMPER of the active staff (450 workers) and the order book of Marconi: Congress, 9 February 1989, p. 13.705. The authorities continued to look for European partners willing to take over up to 49% of Marconi and the transfer of technology: *CBR*, 17 June 1987.

⁸⁰ Calvo (forthcoming). According to nuances provided by the international press, the new company, whose name was to be decided, was to invest 30 million dollars in new facilities and train the 450 workers absorbed from Marconi Española in the manufacture of telecommunications equipment for the CTNE. Marconi Española would initially have 800 employees, a figure that was to be reduced to 450 over time: *CBR*, 31 January 1989.

The Memorandum of Understanding between CTNE and INI also implied the constitution of another group dedicated to the production of software, centered on INISEL and integrated also by its subsidiary Eria and by ENTEL, a subsidiary of CTNE. Its stated aim was to set up a leading company under the aegis of Spanish capital, in the same style as AMPER, i.e. with the participation of private savings through stock exchange listing⁸¹.

The Government has put forth an aid package of 2,800 million pesetas to meet the bulk of the costs of Marconi Española's restructuring plans that are still pending. The remaining 1,000 million, necessary to complete the process of liquidation of Marconi, would derive from the capital gains generated in the liquidation of the company through the sale of land and assets. The aim was to meet the 320 early retirements committed in the restructuring plans prior to 1986. At the same time, AMPER had to agree with the trade unions on a solution for the future of the more than 440 workers, 260 on Marconi's payroll but with no effective activity at the company's plant and 180 awaiting transfer to AMPER Servicios, temporarily paralysed by the problems arising from the necessary labour mobility associated with the change. The Ministry of Industry wanted to support the activities of the future company so that it could reach in the medium term a turnover in the order of 70,000 million pesetas, 40,000 more than the turnover of AMPER⁸².

Conclusion

From a multidisciplinary approach, the article investigates the factors and mechanisms of the restructuring of the Spanish electronics industry in the years of negotiation and integration of Spain into Europe. It is linked to the double-edged debate on security/destruction capacity and the military industry in Europe and the world.

The central issue has been the conversion of a segment of the civil industry of a European country into a dual use industry. As noted in the 2007 Annual Report, Amper became "a leader in the design and implementation of information systems and integrated civil and military communications solutions to meet the specific needs of each of our customers".

In successive episodes, the text has described Marconi's restructuring under IT&T, Alcatel's entry on the scene, the turnaround with new managers and the integral remodelling of the Spanish defence industry. The research confirms the civil origin of at least part of this sector while it also reflects the ambivalent nature of the same. From a multidisciplinary approach, the article investigates the factors and mechanisms of the restructuring of the Spanish electronics industry in the years of negotiation and integration of Spain into Europe. It is linked to the double-edged debate on security/destruction capacity and the military industry in Europe and the world.

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⁸¹ The new company would have a turnover of around 10 billion pesetas; Telefónica and INISEL would in the future extend their collaboration to other areas of electronics with new production units: *EIP*, December 30, 1988. In addition to their industrial presence, the national groups were expected to have engineering capacity and human resources. The professional electronics sector, added to telecommunications and computing, had grown by 20% in the last three years and the intention was to expand this market, which had customers of the solvency of the Ministry of Defence, Insalud and the Autonomous Communities, among others: *La Vanguardia*, December 30, 1988.

⁸² The costs to be borne by Marconi as a result of its various conversion plans amounted to PTA 3 471 million up to 1986, broken down into compensation, wage supplements and additional social security contributions. The capital gains were to come from the sale of the Villaverde plant to the south of Madrid; the cost of the sale of Marconi Española in 1988 was EUR 7.5 billion: *EIP*, 19 January and May 2, 1988.

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