Innovation and R&D in the global environment: the case of group Thalès

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Abstract: This article builds on a detailed case study dwelling on the theories of innovation to develop, discuss and argue the issues related to the professional electronics and arms industry, a sector rarely discussed and not so well-known. Its primary distinctions from earlier models of organisational innovation lie in: the incorporation of an important-yet realistic-role innovation and R&D in shaping the direction and outcomes of dual-technology; the meta-national nature of the organisation that has its own ethical dilemma due to its multi-domestic strategy and the role of the state in a business that deals in electronics and arms.

Keywords: defence; dual-technologies; ethical dilemma; innovation; multi-domestic strategy; role of the state; tertiarisation.

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1 Introduction

As he crossed the Place de la Bastille in Paris, Denis Ranque, Chairman and CEO of the Thalès Group, saw a poster for Rigoletto on the Opéra Bastille. He had VIP tickets for the day's show, but he did not know if he had the time to attend the opera. In the last days, rumours about a major restructuring of Thalès' ownership had come out in the business press. Would there be some new information that he did not know yet from Alcatel or from EADS? Alcatel said it wanted to triple its 9% stake in Thalès. And just the week before, Noël Forgeard, co-CEO of EADS, told the press about recurring rumours related

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to EADS's interest in acquiring Thalès: "We did not have any formal discussions with Thalès or the French Government, because we do not have a mandate from the Board. But we discuss in informal ways, when our paths cross."

Denis Ranque reflected on the fact that he had transformed Thalès about six years before, creating a company that now was well positioned in its three major business areas (Tushman and O'Reilly, 2002). He had expanded Thalès' international presence, which many saw as a great success, especially among the defence sector, in which legal restrictions often impede international mergers and acquisitions or even sometimes simple export contracts. Given his success story not-so-long before, what would happen, if anything at all that would lead him to lose control over Thalès and accept the informal offers by Alcatel and EADS? He thought Thalès was better off as an independent player, even if Thalès was ranked No. 9 in the worldwide defence market with sales of 10.3 billion euros in fiscal year 2005.

The following section discussed the methodology for this study.

2 Methodology

2.1 Research questions and objectives

The primary research objective is to explore, discuss and discover the issues related to the professional electronics and arms industry, a sector rarely discussed and not so well-known. This leads to the research question: How are global companies (especially those whose business models rests on R&D) utilising their innovative and R&D capabilities in the new business environment? Thus, the article attempts to understand:

1 the innovation, R&D in the electronics and the arms business

2 the internal strategy and organisation of a leading company in this sector

3 its role in emerging markets.

To try to understand these research questions, a need for in-depth examination of an organisation was felt necessary which utilises innovative approaches with its R&D to survive in today's business environment. Some objective questions were formulated to understand the context of such a strategy. They were:

- To examine the history and evolution of Thalès and the industries in which it operates.
- To understand the importance of R&D in the industries where these organisation operates. What should be Thalès's future R&D policy? Should Denis Ranque internationalise even more or was a further internationalisation of the R&D operations counterproductive? What could be some ways to identify how R&D is managed in such a diversified conglomerate?
- What are the risks of technology transfer issues in emerging countries? How could such companies tackle the issues of piracy and ethical issues (bribery) during such transfers?

- What would possibly the role of the state as shareholder, stakeholder and regulator of Thalès? How could Denis Ranque convince French politicians to support Thalès to stay as an independent company?

2.2 Research method selection

One of the ways to understand such broad research questions was to undertake an in-depth case study approach (Som, 2003). A single case study is able to confirm, challenge or extend a theory, on condition that the theory has specified a clear set of propositions as well as circumstances in which the propositions are believed to be true. This is what the present study aims to do. In general, case studies are the preferred strategy when 'how' or 'why' questions are being posed and thus, suited for this research objective (Foulds and West, 2006).

2.3 Case selection

Thalès was chosen as it is a French company with business interests in integrated solutions for the electronics and sectors. It was founded as a multinational company over 100 years before and is a market leader in this business segment. In 2007, Thalès is considered to be one of the most famous international arms manufacturers that generate more than 50% of its total sales from the sector, while its civil business units generate approximately 40% of its total sales.

2.4 Data collection, validity and reliability

Data was colleted through semi-structured, open-ended interviews with several relevant groups. It was combined with extensive evaluation of archival data, company documents, media reports, consultant reports and sector reports were undertaken. After explaining the broad nature of the study and a general introduction, the interviewees were asked specific questions, varying according to their responsibilities in the company following the broad research framework. Construct validity was adhered by collecting data from multiple sources. External validity and establishing generalisability were not the primary objective as the study was more of an exploratory nature.

3 Company history

Compagnie Française Thomson–Houston (CFTH) was established in 1893. It had the blessing of Thomson Houston International Corporation of the United States and had access to its R&D. During the last century, it had active interests in various business sectors such as power generation, electrical traction, infrastructure, telephones, radiology, radio-communications, home appliances, lamps and televisions.

After World War II, which was followed by the economic boom, Thomson–Brandt (successor of CFTH) and the Compagnie Générale de Télégraphie Sans Fil CSF in 1968 merged to form Thomson-CSF, creating the first big player in electronics in France. Its core business was professional electronics. With the arrival of President François Mitterrand in France, Thomson-CSF was nationalised on 11 February, 1982, after which the company decided to concentrate on defence and consumer electronics. Divisions such

as Thomson-CSF Téléphone and the medical imaging division were sold off in 1983 as non-strategic or unprofitable assets.

After the fall of the Berlin Wall in 1989 and the slowdown of worldwide military expenditures, Thomson-CSF intensified its acquisitions strategy and acquired signal, the defence electronics business of the Philips Group. Other acquisitions occurred in niche markets, which all together, increased in the markets for professional electronics for non-defence companies as compared with the defence sector. After a period of consolidation in the mid-1990s in which the home appliance manufacturer Thomson Electroménager was sold, Thomson-CSF started a new growth initiative. In 1997, the French government decided to re-privatise Thomson.

In 1999, the internationalisation of Thomson was further pushed forward when Thomson made several major acquisitions. For example, it acquired ADI in Australia, ADS in South Africa, Sextant In-Flight Systems in the United States and Avimo, a British-Singaporean company. Lionel Jospin, French Prime Minister from 1997 to 2002, brought about great changes to more than 100-year-old Thomson company. Thomson-CSF entered a strategic partnership with Alcatel, receiving from Alcatel its space and defence electronics business. Dassault Electronique was also added to Thomson-CSF as well as the satellite business of Aerospatiale. In June 2000, the company acquired the British group Racal Electronics. In order to portray a new identity to this huge group, Thomson renamed itself Thalès in December 2000[1]. At the time, the company had 65,000 employees worldwide and revenue of € 8.6 billion. Since the year 2000, Thalès was present in about 50 countries with operations in 30 countries.

The last major acquisition of Thalès was a 25% stake in Direction des Constructions Navale (Naval Shipbuilding Directorate (DCN)), a state-owned French shipbuilder and the leader in Europe for naval military equipment. One military expert pointed out in the summer 2005:

> "In today's world, the cost of a ship for the French Army is half determined by its electronic equipment. Thalès took over a shipbuilder – which makes sense if Thalès wants to improve its prime contractor ability in the naval sector. By the way, the same objectives were aimed when Thalès tried to take over German shipbuilders. And Thalès' takeover attempt over 'Atlas Elektronik' confirmed Thalès' current focus on the naval business area. But Thalès finally failed in buying Atlas from BAE Systems, which went to a consortium led by Thyssen-Krupp and EADS. Thalès hopefully recognized that the Germans did not want a jewel of their defense industry being under indirect control by the French State, via Thalès".

4 Thalès' businesses

As of 2006, Thalès operated in three key markets: aerospace, defence, and IT solutions and services. These three major markets were served by six divisions: aerospace, air systems, land and joint systems, naval, security and services.

4.1 Aerospace

The aerospace division of the Thalès Group had been one of the few technology providers in the world able to serve both civil and military markets. Because of this, Thalès was involved in nearly every major aircraft programme today, including

commercial and regional airliners, combat aircrafts, transport planes, special mission and tanker aircraft, helicopters and unmanned air vehicles. The aerospace business serves three major market segments: aeronautical equipment for civil and military aircraft, mission electronics for combat aircraft, and airborne surveillance and mission systems for armed forces and civil security authorities. It generated revenue of € 2.1 billion in 2005 and employed 13,000 people. In the aerospace domain, Thalès was the only company to cover the whole range of air transport safety and security, which included onboard electronics, air traffic management and crew training. In this business, Thalès was number one in Europe and number two worldwide. Thalès provided electronic components to Airbus for the construction of the A380 aircraft, despite the fact that Airbus' parent company EADS was one of Thalès' most powerful competitors.

4.2 Defence

The defence business included three divisions: air systems, land and joint systems, and Naval. The business of defence products was inherently business to administration oriented. The defence business was crucial to Thalès, with total sales equalling € 5.8 billion or 56% of total sales. Thalès had specialised in integrated systems and was often the prime contractor for public defence equipment programmes. In the arms industry, Thalès focused on providing electronic equipment and complex IT systems. As electronic components in the defence sector became crucial, Thalès was frequently the primary contract holder, leaving the 'hardware' part of defence products to subcontractors. The company operated in all types of air, sea and ground military platforms. Thalès was one of the few companies which enjoyed constant growth rates over the years, especially when military spending was stagnating in most of its traditional European markets.

4.3 Information technology solutions and services

The information technology and services (IT&S) business unit provided IT solutions to organisations such as the army, public administrations and other service firms. Thalès focused on high technology markets. Due to its 'dual-technology platform', IT developments which were originally made for the aerospace and defence markets could be adapted very quickly to the needs of IT&S customers, which produced solutions for network and communications security, payment and electronic transaction security, personal, document and site security, and transport and environmental security. Thalès also produced positioning based solutions and fleet management applications. The IT solutions and services business unit included two divisions: security and services. The total annual turnover of the IT&S business was € 2.1 billion in 2005 and employed 17,000 people.

5 Research and development at Thalès

Thalès applied its so-called 'dual-technology strategy' which used knowledge acquired in the defence sector for expansion in commercial markets and vice versa. This R&D strategy (DeMeyer and Mizushima, 1989; Birkinshaw, Hood and Jonesson, 1998) refined and improved over the years, created a capability that led to competitive advantage for Thalès. Simply put the dual-technology strategy allowed Thalès to transfer knowledge

from one business area to another (Ghoshal and Bartlett, 1988; McDonough, Athanassiou and Barczak, 2006). The flow of information from the defence and aerospace divisions to the IT&S division was considerable (Rajala and Westerlund, 2008). In this way, Thalès achieved major leadership positions in certain sectors, such as technologies for plant security and appliances for secure data transfers for credit card payments. Also, innovations produced in the IT&S division were used in the other business areas of the company. While deciding about future R&D programmes, these considerations about the duality of the technologies were taken into account. Thalès preferred to undertake contracts in which the R&D investments were not specific to the customer, but in which the results of the research efforts could be reused in other sectors.

For this reason, being close to the customer was very important for Thalès' politically sensitive businesses. In the defence market, the location of the production facilities and the location of the R&D operations were often a main selling argument, sometimes even a prerequisite for a successful bid (Cheng and Bolon, 1993). Thalès, by nature of its business, was prone to a 'multi-domestic strategy' from its inception, even for its R&D facilities. Under Denis Ranque's leadership, Thalès administered its 'multi-domestic concept' in the R&D sector which was one of the companies' core activities and core competencies. This strategy suited the specificity of the arms industry in which national governments often required their suppliers to be located in the customer's country. Even if a legal obligation to produce locally might not exist, producing locally could be considered a major competitive advantage in the bidding process for the contract. Another consideration for the 'multi-domestic concept' was the cost advantage often induced by local production. Therefore, also without specific contracts, Thalès produced in host countries like India. One example for the internationalisation of the R&D operations was the recruitment of more than 1,000 software engineers in India. These developers did not only serve the Indian market, but were also designated to provide nearly 100% of Thalès' total R&D efforts in the IT sector. One danger of the internationalisation of R&D operations was the risk of piracy, especially in emerging countries with feeble IPR laws. Up to now, Thalès has managed to avoid such events, but further internationalisation could increase this risk.

R&D has been the key differentiator for Thalès in all its business ventures (DeMeyer and Mizushima, 1989). Companies operating in the defence and electronics sector historically relied on their ability to successfully conduct leading-edge R&D projects and stay ahead of the competition. That also meant that the results of the research were quickly used in the design of new products and components. Thalès is the fifth largest spender in the R&D sector in France with nearly one third of Thalès' employees working for R&D. But by the nature of the business, Thalès' R&D operations are scattered across 12 countries at more than 50 sites. One executive manager pointed out the current priorities of Thalès' in the R&D sector:

> "Our current R&D efforts are focused on new design tools and methods, secure software and intelligence technologies (data fusion, knowledge bases, image processing, etc.). Another basic priority is to secure sources of high-performance electronic components and critical technologies for the long term. Research investments are focused on future-oriented projects in areas including network-centric warfare, civil and military surveillance systems and new generation avionics. In Europe, 600 researchers are working in a number of areas considered critical for personal and collective security: identification, biometrics, IP security, image and data processing, data mining and secure networks."

Thalès spends about €1.9 billion each year on R&D projects; the ratio of R&D expenditure to sales is 18%. This figure included the €366 million in company-funded R&D. The main R&D expenses are financed by Thalès' customers, who mainly were the national ministries of Defence. The 18,500 researchers working for the Thalès Group's R&D operations produce an average of 250 inventions each year and approximately 12,000 patents. Thalès' R&D leverages its cooperation agreements with universities and public research laboratories in Europe, the USA and Asia. In 2005, Thalès was involved in more than 30 public cooperation agreements. One senior manager explained the importance of the interaction with the research community:

> "Thalès is an active member of the international scientific and technological community. Research partnerships with leading engineering schools, universities and research institutes, and with technology providers and certain customers, are one of the pillars of company policy on R&D. The company has close ties with major research institutes, in particular with CNRS, INRIA, CEA, ONERA and the École Polytechnique in France; with Qinetiq, the Universities of Cambridge and Surrey, and Imperial College London in the United Kingdom; with TNO and the Universities of Delft and Amsterdam in the Netherlands; and with several universities in Singapore. The company has also formed partnerships with a number of research institutes in Australia, Germany and North America. Thalès is also an active contributor to a wide range of European military and civil programmes including Euclid and Eurofinder, the European 6th and 7th Framework Programmes for R&D, and Eureka. The company is helping to set up three European technology platforms under the 7th Framework Programme: ACARE in avionics, ARTEMIS in embedded software systems, and ENIAC in microelectronics and nano-electronics. Playing a central role in the Thalès corporate research organisation, Thalès Research & Technology comprises four research entities in France, the UK, the Netherlands and Singapore, as well as laboratories managed jointly by corporate research and Thalès subsidiaries, and a network of research departments in operating units."

One very important success factor for Thalès' R&D has been its ability to share knowledge and technologies within the whole group (Behrman and Fischer, 1980; Christensen and Raunor, 2003). Therefore, even at the R&D stage and in their very early inception, new products should be designed in a way to fit the dual-technology strategy. One director at the R&D department explained:

> "This intellectual task force has no equivalent in Europe and is at the disposal of Thalès' civil and defence customers. But above all, in a reflection of the company's core value of knowledge sharing, Thalès conducts its research as part of a collaborative effort both inside and outside the Group. Each Thalès business contributes to this collective effort, with most R&D conducted under cross-cutting projects with results that benefit all businesses. Technological cooperation has become critical to competitiveness, and Thalès has long adopted the same collaborative approach to research with outside partners. Most aerospace and defense programmes are now cooperative undertakings, not only with other systems integrators but also with a large number of innovative companies that possess highly specialised know-how, some of them working in areas not directly related to Thalès' businesses. This is the case with software, for example, and with most of the dual technologies that Thalès exploits. The company works with specialised technology partners within a dynamic 'ecosystem' of innovative players, sometimes even investing in start-ups and supporting their growth and development. Supporting this tradition, Thalès recently set up a 100 million euro investment fund with ACE Management to support innovation in security solutions by small and medium-sized enterprises."

For software R&D, Thalès identified India as its future main location, following the general trend to relocate more and more complex software production in India (Asakawa and Som, 2008). François Dupont, the head of Thalès India, commented:

> "In March [2005], we will open a maintenance site for the aeronautic business in Gurgaon, dedicated to commercial aircraft. This site will employ 40 people. In June, we will start software production in Chennai. For this site, we will recruit between 1,000 and 1,200 Indian engineers until 2007. Our Indian site will supply not only our Indian markets, but the whole Thalès Group. India is our next domestic market."

6 'Meta-national'[2] organisation of Thalès

6.1 Global presence

Thalès has been presented in more than 50 countries, with operations in more than 30. The seven most important host countries for Thalès are France, the United Kingdom, Germany, Australia, the USA, the Netherlands and South Korea. A brief description of the non-French activities as explained by a senior manager asserts:

> "Our strategy is a multi-domestic strategy of international expansion in defence markets. Our Company tries to achieve this goal by acquiring numerous businesses and participations outside of our home country, which is France, and by strengthening our international network of alliances and partnerships."

United Kingdom. Thalès employed 10,000 people and enjoyed an annual turnover of €1.3 billion in the United Kingdom. Thalès considered the United Kingdom an important industrial basis and an excellent location for R&D activities. Thalès was not only the second largest supplier to the English Armed Forces, but also equipped the London Underground or the Houses of Parliament, with communication and security systems.

Germany. German operations account for an annual turnover of €550 million and employ 3,500 people. Germany had been a focus for Thalès in the military sector (with the first private-finance initiative launched by the German Ministry of Defence) as well as in the civil sector (with communication, simulation and electronic-payment systems).

Australia. In Australia, Thalès has been acting via its joint venture with the Transfield Corporation, ADI. Thalès has been one of the key suppliers of the Australian Army. Australia was also Thalès' hub for the fast growing Chinese market. China awarded the supply of three control centres to Thalès, to be ready for the Olympic Games in Beijing in 2008. Thalès Australia accounts for 3,200 employees and generates annual sales of €500 million.

United States. Thalès has been in USA for the last 35 years and most recently, Thalès operated in the USA through its joint venture ThalèsRaytheonSystems (TRS). One success of TRS was its outstanding position in the in-flight-entertainment devices. TRS is the worldwide leader in GPS navigation systems. In 2004, Thalès' sales were €800 million with 2,000 employees working in the USA.

Netherlands. Thalès located its centre of excellence for the Naval division in the Netherlands. All the Naval systems were developed in a central R&D hub and delivered to more than 60 countries all over the world. Thalès' centralised approach meant that it

employed 2,400 people in the Netherlands, but with sales of only €240 million, because the sales are most often accounted for in the export market countries.

South Korea. South Korean operations are managed through a joint venture with Samsung. This joint venture was the first in the defence sector in Asia. Thalès' annual turnover had doubled from 2000 to 2004, to €225 million. The 1,000 employees working for Thalès in South-Korea had been awarded for their excellence in R&D several times by the South Korean Ministry of Defence.

6.2 Internal organisation

The Thalès Group generated half of its sales outside France. Thalès does not only export its civil and military products, but also produces locally, when this is proven to be efficient. One member of the Board of directors explained:

> "In defense markets, a global player status can only be achieved through a local industrial presence in the client country. These markets are politically sensitive and closely tied in with national security, and it is clearly easier for us to win contracts if they provide a country with domestic benefits in terms of employment and technological expertise. This is the premise underlying the multi-domestic strategy that Thalès had pursued for the last fifteen years. In practice, this strategy can involve forging partnerships with local contractors, acquiring a local company, or founding a new company or joint venture in the country concerned. In each case, Thalès promoted local management and staff, contributing to the country's economic and industrial development, and positioning the company as a local player with the ability to listen closely to its customers to understand and better anticipate their needs. For Thalès, the benefits of this multi-domestic strategy are clear: easier access to markets, broader funding for R&D programs, new openings for the company's expertise, particularly in prime contracting and services, and an involvement in numerous national programs."

While listening to the member of the Board, one executive manager from the marketing and sales department at the headquarters of the Thalès Group added:

> "Our international marketing and sales efforts are coordinated by a global network of delegations and experts. This organization enables us to establish and maintain long-term relationships with our customers, with political decision-makers and with local industries. It is part of our commitment not only to listen attentively to customers around the world but also to support local industrial development, transfers of technology and program financing solutions. Another of the key responsibilities of this network is to ensure strict compliance with legislation, ethical business practices and end-user control procedures for exports of sensitive equipment and systems."

7 Issues

7.1 Shareholding pattern in Thalès

Currently, the major shareholders are the French State which owns 31.4% (including one golden share), Alcatel with 9.5%, Dassault with 5.7%, Thalès employees with 5.7%, and self control of 2.6% and 45.8 % of the shares are free-floating. Thalès' market cap clocked an average of €6 billion in February 2006. Thalès' ownership structure had been

relatively stable over the past years. Recently, Alcatel announced it would like to operate major changes in Thalès' ownership structure. Serge Tchuruk, Chairman and CEO of Alcatel, said he wanted to increase Alacatel stake in Thalès to 20% and transferring its space and security businesses to Thalès. The question for Thalès was how long Alcatel would remain a principal shareholder of Thalès. As one executive manager pointed out:

> "First, Alcatel entered in Thalès as a shareholder in 1998. Then, after acquiring more than 25% of our total shares, Alcatel went down to 9.5%, in 2002. Now, they again want to increase their share in Thalès. What should we think about such an unstable shareholder, who changes its mind nearly every year? Our other important shareholder, the French State, is quite predictable. Its part in Thalès did not significantly change in the last years. Thalès and the specific environment in which we operate need stable structures. In our politically sensitive business, we must pay attention to stability. Our customers want us to be predictable. They want to have long term contracts with Thalès – and they want to know what Thalès will be in five years."

7.2 Corporate values

Thalès, as many other arms manufacturers, faced image issues, especially in the recruitment processes for high potentials. Often, highly qualified people renounce working for Thalès for ethical reasons. Together with this dilemma, stakeholders of Thalès, namely a majority of Thalès' customers and the general public, expect high ethical standards from the company which had in fact given itself strong ethical guidelines. Thalès defined its core values as follows:

> "Across all businesses in all countries, the Thalès core values are the same: focusing on customers, developing people, being entrepreneurs & innovators, performing through teamwork and sharing knowledge. They express the reality of our markets today – and the reality of a worldwide organization with across-the-board technology expertise and a strategic focus on prime contracting and service provision."

Nevertheless, in the last few years, Thalès had been accused of being involved in bribery scandals in France and other countries. These affairs deteriorated Thalès' image and were counterproductive to Thalès' efforts to implement its company-wide ethical guidelines. One scandal which was still looming was the 'Frigates of Taiwan' affair. Thalès' predecessor Thomson-CSF was accused of having paid $500 million as a bribe in 1991 to obtain a contract for the delivery of six Lafayette frigates to the Taiwanese marine. Some French observers said that part of the money was used by French politicians to constitute secrete accounts for electoral campaigns. One former director of a French subsidiary revealed that Thalès probably obtained the contract for the engineering part of the tramway for the French city of Nice by corrupting local politicians.

In 2002, Thalès was the first non-American company in the United States to sign the declaration of the 'Defence Industry Initiative' which defined ethical guidelines and obligated its subscribers to document their actions. A year later, in 2003, Thalès signed the 'Global Compact' edited by the United Nations. This so-called soft law engaged Thalès' responsibility in the fields of human rights, protection of workers and the environment, and in the battle against corruption. Thalès also collaborated with other organisations such as Transparency International and established a companywide code of ethics, which defined the ethical guidelines and which was to be followed on a worldwide level. Some country-specific rules, e.g. for the USA and Canada, were also incorporated

in this framework. One important part of these ethical guidelines was that it was dedicated to measuring and deterring members in selling arms to unethical governments. In 2005, Thalès introduced compliance officers and created a risk management and internal control department. In recent cases, in which the accusations against Thalès were proven to be correct, Thalès' management generally laid off the main protagonists involved in the scandals.

7.3 Role of the state

The French State has been the main customer and main shareholder of the Thalès Group, which gives the French president and the French government a good position when negotiating with Thalès. In general, the arms industry is a very sensitive business in which regulation and legal restrictions play an important role (Kogut, 1985). Exporting defence products is not like exporting other manufactured goods. Thalès' multi-domestic concept tries to consider these business conditions.

In France, the defence industry has been considered strategic in nature by the political elite. Major restructurings of the arms industry do not happen against the will of the most prominent French politicians. Thalès is faced currently with a reorganisation that is part of the greater restructuring effort of the French arms industry. Experts see the French president Jacques Chirac as the target of heavy lobbying activities by EADS and Alcatel. In fact, both companies would like to take over a minority interest in Thalès.

8 Future outlook

When Denis Ranque arrived at his office, he knew that many open questions needed answers: What should be Thalès' future R&D policy? Should he internationalise even more or was a further internationalisation of the R&D operations counterproductive? One other important task for him was to define Thalès' scope. Certainly, Thalès frequently enjoyed the number one and number two positions in most of its businesses, but its growth rates in recent years had been meagre. Denis Ranque interpreted the offers made by EADS and Alcatel as threats for Thalès' independence. But may be EADS and Alcatel could represent attractive partners for Thalès. Only one thing was sure: all these rumours about mergers and acquisitions were mainly subordinate to the will of President Chirac and other influential French politicians. So, how could he convince them to support Thalès to stay an independent company?

9 Conclusions

The case article argued that organisations like Thalès has evolved to be an international and multi-activity group with diverse interests in both the arms and the civil sector. It is a French national company controlling strategic business areas where the French state acts as the main shareholder, its main customer and its main regulator. Because of the nature of its business, Thalès is very sensitive to all legal dispositions of the state in terms of defence, security, restrictions and national strategy. Thalès competitors are powerful groups/states with substantial financial stakes while the industry operates in a complex, oligopolistic, hyper-competitive environment where the new business environment is

dictated by geopolitics, public opinion, innovation and piracy. Within this dynamic environment, Thalès has re-privatisation, re-designed, acquired and integrated successfully to shape its new identity. To be successful in this industry, Thalès undertook a three pronged international strategy of balancing global co-ordination and integration and local responsiveness (multi-domestic strategy), acquiring, integrating and orchestrating knowledge to harness innovation locally and disperse it globally (meta-national strategy) and develop a closely monitored dual-technology strategy that suits the new geopolitical business environment. Risks of technology transfer remain as Thalès need to increase scale and scope economies to emerge economies. In emerging economies, critical issues are about country risks, Intellectual Property Rights, length of projects, return on investments vis-à-vis able to utilise the technology either as dual-technology or utilise the knowledge in another similar project. Thus, organisations like Thalès need to balance opportunities (market, growth) and threats (technology spillovers) simultaneously which might not always obey pure economic rationality. Organisations need to understand that technology transfer is a catch-up game; it has to be balanced through continuous innovation and used as a leverage for growth and profitability in emerging markets.

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Notes

[1] Thalès, the Milesian was one of the first Greek philosophers and mathematicians.

[2] Doz, Y., Santos, J. and Williamson, P. (2001) *From Global to Metanational*. Boston, MA: Harvard Business School Press.