FOI-R--0535--SE
April 2003
ISSN 1650-1942

User report

Martin Lundmark

Drivers and Inhibitors for Transatlantic Defence Industry Integration

- The US Perspective

The FIND programme

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SWEDEN

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Issuing organization	Report number, ISRN	Report type
FOI – Swedish Defence Research Agency Division of Defence Analysis SE-172 90 Stockholm Sweden	FOI-R--0535--SE	User report
	Research area code 1. Defence and Security Policy	
	Month year April 2003	**Project no.** A 1143
	Customers code 1. Research for the Government	
	Sub area code 11. Defence Research for the Government	

Author/s (editor/s)	Project manager
Martin Lundmark	Martin Lundmark
	Approved by Maria Hedvall
	Sponsoring agency
	Scientifically and technically responsible

Report title

Drivers and Inhibitors for Transatlantic Defence Industry Integration – The US perspective

Abstract (not more than 200 words)

The report describes the transatlantic defence industry integration. This integration has compared to other industries been limited despite decades of initiatives in order to increase integration. The report focuses on the strategies of the US so called primes - Lockheed Martin, Boeing, Raytheon and Northrop Grumman – and the US defence context. The US defence industrial context and its actors are described. The modes of integration that characterise the transatlantic defence industry integration are described and related to each other in a typology based on degree of integration.

US drivers and inhibitors for integration are presented from a government as well as from a corporate perspective. These drivers and inhibitors are then used as a tool in order to offer an explanation why the transatlantic pattern of integration is so limited.

The report ends with recommendations for the Swedish defence industrial policy.

The analysis in the report is primarily based on interviews and empirical collection in the US during spring, 2001.

Keywords

Defence industry, transatlantic integration, integration, collaboration, military-industrialised complex, export control, drivers and inhibitors, modes of integration, industrial pattern of integration

Further bibliographic information	Language English
ISSN 1650-1942	**Pages** p. 89
	Price acc. to pricelist

Utgivare	Rapportnummer, ISRN	Klassificering
Totalförsvarets Forskningsinstitut - FOI Avdelningen för Försvarsanalys 172 90 Stockholm	FOI-R--0535--SE	Användarrapport
	Forskningsområde 1. Försvars- och säkerhetspolitik	
	Månad, år April 2003	**Projektnummer** A 1143
	Verksamhetsgren 1. Forskning för regeringens behov	
	Delområde 11. Försvarsforskning för regeringens behov	

Författare/redaktör	Projektledare
Martin Lundmark	Martin Lundmark
	Godkänd av
	Uppdragsgivare/kundbeteckning
	Tekniskt och/eller vetenskapligt ansvarig

Rapportens titel (i översättning)

Drivkrafter för och emot transatlantisk försvarsindustriintegration – USA-perspektivet

Sammanfattning (högst 200 ord)

Rapporten beskriver den transatlantiska försvarsindustriintegrationen. Denna har jämfört med andra industrier varit begränsad trots årtionden av initiativ för att öka integrationen. Rapporten fokuserar på strategierna hos de amerikanska s.k. prime-företagen – Lockheed Martin, Boeing, Raytheon och Northrop Grumman – och den amerikanska försvarskontexten. I rapporten beskrivs den amerikanska försvarsindustriella kontexten och dess aktörer. De integrationsformer som kännetecknar den transatlantiska försvarsindiustriintegrationen beskrivs och relateras till varandra i en typologi baserad på grad av integration.

Amerikanska drivkrafter för och emot integration presenteras, dels ur ett statligt perspektiv, dels ur ett företagsperspektiv. Dessa drivkrafter används sedan som underlag för att förklara varför det transatlantiska integrationsmönstret är så begränsat.

Rapporten avslutas med rekommendationer för svenskt agerande.

Rapportens innehåll är fr.a. baserat på intervjuer och empiriinsamling i USA våren 2001.

Nyckelord

Försvarsindustri, transatlantisk integration, integration, samarbete, militärindustriellt komplex, exportlagstiftning, drivkrafter för och emot, integrationsformer, industriellt integrationsmönster

Övriga bibliografiska uppgifter	Språk Engelska
ISSN 1650-1942	**Antal sidor:** s. 89
Distribution enligt missiv	**Pris: Enligt prislista**

Preface

The FOI Defence Industry Programme, FIND, has since 1990 studied defence industry transformation processes and corporate strategies in Western Europe and the US for the Swedish Ministry of Defence.

The issue of increased transatlantic defence industry integration and harmonisation has been a topic high on agendas both in the US and in Europe for decades. Despite that, this process is slow. Why is that? This report offers an attempt to explain why this is so. This report follows on three previous FIND reports[1] relating to the US defence industry. Information about our previous and present research is presented at www.foi.se/find.

The FIND Programme and the author are greatly indebted to the following. Tekn. dr Marcus Wallenbergs Stiftelse för utbildning i internationellt industriellt företagande[2] for a generous grant supporting a period in the US during 2001. The Security Studies Program at Massachusetts Institute of Technology (MIT) and their staff – especially the director Harvey Sapolsky and Cindy Williams - for hosting me and discussing with me in the spring of 2001. Richard Bitzinger for invaluable help with contacts in the US. The Defence Attaché at the Swedish Embassy in Washington D.C. All the respondents who so generously shared their time for interviews.

This report is a shorter version of what is planned to become a dissertation at the Stockholm School of Economics, wherein theoretical and methodological implications as well as empirical detail will be enhanced.

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[1] See Jarlsvik (1998) and James (1998 and 2000).
[2] "Technical PhD Marcus Wallenberg's Foundation for education in international industrial management."

Executive summary

The transatlantic defence industry integration is limited, despite decades of strong argumentation for it. In order to try to explain why there is not much integration, the following steps will be taken. A description of the transatlantic context, with a focus on the US defence context, this in order to portray how the possibilities of companies is strongly steered by the actions of government actors. Further, a discussion on why companies integrate and in what ways they integrate (modes of integration). Thereafter, based on interviews, arguments for and against transatlantic defence industry integration are presented as drivers and inhibitors. These are presented separated between government and corporate drivers and inhibitors. In relation to this, the defence-specific pattern of corporate integration is discussed in relation to drivers and inhibitors: how can the drivers and inhibitors explain the actual pattern of integration?

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The defence industry has, nationally and internationally, since the end of the Cold War undergone considerable changes. The most important changes have been a radically different threat assessment, geopolitical stability, less government ownership, increasing dependence on non-defence industrial sectors, crossnational restructuring, falling defence budgets and technological revolutions. This report focuses on one aspect of the international defence industry – the transatlantic interface.

There has for decades been a lot of talk about a transatlantic defence industry market, stating that there is a need for a truly transatlantic market, without really stating what constitutes a "truly" transatlantic defence market. Too often the analysis does not go much further than that. There is considerable argumentation about the need for increased integration and cooperation. Yet there is not much integration. Why is that?

The focus is on corporate strategy, which in order to be understood in the defence industrial context, must be placed within a government-created outer context. Defence companies are private enterprises acting in a highly regulated market. On the one hand, they have to create shareholder value. On the other hand, they have to act within the boundaries and paths that are created by and between nations with a domestic defence industry.

The companies in focus are the so called *primes* in the US: Lockheed Martin, Boeing, Raytheon and Northrop Grumman. These four US companies held in 2002 the worldwide positions of 1, 2, 4 and 5 of defence companies.

The aim of this report is by analysing US corporate and government drivers and inhibitors for increased transatlantic defence industry integration on the prime integrator level, improve the understanding for why such integration among primes is so limited despite decades of argumentation. This report will attempt to describe an extended corporate context for the interaction between state interests and corporate strategy. In the centre of this context are the actual modes of integration in the transatlantic defence industry context. To more deeply understand the centre (corporate actions), you must understand its interaction with the periphery (different levels of state interests and state policies).

The US ambition and posture regarding defence matters has no resemblance in any other country. The defence industry is a cornerstone of the US global security posture. The so-called Military-Industrialised Complex (MIC) is a huge machine, perfected during 40 years of Cold War and operated with $ 300-400 billion a year. The 2002 defence budget increase of $

48 billion was in itself larger than the budget of its most important ally – the UK. The US spends four times as much on defence R&D as Europe.

Concerning policy for transatlantic defence industry integration, the US *as an aggregate* acts fairly consistently and predictably. Its actions and priorities are primarily steered by what is best for the US global position, and subordinate to that what is best for the US multilateral commitments. The US, *decomposed into its MIC sub-sets*, reveals a domestic struggle for power, for the proper interpretation of what constitutes the national interest and for priorities within the defence budget.

Due to political restrictions, the cross-border mergers and acquisitions seen in other industries are not plausible among the largest companies. Instead, companies create defence-specific modes of integration and collaboration (juste retour, work share, teaming arrangements and certain joint ventures) that are compromises between generic business incentives for global consolidation and restructuring, and political regulation and constraint. The transatlantic defence industrial integration is limited, especially among the prime contractors. The three main paths of future industrial integration appear to be through teaming arrangements, strategic joint ventures and government-initiated, strategic, multilateral priorities.

The US defence industrial context is still clearly dominated by a Cold War, suspicion-based context. This is most clearly shown by the meticulous and highly restrictive US export control system. The defence industry in the US (and elsewhere) lags behind other industries in benefiting from global supply-chains with distributed centres of excellence. The defence industry should move towards a more trust-based context in order to be better synchronised with other industries, increase interaction with commercial technology and to better benefit from globalised supply chains.

The discussion on the US defence community and the assessment on US drivers and inhibitors holds the case that what most of all restricts integration and controls the overall context, is the US government defence community, still shaped by a Cold War suspicion – based context. The European countries also contribute with considerable inertia, but the US has by far the strongest impact.

Sweden has a defence budget of 1 % of the US budget. Sweden is not in the position to change the conditions of the global defence industry or the conditions for international defence co-operation. In order to create transatlantic links, Sweden must adapt its strategies to what will increase the US interest. The top priorities for such goals must then be clearly supported by all elements of the Swedish defence-related authorities in synchronisation with the defence industry. The defence industry in Sweden would greatly benefit from closer links to the US defence industry since they would interact with the most influential defence community, thereby increasing the attractivity and competitiveness of the Swedish companies; be a part of the effects of the huge US R&D defence budget; the US defence market is also by far the most expansive defence market. Sweden should also continuously analyse in what areas Swedish interests, capabilities and competencies match with US priorities and strive to create communication with appropriate US units or groups concerning such issues. Consequences of US transformation of its grand strategy and doctrine should be a part of such an analysis.

1 *Background and problem formulation*

1.1 Introduction

There has for decades been a lot of talk about a transatlantic defence industry market, stating that there is a need for a truly transatlantic market, without really stating what constitutes a "truly" transatlantic defence market. Too often the analysis does not go much further than that.

The defence industry has, nationally and internationally, since the end of the Cold War undergone considerable changes. The most important changes have been a radically different threat assessment, geopolitical stability, less government ownership, increasing dependence on non-defence industrial sectors, crossnational restructuring, falling defence budgets and technological revolutions.[3] This report focuses on one aspect of the international defence industry – the transatlantic interface.

The defence industry is an industry strongly affected and regulated by government policies. The company networks are intricately connected to the national networks – an important aspect is therefore how the interaction between these networks affects corporate strategy. The transatlantic defence industry is by concerned governments and defence companies seen as being in need of closer relationships and more integration over the Atlantic Ocean. The US government as well as the US defence industry are in clearly dominant global positions – hegemonic positions. Corporate strategies in the defence industry are strongly affected by government interests and policies, and the US government defence-related industry policies is a result of the interplay between many government actors or groups in the US and their respective vested interests. In order to more deeply understand the corporate strategic outcomes, a wider US context – outside of corporate strategy itself – must be addressed. In this wider context of national and international defence industry networks, different US drivers and inhibitors for transatlantic defence industry integration in a US perspective are identified in this report. These drivers and inhibitors must be understood out of the interests of different actors. Despite the apparently strong arguments for deepened integration, progress is very slow.

When starting to study the transatlantic defence industry context, a striking characteristic was that the arguments for more openness and more industry integration have changed so little since the 1980s. The main arguments were still to create a two-way street, avoid fortresses and create interoperability. This points to a very slow process of change. Another striking characteristic was that both sides (the US and "Europe") appeared to repeatedly fail to communicate, both sides felt that the other side did not understand their points, and they saw the other side's priorities as being too self-centred. Due to this, one goal for this investigation was to better understand the interests, priorities and the arguments in the US defence industry and in the related US administration.

1.2 Research puzzle

The transatlantic defence industry integration is limited, despite decades of strong argumentation for it. In order to try to explain why there is not much integration, the following steps will be taken. A description of the transatlantic context, with a focus on the US defence context, this in order to portray how the possibilities of companies is strongly

[3] These changes in have been described and analysed by numerous writers and researchers, and will not be described in this report. See e.g. Markusen and Costigan, 1999; James, 1998 and 2000, Lundmark et al. 2000; Axelson and James, 2000; Axelson 2001; Hayward, 2001, Axelson and Eriksson, 2002; Axelson and Lundmark, 2002.

steered by the actions of government actors. Further, a discussion on why companies integrate and in what ways they integrate (modes of integration). Thereafter, based on interviews, arguments for and against transatlantic defence industry integration are presented as drivers and inhibitors. These are separated between government and corporate drivers and inhibitors. In relation to this, the defence-specific pattern of corporate integration is discussed in relation to drivers and inhibitors: how can the drivers and inhibitors explain the actual pattern of integration?

1.3 Company focus

A prime integrator is a company that is on the highest possible integrative level of the supply chain. A prime (also commonly labelled prime contractor) is able to manage the responsibility of a major defence industrial contract and the integration of systems within it. For example, Lockheed Martin is the prime contractor for Joint Strike Fighter. The notion of a prime connects to a tiered structure below the prime. Directly below is the 1st tier company, which integrates major systems. The 2nd tier company manages sub-systems and the 3rd tier company supplies parts and machines. Companies can be primes on some projects, and lower-tier companies on other. There are, however, just a handful of companies on each side of the Atlantic Ocean that at present are seen as primes.

1.4 Theoretical framework

This report discusses integration and consolidation of companies within an industry. A theoretical perspective focuses on the apparent distance between beliefs and practices. This is used as a perspective – not a theoretical tool for analysis - in order to stress the apparent distance between *belief and rhetoric* – that there should be more transatlantic defence industry integration – and *practice* – that there has been limited integration.[4] Theories concerning government impact on the defence industry are also discussed.[5]

The focus is on corporate strategy, which in order to be understood in the defence industrial context, must be placed within a government-created outer context.

This report has a stronger focus on empirical findings than on theory and theory development.

1.5 Research design

1.5.1 Research problem

Why is there limited transatlantic defence industry integration, despite decades of strong argumentation? In order to address this, the aim was to search for an explanation of the actual pattern of integration by an assessment of the drivers and inhibitors of transatlantic defence industry integration, with a focus on the US perspective

Why this choice? The US is clearly dominant in the global security policy. The priorities of the US government and military shapes the entire market for defence materiel. The US can however not act in complete isolation, they are interdependent on – most of all – their European allies. The interdependency is not symmetric, the US is dominant. The integration between the US defence industry and the European counterpart is therefore a central arena for shaping the global defence industry. This is manifested in some sort of transatlantic defence industry integration.

[4] See Brunsson (1996). The theoretical implications of this perspective are not expanded upon, the theory is used as a tool for clarification

[5] An elaborated theoretical discussion will appear in a forthcoming dissertation (Stockholm School of Economics).

Why only the US perspective? Why not the European perspective? Integration requires two sides that integrate. In this report, only one of the sides – the US defence industry – is analysed. Since the US defence industry together with its associated government actors are so dominant, a focus on the US dynamics is relevant.

So what is the big problem with limited long-term integration within the industry structure? The problem out of an aggregate, transatlantic government perspective is that there is over-capacity on both sides of the Atlantic Ocean[6] and there are not enough projects under way in order to remedy that mismatch between capacity and demand. It could also out of a strict economical perspective be claimed that too much national resources are directed in several or most countries towards the defence industry. Furthermore, there are considerable, potential benefits from more transatlantic co-operation concerning the development and production of defence materiel – primarily regarding economies of scale, stronger mutual political commitment and interoperability.

In this report, a wider context than the strictly corporate context is presented in order to describe and analyse the dynamics of the issue of a stronger, more united and more transparent transatlantic defence industry. Therefore, this is a striving to (out of a corporate management and business administration perspective) dissect, elaborate and further refine that discussion.

The focus is on corporate, transatlantic strategies of the defence industry in a management perspective. Theory on corporate strategy seldom focuses on the defence industry. Integration in the defence industry is more often analysed from a political science, economics or political economy perspective, thereby not placing enough emphasis on the strategies of companies – defence companies are too often analytically treated simply as means of reaching government goals.

The approach is to explain an industry's pattern of integration with the help of an assessment of corporate and government drivers and inhibitors. This appears to be an aspect that is insufficiently researched. An explanation of the discrepancy between the general discourse concerning the transatlantic defence industry integration and the actual outcome of this integration is put forward.

The discussion concerning these two aspects should thereby offer a widened discussion of the trans-national integration of a specific industry in relation to the more general, related academic discourse.

1.5.2 Research questions

The research question is

- How can the outcome of actual transatlantic defence industry integration be explained by US corporate and government drivers and inhibitors for increased transatlantic defence industry integration on the prime integrator level?

[6] The over-capacity has been fundamentally adjusted in several European countries, and in some companies in the US. It appears as if the distance between demand and capacity has decreased in the last five years or so, but I am certain that there still exists substantial mismatch. What constitutes "over-capacity" is not an objective statement; a sustained national capacity might not be addressed as over-capacity, rather as a national domestic asset. According to Sapolsky and Gholz (see several references) the US consolidation had still not created the consolidation benefits of a balanced adjustment of production capacity in relation to an altered demand (i.e., after the Cold War). The rise in demand after September 11, 2001, and the wars in Afghanistan and Iraq have probably activated the excess capacity that existed in the US. The over-capacity issue is therefore put forward in this report, but not investigated in any detail or depth.

1.5.3 Aim

The aim of this report is by analysing the interaction between US corporate and government drivers and inhibitors for transatlantic defence industry integration, improve the understanding for why such integration among primes is so limited despite decades of argumentation for more integration. Despite convincing argumentation for more integration there is not much integration.

In order to do this, the following steps will be taken

1. a theoretical discussion on why companies strive to integrate internationally in a political industrial market that is under pressure of consolidation
2. describe the transatlantic defence industry context (with a focus on the US) for transatlantic defence industry integration on the prime integrator level and
3. interviews have been made in the US in order to identify and analyse the arguments that stand behind the drivers and inhibitors, and these are structured as corporate and government drivers and inhibitors
4. based on the preceding steps, a discussion will be presented concerning how these drivers and inhibitors steer the corporate strategy for the degree and the modes of transatlantic defence industry integration.

This is intended to offer a deeper understanding on what steers the transatlantic defence industry integration on the prime level.

1.5.4 Delimitations

This report analyses the US context and the US actors, and does not discuss. the European side more than briefly.

The perspective in this report is out of a management perspective on corporate strategy, not out of a political science perspective. The focus is on the prime integrator level, thereby covering on the US side Lockheed Martin, Boeing, Raytheon and Northrop Grumman. On the European side this comprises BAE Systems, EADS, Thales and MBDA.

The pattern of integration is not analysed regarding to what extent they are actually integrating their processes[7]. This is an important question which not has been penetrated, since it was expected to be difficult to get access to such information and that that it would also make the analysis much wider.

There is not a focus on specific events, or critical events, partly becaause there are so few events. Nor is a more complete overview of all types of integration presented.

The transatlantic defence industry consists of all tiers of companies, but this report focuses on primes.

1.6 Report outline

The first chapter is an introduction to the research problem and a presentation of the research design. Chapter 2 discusses the methodology behind this report. Chapter 3 has a short discussion on the defence industry and a presentation of the companies in focus. Chapter 4 is a theoretical discussion on corporate strategies for trans-national integration.

Chapter 5 is a discussion on the transatlantic defence industry context. Chapter 5 has a more elaborated discussion in order to describe the interconnectedness between the corporate and

[7] See theoretical discussion on three types of integration: institutional integration, decision integration and execution integration. The focus is here on the first type.

the government strategies in the transatlantic defence industry context. This chapter discusses the US national interest, the so called US military-industrialised complex (MIC) and finally a more detailed part, an accord of how the issue of transatlantic defence industry integration from 1995 to early 2002 has been discussed, analysed and viewed by analysts, scholars and defence industry executives. The aspects discussed in the first two sections of chapter 5 should thereby offer more depth to this third section.

Chapter 6 is a presentation of what is labelled drivers and inhibitors for transatlantic defence industry integration. A more elaborated presentation is offered in an appendix.

Chapter 7 presents the conclusions of the report and finally chapter 8 offers policy implications for Sweden.

2 *Methodology*

The aim of this report is to discuss and analyse why the transatlantic defence industry integration is so limited. There is a clear discrepancy between the expressed beliefs for how the transatlantic defence industry integration should be and the practices of the defence industry, i.e. the actual integration.

In order to adress this aim, a thorough comprehension of the US context was needed. The strategy was to, at first, study a rather wide problem area in order to be able to better identify whom to interview, what questions to ask, who the important actors and decisionmakers were and also what the main problems, opportunities and challenges were.

The research problem was tentatively formulated before going to the US. A striking characteristic of the context of transatlantic defence industry integration was that a clear discrepancy existed between official rhetoric and outcome: according to many interests groups, concerned politicians and corporate representatives the case for more integration was very clear. However, the integration was limited. The debate and the articles and books that had been studied offered unsatisfactory explanation Thereby the US project appeared to be opening up some kind of black box.

What time frame does the study relate to? The question of transatlantic defence industry integration has a difficult time frame, since there are few critical cases or breakthroughs to relate to, especially related to the long period of time wherein these events have occured. The theoretical focus starts in the 1980s, and the empirical focus is on the period from 1995-2001. This more focused period is chosen due to that the effects of the end of the Cold War had in 1995 begun to more clearly have an impact on the corporate landscape. The year 2001 relates to the fact that the more intense empirical fieldwork was conducted that year, and thereby marks the end of the focus.

2.1 Different steps of empirical survey

Before the interviews, two steps were taken in order to be able to understand the US context better. Firstly, a literature search was made in order to identify the actors in the US defence community and how they phrased their arguments for or against transatlantic defence industry integration. This was done by following US daily newspapers, reading defence-related weekly journals (Jane's Defence, Defense News and Aviation Week and Space Technology), academic journals and academic literature. Secondly, through ongoing discussions with colleagues at MIT and experts in Washington, a better understanding was reached.

2.2 Interviews

Supported by this knowledge, interviews were made, primarily in Washington D.C.[8] The people that I was able to interview represented defence industry, defence interest organisations, think tanks, Pentagon, Services, defence attachées at European embassies in Washington D.C., academia, the US administration, Senate and Congress. Thereby the aim was to discuss the lists of drivers and inhibitors as fully as possible.

I have not come upon any other attempt to analyse the transatlantic defence industry integration through drivers and inhibitors, as laid out in this report. The respondents had not seen a similar list either. Several of the arguments were of course familiar to them, but different arguments were familiar or stressed differently by different people. The majority of the respondents became clearly committed to the discussion of my lists of drivers and inhibitors, and several also greatly overdrew the agreed interview time due to vivid

[8] See appendix for list of respondents.

discussions. This points to that the aspect that is the aim of this report is insufficiently researched. Some colleagues have suggested that the interviews should be presented out of which group that stated what, but my belief is that the approach of drivers and inhibitors should be maintained. This is primarily a study of what drives and inhibits, not an attitudinal study for different groups.

My model for drivers and inhibitors, gradually evolving over the interviews, was not mentioned until the end of the interviews, when the compilations of drivers and inhibitors were shown to them. Then I asked them what – in their personal opinion – were the drivers and the inhibitors for transatlantic defence industry integration. I also asked them how they judged my lists and - important – if they agreed to my order of importance of the drivers and the inhibitors.

The lists of drivers and inhibitors represent arguments in order of importance. This order of importance is the end result of the respondents' assessments, and it does not represent one special group's interest. The lists of drivers and inhibitors were gradually defined and redefined during the course of the interviews and through discussions with experts.

The resulting presentation of drivers and inhibitors is a product of several parallel processes. Most of all it is the aggregate outcome of many interviews where the drivers and inhibitors not can be seen as "belonging" to any single respondent. The drivers and inhibitors represent gradually refined and re-evaluated arguments. The model is clearly my product, but it contains the standpoints of many people.[9] This parallel and gradual model building resembles the *grounded theory* model creation.[10]

By comparing the drivers and inhibitors with the limited transatlantic defence industry integration, an explanation is offered for why there is not much integration.

2.3 Validity and reliability

Validity describes if a method "measures what it is supposed to measure". This report aims to offer an explanation of the discrepancy between the general rhetoric for integration and the actual outcome. It is difficult to prove why something did not occur, but the discussion on the US defence community and the assessment on US drivers and inhibitors should present proof of that the US government defence community most of all restricts integration and controls the overall context. A level of "theoretical saturation"[11] ought to have been reached through the triangulation of literature search, discussions and interviews. The internal validity – the conformity between what is aimed to be researched and the operational definitions of it[12] – is truly hard to validate, the overall impression of the assessment in this report must be valued. The causality of something *not* happening in as complex a context as this, can be judged, not proven. The external validity describes the conformity between what is expected to be measured and what is actually being measured.[13] In order to be able to describe the integration, several other aspects that form the outer industrial context had to be discussed. Based on this background, the model of drivers was built inductively. The discussions on how this creates a certain pattern of integration, was reached deductively. Therefore, what is being measured is used in order to draw further conclusions. Reliability concerns if the interviews

[9] This presentation of the interviews into assessments of drivers and inhibitors has been discussed with a professor at Handelshögskolan i Stockholm (Stockholm School of Economics), who approved of the approach, as long as the process is thoroughly described. This thorough description – needed for scientific validation – will be elaborated elsewhere.
[10] Strauss and Corbin (1990).
[11] As discussed in Ludvigsen (2000), relating to Glaser and Strauss.
[12] Hägg and Wiedersheim-Paul (1990), pp. 45-46.
[13] Ibid, p.46 and Wiedersheim-Paul and Eriksson (1991) pp. 27-29.

produced consistent and reliable results,[14] and often a question is whether other researchers would come up with the same results with the same method and questions. A researcher not associated with a government research agency would probably have had difficulties getting the same access, and would have to rely on secondary sources, where an assessment of drivers and inhibitors would have been much more difficult to assemble.

Finally, a few words on the transatlantic context. The interviews behind this study were made during the spring of 2001. The transatlantic context (and the US in particular) has since experienced several large events and processes: disagreement on missile defence (primarily) in 2001; September 11, 2001; the war in Afghanistan and now the war in Iraq. A question that can bes asked in relation to this report, is to what extent this has changed the transatlantic defence industry context, does the report only show the situation in 2001? The first three events did not affect the possibilities for defence industry collaboration in the short run, but in the long run differences in doctrine can affect possibilities for collaboration. The incentives for defence companies however remain unchanged, company strategies adjust to the realities of demand shifts. The effect of the war in Iraq remains to be seen, but it seems clear that its negative impact on transatlantic relations will be greater.

[14] Hägg and Wiedersheim-Paul (1990), p. 46.

3 *Development of the transatlantic defence industry*

3.1 Characteristics of the defence market

The defense industry is engaged in a global network, consisting of links between companies and groups of companies, as well as links with states or between states within different coalitions or alliances. Corporate and state policies are dependent upon each other, and defense industry policy is a subset of broader state considerations regarding defense and security policy. State policies are increasingly becoming integrated, both within states and between states.[15]

The defence industry used to be an government owned industry - or with a strong government control and power over its actions. The defence industry during the 90s gradually became predominantly privately owned and is now subject to the priorities of the investors on the stock market.[16] The states do not represent the corporate dimension - the initiatives of the companies and the actual links between them are what actually constitutes the business activity and production of defence materiel.[17] States have always had a strong interest in its domestic production of defence materiel, and it is in practice very important for defence industries to have an image of having strong future links with the domestic demand. Otherwise, they become less attractive as potential collaborative partners since their future is perceived as more uncertain.[18] Thereby, the state has a strong impact on the outer spheres that define, limit and steer the possible and less possible business opportunities that will exist in the future. Companies are not able to co-operate in certain areas due to restrictions on technology transfer or export control. Companies in most countries have restrictions on who they are able to co-operate with. It is sometimes questioned if the defence industry really is a market? I would say yes, but with considerable market distortions.

The defence industry is engaged in a global network, consisting of links between companies and groups of companies, as well as links with states or between states within different coalitions or alliances. Corporate and state policy are dependent upon each other, and defence industry policy is a subset of broader state considerations regarding defence and security policy. State policies are increasingly becoming integrated, both within states and between states.[19] Major programs are so pivotal, that they shape the industry landscape and steer industry restructuring – thereby directly affecting corporate strategy options.

There is no exact boundary to which companies that should be seen as being a part of the defence industry, and it is not important to draw a line either. The market for defence materiel attracts products, services and competence from all sorts of companies. In this report, the focus is, however, on a small number of companies - primes – that have a very strong presence on the market for defence-related materiel.[20]

[15] Axelson & James, 2000; Lundmark et al, 2000; Axelson, 2001. Government ownership, partly or wholly, does in some companies clearly steer company strategy. In Europe, this is most clearly the case in France.
[16] A small fraction is still being produced by governments or government institutions.
[17] James, 2001.
[18] Lundmark et al, 2000.
[19] Axelson & James, 2000; Lundmark et al, 2000 and Axelson, 2001.
[20] These companies labelled as being primes are in Europe BAE Systems (UK), Thales (France), EADS (France/Germany) and MBDA (Germany), and on the US side the companies are Lockheed Martin, Boeing, Northrop Grumman and Raytheon. None of them are solely active in the defence market, two of them (Boeing and EADS) have the majority of their business in non-defence areas.

3.2 Hierarchy of the market

An industry can be described as a hierarchic structure where companies have different roles in the supply chain, or described differently, with differing degrees of ability for system integration. Krause (1992) describes the defence industrial companies as being in four tiers:

- *first-tier suppliers*: the military-technological innovators;
- *second-tier suppliers*: major producers and adapters of weapons technology and systems:
- *third-tier suppliers*: those that reproduce and copy existing military technologies and hardware and
- *fourth-tier suppliers*: primarily producers of arms.[21]

Above that, a small number of companies have become (in the defence industry) labelled as *primes*. Those are the ones that clearly belong to the first tier, but stand out as the ones that are capable to lead and integrate major systems, as for example a fighter airplane, system-of-system integration and an aircraft carrier. In some joint programs these companies participate as suppliers on lower tiers or as subcontractors, but their main identity is in the form of primes. The transatlantic defence industry consists of all tiers of companies, but this report focuses on primes.

3.3 Development of the companies in focus – the primes

Table 1 below is a brief background on the US companies in focus in this report, including the figures of the European companies. The companies that are labelled primes have different backgrounds, but a common denominator is that the main growth factor has been growth by mergers and acquisition.[22] This M&A phase has now ceded, at least among primes. Primes still purchase other, lower-tier companies. They have also been divesting companies, this in order to focus on core competencies and satisfy the demands of the investor community, i.e. to create shareholder value. Focusing on core competencies can be seen as the opposite of diversification, when companies choose to concentrate on competencies and product areas which are seen as the most central in the strategic identity of the company.[23] This has been a frequent mantra in the last 5-10 years.

The history of these companies requires a lot of detail, and will not be developed here.[24] In short, the transatlantic strategies of the primes in the US can be described as follows.

Lockheed Martin has by virtue of its size and breadth an impact on all defence markets. For business to Europe, Lockheed Martin prefers teaming arrangements and direct selling[25]. *Boeing's* strategy resembles Lockheed Martin's to a great deal, but the company profile is not as high. Boeing is clearly different in having 2 thirds of revenue in non-defence, compared to 7 % for Lockheed Martin. *Raytheon* both pursues direct sales, teaming arrangements and has through TRS Systems shown a commitment towards strategic joint ventures. It has a clearer UK presence through Raytheon UK than the two above. *Northrop Grumman* is more dynamic. The company has been transforming so much in the last few years, that it appears to have focused management capacity towards mergers and acquisitions, and to work with the often under-estimated need for post-merger integration strategies.[26] Northrop Grumman is

[21] Krause (1992), p.31-2.
[22] See James (1998) and Lundmark (forthcoming, 2003).
[23] Bengtsson et al, 1999
[24] See James (1998 and 2000) and Jarlsvik (1998).
[25] Interview with Scott Harris and Don Neese.
[26] See James (2001:ii).

heavily repositioning and transforming its corporate portfolio. Northrop Grumman is however pursuing a similar track to TRS Systems, in its joint venture with EADS. The other three US primes have been fairly inactive the last years regarding mergers and acquisitions, but Northrop Grumman have acquired TRW, Litton and Newport News in the last two years.[27]

Company	Revenue 2001 (world ranking)	% defence 2001	Revenue 2000 (world ranking)	Revenue 1999 (world ranking)	Revenue 1998 (world ranking)	Revenue 1997 (world ranking)
Lockheed Martin Corp.	22 502 (1)	93,8	18 000 (1)	17 800 (1)	16 600 (1)	18 500 (1)
Boeing	19 000 (2)	32,6	17 000 (2)	16 250 (2)	15 600 (2)	13 775 (2)
Raytheon	11 969 (4)	71	14 033 (3)	14 489 (4)	14 822[28] (3)	6 270 (5)
Northrop Grumman Corp.	9 337[29] (5)	68,9	5 600 (6)	6 000 (7)	5 700 (6)	8 200 (4)
BAE Systems plc[30]	14 491 (3)	76	13 248 (4)	15 200 (3)	10 546 (4)	10 091 (3)
Thales Group[31]	5 582 (7)	61	4 261 (8)	3 619 (8)	4 501 (7)	4 184 (7)
EADS NV [32]	5 404 (8)	19,8	4 559 (7)	6 065 (6)	-	-
MBDA[33]	2 000[34]	100	-	-	-	-

Table 1: *Transatlantic primes*.

Sources: Defence News "Top 100" (1998-2002) and www.mbda.net.
All figures are in millions of current US dollars. Annual revenue concerns defence.

Consolidation on lower levels

There are also a few other companies outside the main scope of this report that ought to be mentioned due to their strategic moves. This since there are so few examples of actual transatlantic defence industry integration. During the year 2000, *United Defense* has through its acquisition of Bofors Weapon Systems (Swedish, now Bofors Defence) created a

[27] These acquired companies were in 2000 ranked worldwide as no 9 (Litton), 10 (TRW) and 15 (Newport News), having together 1½ times the revenue of Northrop Grumman in 2000.
[28] Raytheon acquired Hughes Missiles in 1997, thereby consolidating the main part of the US missile industry, which explains the rapid increase in revenue from 1997 to 1998 (+136%).
[29] Northrop Grumman, when including the recently acquired TRW and Newport News, gets a total turnover in 2001 of 16 497 and a world ranking as third.
[30] British Aerospace in 1998 and 1997. BAE Systems was created in 1999 with the merger of British Aerospace plc. and Marconi.
[31] Thales previously named Thomson-CSF (1997 and 1998 figures).
[32] EADS was created in 2000.
[33] MBDA is still yet enough present on the market to appear on the Defense News list, it represents more of a consolidated future. MBDA is the result of the merger of Matra BAE Dynamics (50% BAE Systems and 50 % EADS), EADS-Aérospatiale Matra Missiles (100% EADS) and Alenia Marconi Systems (50% BAE Systems and 50% Finmeccanica (Italy)). It is expected to be joined by EADS-LFK (Germany). MBDA participates in a vast number of European missile collaboration involving also other companies.
[34] The MBDA figure as presented on MBDA homepage (www.mbda.net) as of April 2, 2003. This would have put it, roughly, at around 20th place in 2001.

European presence. *General Dynamics* acquired Santa Barbara (Spain) and *General Motors* acquired Mowag (Switzerland). In 2002, the US investment bank *One Equity* acquired the German shipbuilder HDW (which owns the main parts of the Swedish and Greek military wharfs).

Transatlantic collaborations

The statement that transatlantic defence industry integration is limited rests on the accumulated assessment of all concerned and all the written material that has been studied for this study on the subject. This assessment has not been tested, merely accepted. [35]

[35] A longitudinal study would be of interest, and would clarify the nature and degree of integration. This has not been done. For annual assessments, see Sipri Yearbooks. In order for such a study to show a true picture of the degree of transatlantic defence industry integration, the considerable number of failed or aborted collaborations should also be mentioned.

4 *Corporate integration*

This theoretical chapter discusses industrial incentives for consolidation of an industry and for integration of companies. Finally, it discusses theoretical concepts for different modes of integration. This is intended to offer a background on why companies wish to consolidate and in what ways they do it.

4.1 Introduction

4.1.1 Beliefs vs. practices

What is being said regarding strategy and industrial development is often different from the outcome. Modern institutions exhibit considerable inconsistence between beliefs and practices. Belief systems and current management norms for corporate behaviour may differ substantially from actual performance and behaviour, as well as from local market and organisational practice. When decision makers implement reforms – based on on norms and beliefs – the outcome and the actual reform makers often deviate substantially. At the same time, current beliefs and norms on how markets function and what logic that steers decision making displays clear discrepancies from how local market behaviour actually evolves. In short, the reasoning for what should happen in a market and based on what logic, is something different from what actually takes place. [36] In this report, the discrepancy between beliefs on what should happen and what actually happens is described (concerning transatlantic defence industry integration).

The defence industry consists of companies that to a majority are private enterprise, but some of them have part state ownership or the state has some other kind of strong impact over the company. In order to understand the dynamics of the transatlantic defence industrial integration, a perspective that analyses three categories of change can be used:

- *Changes in institutional conditions*: the social norms and more or less formalised regulatory rules that affect the corporate conditions regarding change of e.g. technologies, internationalisation and possibilities of collaboration.
- *Changes in technological development*: the conditions and results of e.g. knowledge, products, processes and infrastructure.
- *Changes in industrial structure*: the number of companies and their characteristics and how companies are related to each other, domestically and internationally, through competition and cooperation.[37]

This report will however not address the second category more than marginally. The focus of the empirical material is on how drivers and inhibitors of integration (first category) create a certain pattern of integration (third category). The third category - c*hanges in industrial structure* - is addressed in the theory discussion in this chapter. The drivers and inhibitors are not discussed theoretically at any length, since they are seen as so context-specific.[38]

A number of concepts are used in the report that are defined and discussed in an appendix. These concepts are: market vs. industry, defence-related materiel, defence programs, collaboration, industrial networks, market position, co-opetition and institutionalisation. Three new theoretical concepts are introduced, that are discussed in 7.6.1 Theoretical and

[36] Brunsson, 1996.
[37] These three categories are presented in Mattsson and Hulthén (1994), pp. 11-14.
[38] For a stronger scientific validation, this would be needed, but this falls outside this report.

methodological conclusions: political industrial market, structural tension and transatlantic wedges.

4.1.2 Drivers and inhibitors

Actors have incentives to reach certain goals or to avoid certain outcomes. In this thesis, drivers and inhibitors for integration are discussed. A *driver* expresses the will of some actor or group of actors to achieve - in this case – more integration of company activities. The driver can also be seen as a force that is seen as external or as a wider trend, e.g. general trends towards globalisation of industries or the opportunities that emerge from wider IT developments. An *inhibitor* is something that restrains or restricts some other force or change – in this case it restrains integration of companies' activities. The inhibitor can be seen as an articulated will of some actor that something not should happen or increase, and it can also be seen as an effect of institutionalised settings and conditions. It will be stressed if certain drivers and inhibitors are seen as emanating from certain actors or if they are a wider force of industrial trends or of institutional settings.

4.2 Strategic incentives for corporate integration

Strategy can be described as a pattern in the corporate behaviour, a consistency in behaviour over time. A corporate, strategic decision is thereby a decision – with following consequences – that has a substantial impact over time on the corporate behaviour and position as well as also the path the company takes.[39]

The market that is henceforth referred to deals with the purchase of complicated, technology-intensive products; systems that are operated for decades and the purchase is strongly steered by political demands and specifications will be referred to as a "*political industrial market*". The supply chains and industrial landscape consists of large, technology-intensive companies, technology and R&D development demands large investments. Companies only sell to other companies or to the end-users: governments, government actors or other politically steered actors. The defence industry is seen as such an industry. The defence industry is extreme in some aspects, but the aim is to relate it to general and relevant strategy literature.

4.2.1 Consolidation

A driving force for the phenomenon of integration is that markets evolve and change, thereby altering conditions for collaboration and integration. The overall changes are often referred to as restructuring and consolidation. These bring with them changing conditions for companies.

Restructuring is defined as the deliberate modification of formal relationships among organisational components.[40] This definition however refers to one single organisation. In restructuring of an industry, it refers to the modification of formal relationships between companies in an industry. When the industrial structure is altered, the nature of companies and which companies that exist are changing. Consolidation is the process when companies within an industry become fewer or the activities of companies become more interrelated. Market activities are concentrated to fewer actors (merged, or in consortias).

If an industry contains strong business incentives for consolidation and integration, but these are withheld due to political constraints – a "*structural tension*"[41] can be said to exist. Restrictions keep integrative incentives as unreleased, tense springs, and some kind of market distortion is maintained. Companies will however find other, intermediary ways of integrating, collaborating and do business – whatever furthers their competitive position.

[39] Mintzberg et al (1998), p. 9-10.
[40] Cooper & Argyris, (1998)
[41] My expression.

Without discussing industrial restructuring more deeply, drivers for competitive advantage, industrial leadership or more overarching processes – exogenous to companies – create incentives for companies to improve their competitiveness by changing their collaboration and integration with others.

4.2.2 Integration of companies

Integration is to increase effectiveness through reduced redundancy and duplication in the resources in order to fulfil a certain activity chain, to prevent duplication of activities as well as to achieve mobilisation of resources. If these purposes are fulfilled, the system is said to become more effective.[42] Integration can be defined in a general way as "forming a whole" out of separate components. The whole can consist of several autonomous sub-parts or sub-systems, but these are said to be under the supervision of the larger, integrated whole. Integration can thereby be described as a process of change rather than as arriving at a new position.[43] Integration in its institutional form concerns the amount of formal-legal power that one organisation has which allows it to influence the behaviour of another.[44]

Integration is a concept frequently used regarding the transatlantic defence industry, and also in this report. Integration is used in a wide variety of ways, and is seldom measured. Mattsson (1969) discusses the integration concept in depth and distinguishes between institutional integration, decision integration and execution integration.[45] This report clearly focuses on institutional integration, i.e. how the central actors and the institutions that participate in this process are uniting their properties or organisational bodies into a more integrated whole[46]. Decision integration and execution integration are important aspects of the transatlantic defence industry integration, but were not addressed specifically in the interviews.

Integration is usually treated in the literature as an intra-organisational process, seldom as a phenomenon between two separate firms – e.g. integration of activities within the setting of a strategic alliance, joint venture or other joint set-up. An important aspect of integration between firms is why they wish to integrate, and also how it changes their network positions. When viewing the reasons for integration and the effects of the integration with a network perspective, it will be possible to analyse the effects of integration not only on the organisations involved, but also on the other organisations, on the network as a whole and on other networks. A common assumption is that the basic reason for actors to integrate is to enhance effectiveness.[47] Other reasons for integration can also be to become a part of other networks, to improve the corporate portfolio and to improve the future potential.

Partnerships and alliances are both tools to increase integration in supply chains and effects of increased integration. Partnerships, alliances, join ventures are formalisations of deepened business relationships, thereby investing in a common goal.[48] In this report, a typology of modes of integration will be used that is seen to correspond more directly to the defence-specific modes of integration.

4.3 Modes of transnational integration

It is apparent that modes of integrating companies is analysed and treated differently in differerent theoretical schools. Depending if one adhers to the schools of *international*

[42] Pfeffer and Salancik (1978)
[43] Hertz (1992), p. 107-9, in Axelsson and Easton (1992)
[44] Mattsson (1969)
[45] Mattsson (1969), pp. 37-45.
[46] Ibid, pp. 37-8.
[47] Hertz, (1992)
[48] Hertz, (2002).

marketing, *industrial marketing*, *strategy* or *political economy*, the classification of entry modes become different and based on different theoretical asumptions. These differences are not investigated thoroughly in this report – a typology is chosen based on several sources in order to more closely reflect the names being used in industry itself.[49]

Increasing a company's market presence in a foreign market can be seen as a form of market entry. Cateora (2002) sees four different modes of foreign market entry: *exporting, Internet, contractual agreements* and *direct foreign investment*. These modes gradually increase the risk, resources demanded and control of the process.[50] What Cateora labels modes of entry will henceforth be discussed as modes of integration, thereby implying that the process of integration (as opposed to entry mode) involves several actors, it is a mutual undertaking.

The modes of integration will be presented in order of increasing commitment needed for the integration, e.g. a strategic alliance is a less intensive process of integration – demands less commitment – than a merger between two companies.

Family of integration	**Mode of integration**	**Defence-specific correlating mode of integration**	**Comment**
	Agreement		
Contractual agreements	MoU		
	Licensing		
Alliances	Strategic alliance		No pooling of resources
	Consortia	Work share, juste retour, teaming arrangement	Collaborative arrangement towards certain project
	Joint venture	Project JV, strategic JV	Pooling of resources, creation of new entity
Equity integration, Foreign direct investment (FDI)	Equity holding, mergers and acquistions		

Table 2: *Modes of integration*

The left column reflects different "families" of integration. The second column decribes more specific modes of integration, as being labelled in literature. The third column stresses some important defence-specific modes of integration. *Agreements* are informal alliances for some sort of co-operation. *MoU:s* are formalised declarations of coming co-operation of some kind,

[49] Bitzinger, Cateora, Lorange & Roos, Bengtsson et al, James
[50] Cateora, p. 331.

it can often be the pretext for a further mode of integration that requires more commitment between the companies. Agreements and MoU:s are not explored in any detail in this report.

4.3.1 Alliances

Alliances - often labelled *strategic alliances* - are defined differently in different theoretical schools, or – it seems – just acording to the authors personal choice. A strategic (international) alliance is a business relationship established by two or more companies in order to cooperate out of a mutual need and to share risk in achieving a common objective.[51] An important aspect of an alliance is that it maintains the respective companies respective strategic autonomy on a higher level and they can also have individual interests that apply to a mutually formulated goal. In a merger or acquisition, the strategies must be merged and unified under a mutual umbrella.[52]

Alliances have grown in importance over the last decades as a competitive strategy in global marketing management. Motives for alliances are opportunities for faster expansion into new markets, access to new technology, more efficient production and marketing costs, access to additional capital and to alter the strategic industrial landscape. Alliances can also create combinations of technologies and competences that create new product definitions and markets.[53]

When the industrial landscape gets more and more defined, mergers and acquisitions are not seen as efficient or possible, newcomers are not probable; alliances are a way of aiming to improve the market opportunities and the positioning of the companies in the alliance.

An important aspect of strategic alliances in today's industrial landscapes is that companies are interrelated, interdependent and working in networks. Companies have many relations to attend to – the sum effect of the impact of their relations constitutes their market position. This market position can be analysed out of a present situation, as well as in terms of the future potential it provides.[54]

4.3.2 Consortias

Consortias is a very important group of modes of integration in the defence industry, consisting of three main, related groups: *work share*, *juste retour* and *teaming arrangements*.

Consortias are similar to joint ventures, but are different in that they pool financial and managerial resources in order to lessen risks, but without creating a new legal identity. Ordinarily, the consortias are created in order to jointly compete for a specific project or program. One firm usually acts as the leading firm (a prime) The most prominent example of a consortia is Airbus, which gradually after its initiation in 1969 has turned into a more and more institutionalised entity and in 2000 being transformed into a united entity.[55] Consortias are created when companies become partners or create partnering arrangements, usually in order to win a certain contract. This could e.g. be different consortia competing to build a house, a power plant, to provide a communications solution or build a number of frigates. Consortias aimed for a specific program are in the defence industry labelled *teaming arrangements*. A teaming arrangement can also be seen as a sort of alliance, but with a more

[51] Cateora, p. 339.
[52] Garrette and Dussauge (1996), p. 25.
[53] Ibid.
[54] Bengtsson et al, 1998; Lundmark et al, 2000.
[55] Cateora, p. 337.

specific goal than an alliance. Usually it refers to a specific project or procurement, as in the case of the companies from the US, Germany and Italy that teamed up for MEADS[56].

Examples of consortias and teaming arrangements from other industries could be the distribution of work between different companies e.g. in aupomobile motors, aircraft engines and other supply chain management arrangements.

Teaming arrangements often come in the form of work share or juste retour, two defence-specific collaborative setups. *Juste retour* means that the production distribution is distributed in exact equivalence to share of total investment. If e.g. country A invests 60 % or will buy 60 % of the planned production number, they will also receive 60 % of the value of the production. *Work share* refers to when different companies get different responsibilities for the mutual assembly of e.g. a missile or a jet engine. One company could make the turbines for all the engines, and another all the afterburners. Work share is thereby more based on competence than juste retour.

A teaming arrangement can be seen as a mode of integration. Work share and just retour are not in themselves modes of integration, they are production set-ups, that *as an effect* create a mode of integration that is a form of consortia. Consortias are labelled teaming arrangements in the defence industry. Work share and juste retour will be discussed as separate entities, implicitly pointing to a teaming arrangement.

These set-ups create international supply chains, which do not have to be especially integrated, the respective productions might even be quite separate, and combined through thoroughly specified standards. There are several European examples of juste retour or work share programs or activities: e.g. Eurofighter, Airbus, Meteor and the missile manufacturer MBDA.

Juste-retour and work share is however not a form of integration, it is more correct to see it as a label for a type of co-operation. The degree of co-operation and closeness that comes with juste-retour and work share corresponds to a politically decided and regulated extent of corporate integration. National concerns or simple protectionism inhibits and restricts market incentives for deeper corporate integration.

4.3.3 Joint ventures

A joint venture (JV) differs from the alliance since it pools resources from the participating companies into a new business entity. Joint ventures can be characterised as either being *project* JV:s or *strategic* JV:s. A project JV is geared towards a specific project. It can also be time-limited, such that the entity expires when the project is completed. A strategic JV is aimed towards a certain market, customer, product or technology area. Strategic JV:s usually have a longer perspective and are not time-limited.[57] A project joint venture has a defined mission and goal, and a limited scope. A strategic joint venture is aimed to strengthen the future potential and the market position. The joint size and aggregate competences of the companies in a strategic JV constitute a *concession* for future business potentials in the segment or product focus that corresponds with the joint venture focus.

An important conclusion by Bjurtoft (1998) concerning joint ventures in defence materiel co-operation is that the success of joint ventures is generally better when the JV was initiated by companies, as opposed to initiated by states. The company-initiated JV is believed to be more

[56] Medium Extended Air Defence System, an air defence system jointly developed by the US, Germany and Italy.
[57] Bjurtoft (1998), p. 16-19, Bengtsson et al (1999)

successful since it is created on the basis of a true business interest.[58] The success record for company-initiated co-operations is clearly better than for state-initiated co-operations.

Joint ventures can be typified with the help of three variables: international or national, technology- or market-oriented; horizontal or vertical. In this report the joint ventures in focus are by definition international (transatlantic) and they are horizontal since they concern integration between competitors on the same (prime) level.

4.3.4 Equity integration – Foreign direct investment

Foreign direct investment (FDI) can be seen as being of three types: equity holdings, mergers and acquisitions. Companies invest in foreign countries in order to capitalise from local benefits (e.g. labour, technology, conditions for R&D and innovation), to avoid taxes, decrease transportation costs, gain access to raw material and as a means of getting market access[59]. In a political industrial market, the last factor is the main driver. Moreover, FDI can also create increased market control by eliminating or controlling competitors. Since FDI is limited among primes, these modes will not be discussed more than briefly. The reasons why they are not prevalent, will be discussed.

Companies can integrate into other companies, thereby achieving influence, by attaining some sort of *equity holding*. This can be from 0 up to less than 50 % (minority ownership) or up to 100% (majority ownership). Companies might choose or settle with owning less than 50%. The reasons could be that they have not been able to acquire more, they do not want more or the other owners won't let them own more.

A *merger* is when companies decide to fully integrate the equity and resources of their companies – in parts or all parts of the respective companies. As opposed to an acquisition, mergers imply that all concerned parties (i.e. the merging companies and their owners) engage in the merger voluntarily.[60]

An *acquisition* is when a company acquires another company, making it a part of the acquiring company. The acquisition arrangement can have many different financial set-ups, e.g. financing with money or with shares. An acquisition is a 100 % equity holding.

4.3.5 Portfolio of co-operation and integration

In a political industrial market, companies create a portfolio of co-operation, alliances, joint ventures and mergers and acquisitions, all depending on the opportunities that exist and if the alternatives are possible. The market dynamics might not favour mergers and acquisitions in some aspects; alliances and joint ventures can be the most wise way to co-operate or to improve market access and improve positioning, and thereby enhance competitiveness. This market presence portfolio also brings with it a portfolio of customers, a portfolio of technologies as well as a portfolio of local market strengths. Thereby, previous mutual projects or the closeness to local networks may offer unforeseen synergies or combinations that offer future business opportunities.

4.4 Continuum of integration

The mode of integration can also be described as a continuum of integration. This continuum is based on the assumption that the degree of commitment increases from 0 to 100 % over the different modes of integration.

[58] Bjurtoft, 1998.
[59] Cateora, p. 338.
[60] In real life, companies might agree to merge because there is no other alternative or that they are more or less forced to.

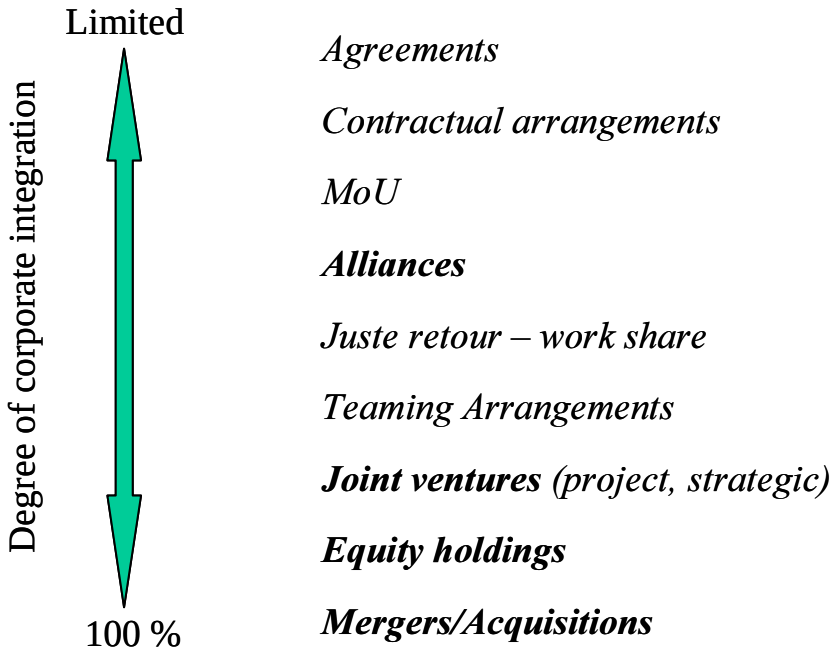

Figure 1. Continuum of corporate modes of integration

This illustration also rests on the difference in degree of integration between the defence industry and non-defence industries. The accepted assessment is that the defence industry lags behind other industries. The defence industry is accused of being overly nationally isolated and that the degree of transnational integration and cross-fertilisation is limited. This absence of integration is seen as most striking transatlantically. This has not been specifically tested empirically in this report, these accounts (related to later in the report) are accepted and used as a basic assumption for the report.

Furthermore, the general asessment that the supply chains of other industries are much more transparent and globalised is not either empirically tested. The division of work and the specialisation in e.g. automobile industry, electronics and telecommunications supports this assumption.

Co-operation does not lead to an absolute state of closer relation, it can be anywhere from lip-service without actual change to a transformation into a completely new whole. The degree of integrational effort from the concerned actors must be related to the goals of the integrative effort. These goals might be different between the companies, e.g. due to difference in size and the dynamics of their respective networks. The corporate goals are seldom openly revealed, or there are future aspirations linked to the joint effort. These are aspects that relate to any industry. In the defence industry, there is more institutional resistance than perhaps in any other industry against true integration of processes and systems. It is therefore difficult to more generally state that co-operation leads to some general level of integration. The market forces and the corporate effectiveness criteria can, however, be claimed to be restrained - by institutional resistance – from more fully affecting industry structure and co-operative patterns. This will be discussed later, in the concluding chapter.

4.4.1 Drivers and inhibitors as an explanation for pattern of integration

A pattern of industry integration is the outcome of some underlying factors. Companies integrate and collaborate in order to become more competitive. Whether to integrate or not, is a crucial matter and is judged based on a number of considerations. These corporate

considerations can be clarified and dissected into different arguments for or against integration what I call drivers and inhibitors. In a political industrial market, the impact of government drivers and inhibitors must also be understood.[61] The degree of transatlantic defence industry integration is limited compared to the strong arguments for more integration that have been prevalent for decades. My aim is to discuss how these drivers and inhibitors - seen both out of a corporate and a government perspective – can offer a better understanding of the actual outcome of corporate integration.

[61] The rationale behind government drivers and inhibitors will be discussed in a later chapter.

5 *Transatlantic defence industry context – government impact on corporate strategy*

5.1 The US defence budget in comparison

Defence budget	2001	2001, % R&D of defence budget	2000	2000, % R&D of defence budget	1985
USA	322 365	13,8	304 136	13,5	390 290
United Kingdom	34 714	12,2	35 655	11,9	48 196
France	32 909	13	34 053	11,5	49 378
Germany	26 902	6,4	27 924	5,7	53 303
Sweden[62]	3 898	2,4	4 610	2,6	4 826

Table 3: *The US defence budget in comparison.*

Source: Defence budgets: Military Balance, IISS (2002). Constant US 2000 dollars. R&D: CSIS (2003), based on Military Balance figures.

5.2 Introduction

What drives and inhibits the transatlantic defence industry integration? What greater US government interest shape the wider US context that directly affects the US defence industry? These are questions that are addressed in this chapter.

There are many arguments in use that stress the importance of transatlantic links in the defence industry. One set is a general set of arguments that could apply to any private enterprise. Another set is why governments see transatlantic defence industry integration and co-operation as important. In the following section, the transatlantic defence industry context will be more broadly discussed.

In this chapter of the report, a wider context than the strictly corporate context is presented in order to describe and analyse the dynamics of the issue of a stronger, more united and more transparent transatlantic defence industry. If state actions or corporate actions are most influential in these matters is a question with no objective answer. Therefore, this does not attempt to settle the discussion, but is a striving to (out of a corporate management and business administration perspective) dissect, elaborate and further refine that discussion.

[62] These figures on Swedish defence R&D expenditure underestimates the actual expenditure, due to differences in national auditing. More truthful figures should be around 4-5 %.

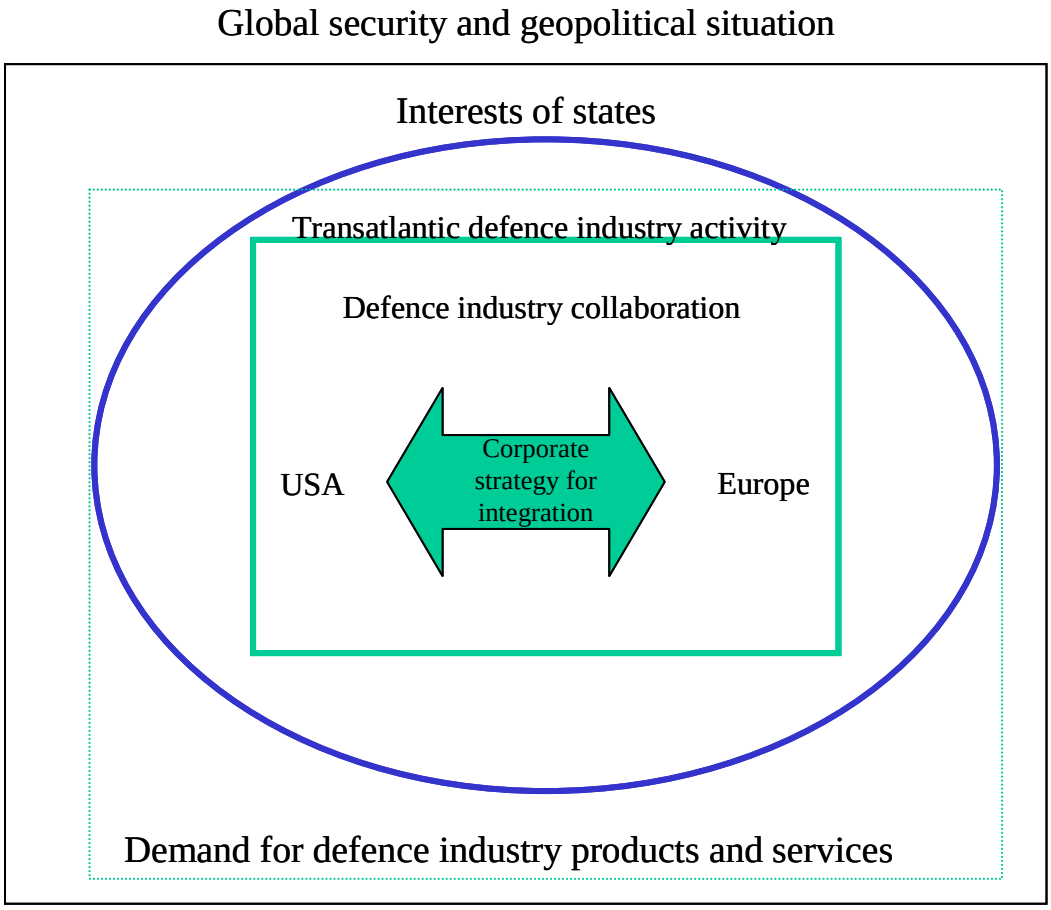

Figure 2. Big spheres

This picture is an attempt to explain how national interests concerning security policy and defence policy are related to how defence companies are integrating in the transatlantic defence context. The outer perimeter in the picture is the *global security and geopolitical situation*. Governments interpret this differently, and they choose to address aspects of it in dissimilar ways. This interpretation creates the national self-image or posture in the world. In order to attain these national goals, the *interest of states* creates the next level of analysis. These interests interact and affect each other in complex networks. The national interests contain many different goals, where the security policy goals are important. Security goals are correlated to national defence policies, which demand certain defence capabilities. Defence industries have to correspond with these demands.

The picture is a general picture of the interdependence between the corporate strategies and governments' defence policies. The focus in this report is the inner box – transatlantic defence industry activity – and how the integration is manifested through different modes of integration, together forming a pattern of integration. The outer spheres – outside of defence companies – are discussed in order to portray the overall defence industrial context.

5.3 Relationship between security policy and defence industry corporate strategy

In order to understand the dynamics of the defence industry in a transatlantic perspective, it must be related to a wider context, outside of the industry itself. In order to comprehend how the actual corporate links develop, an understanding of the outer systems and spheres must be portrayed. Within each nation, there are differing degrees of institutionalisation in the national

defence industry networks. The networks consist of both government and corporate actors, whose interests sometimes are the same and sometimes stand in conflict. Quite often, the underlying goals are different, but government and the companies can agree on a phrasing of the defence industrial goals that serve the goals of both groups.

Since the end of the Cold War, the US has been the only true super-power. The way the US perceives the world and defines and refines how the US should interact with it sets the tone and to a large degree defines the possible spectrum in which future conflicts will be fought, and with what arms, doctrines and capabilities.

An often-used metaphor in the transatlantic context is the risk of *fortresses* being created on the two sides of the Atlantic Ocean: a Fortress America and a Fortress Europe. The fortress discussion points to the tendencies of both sides concentrating on their respective strength, instead of focusing on how to improve the combined capacity. It is clear that such tendencies and also the existence of such fortress-like behaviour do exist. Adams (2001) discuss the co-existence of diverging and converging tendencies for fortresses in the US, and point to strong tendencies in both directions in the US. Each presence of such tendencies should not be exaggerated; they exist in a multitude of arguments and actions. Examples of such tendencies could be on the US side to be reluctant to share technology despite multilateral co-operation or to favour US companies in procurement. On the European side such tendencies could e.g. be initiatives by governments to focus on protecting European industrial capacity (and thereby ignoring global incentives to consolidate) or to prioritise European military capacity rather than NATO military capacity. Fortress tendencies will be made more apparent in chapter 6 (concerning drivers and inhibitors).

5.4 The US, its self image, MIC and relation to Europe

In this section, the US position and posture is discussed in aspects that affect the defence industry. It is started with a discussion concerning fundamental US standpoints. The different parts of the US society that affect the defence industry context will be discussed, and their respective interests. This discussion does not aim to be exhaustive, but the important characteristics are discussed.

5.4.1 US self-image

In order to more deeply understand the fundamental standpoints that create the transatlantic defence industry context, one must reflect upon national self-images. In the US case, this is clearly spelled out. The central concepts discussed below are national interest, grand strategy, military doctrine and power projection.

The starting point for the US government as what should guide the security and foreign policy is the *national interest*. There is no generally applicable definition of the US national interest, it appears to have a different meaning for different people, often emanating on that person's interests or agenda. National interest can be seen as the case when several important government bodies adopt and follow coherent policies, the most important ones being the White House and the Departments of State and Defense. The larger the number of other central agencies that follow these policies; the stronger the national interest. Someone who stresses the importance of the national interest stresses that the US must shape its foreign policy towards what is best for the US and for the preferred US view of the world.[63]

[63] Krasner (1978), Von Vorys (1990) and Trubowitz (1998).

The US global role has not been as clear-cut after the Cold War, there is considerable academic, political and military debate in the matter. The US has had to reconsider its place in the post-Cold War context.[64]

The Grand Strategy is a fundamental element in the US national security policy. The grand strategy is a refinement of the national interest in terms of security and defence posture. What are the US interests and objectives? What are the threats to those interests and objectives? What are the appropriate strategic responses to those threats? What principles should guide the development of US policy and strategy? These are questions that relate to the creation of a grand strategy, as it is addressed in the US.[65] Clearly, the answers to such questions fundamentally affect the defence industry.

Military doctrine has to respond to two questions: *What* means shall be employed? and *How* shall they be employed? Priorities must be set in accordance among the various types of military forces available to the modern state. Furthermore, prescriptions for how military forces should be structured and ("ideally") modes of co-operation between different types of forces should be specified.[66] [67]

The US has a global posture that in line with its national interest makes it natural to for the US to comment upon and intervene in crises and conflicts all over the world. The US has dimensioned its Armed Forces in order to be able to engage in *two theatres of war*. After the events of September 11, 2001, this goal has however been abandoned, which is a part of the US "transformation".

An important cornerstone of the US military doctrine is the issue of power projection. Aircraft carriers – mobile platforms for attack aircraft – are instruments of power projection that can exert negative leverage against virtually any state in the world.[68]

The transformation of security doctrines clearly affects the context of the US defence industry. Bischak (1999) claims that "changing the assumptions about security doctrines has wide-ranging implications for restructuring the post-Cold War military-industrial base". A change in US security paths or technology choices, altered doctrines, relaxed or more restricted technology control regimes – all this fundamentally changes the defence industry context, and not just in the US; it changes globally. Bischak claims that marginal alterations in power projection ambitions will not change the defence-industrial base, it would require major alterations. [69]

To conclude, the enormity of the US defence capacity dwarfs any opponent and also gives the US options and flexibility within its force structure that no other country can match. This overall defence capacity is simply unrivalled. Furthermore, the connections between concepts such as national interest, grand strategy, military doctrine, theatres of war and power projection sets the US defence industry dynamics in the right setting and offers the possibility for a deeper understanding concerning the dynamics of the context regarding the transatlantic defence industry.

[64] Carter (2000), p. 1-2.
[65] Posen and Ross (1996), p. 5.
[66] Posen (1984), p. 13.
[67] Doctrine in this sense is somewhat coloured by being written during the Cold War. There is an ongoing present debate among different US fractions that want to redefine the US global role, and this debate has not yet stabilised. For the purpose of this report, I find Posen's definition still valid.
[68] Goldstein (2001), p. 261.
[69] Bischak, (1999), p. 70.

5.4.2 Military-Industrial Complex (MIC)

Mills (1956) introduced the concept of a military-industrial complex. Mills described how in the US the economically privileged elite, the military officers, politicians, administrations concerning defence-related issues, defence companies, as well as parts of universities and of the research society all were parts that together made up a military-industrial complex (MIC).[70] States with large and diverse defence industrial capacity are claimed to have a military-industrial complex (MIC). The larger the aggregate industrial base, the higher importance of MIC. The best examples of MIC are the US MIC and the former Soviet MIC.[71] The term MIC entered the popular discourse when President Eisenhower in 1961 warned for the creation of a MIC.

Rosen (1973) gave Mills' theory of MIC definitive support. Rosen also underlined that the US MIC best is understood as a subtle interplay between interests and perceptions, and not as a conspiracy. Rosen also pointed to how defence contracts were awarded or created as soon as one of the main contractors' production lines were not busy enough.[72] Lens (1980) and Gansler (1988) later discussed what components constitute the US MIC. Lens described it as a large group of legislators, other government officials (in more than 50 agencies, the labour hierarchy and an important part of academia – and of course the defence industry itself. This description seems limitless, but reflects some writers' views during the Cold War.

It is now suitable to further present the actors that take part in the US MIC, and discuss their respective interests.

Congress

Gansler claimed that *Congress* undoubtedly has the highest impact.[73] Congressmen are by tradition seen as conservative (regardless of party) and protective of their constituencies. Critics describe them as being overly suspicious and control-seeking. Defence companies have strong links to certain congressmen, aiming to co-operate in order to maximise constituency satisfaction and company sales. Some senators even used to have individual allotments of money to spend on defence items.

Services

The US Armed Forces has very strong service integrity and impact. The four services – Navy, Marines, Air Force and Army – have deliberately been given much integrity. Each service has e.g. its own air force. The Services have had their priorities and traditionally strong links to certain companies and an inclination towards certain solutions or technologies. This is primarily based on the diverse needs of the services, but there is also an important incentive to foster innovation through diversity[74]. In Europe, most states strive to integrate services and make them more joint – thereby decreasing developments costs and increasing interoperability between services. The largeness of the US MIC has made it possible for the US to maintain separated structures.

Defence industry

[70] Mills (2001), *The Power Elite*.
[71] The Soviet MIC was by the Soviet government seen as being the entire Soviet society, since practically all parts of society were dimensioned and geared towards supporting the military capability of the Soviet Union.
[72] Rosen et al (1973) and Strandqvist (forthcoming dissertation).
[73] Gansler, 1988, p. 79-80
[74] See e.g. Williams, 2001, several examples

Industry has in the US always been private. Since certain companies traditionally have been stronger with certain services,[75] it is in the company interest not to lose that prioritised position. The strong bonds in such networks do not easily welcome new suppliers or foreign partners.[76] Companies in Europe have to a much higher extent been nationally owned, or with a strong government influence (such as "Golden shares", a right for the government to veto unwanted strategic or ownership changes).[77]

The President

A cornerstone of the president and his administration is his defence policy. The defence policy reflects the president's views on national security. The policy for the defence industrial technology base is one of the cornerstones of the defence policy.

Departments

The departments of the presidential administration are important parts of MIC. Different departments have certain responsibilities, that is self-evident. On top of that, departments have different agendas and order of priorities. The different priorities arising from the differing views can and do cause substantial intra-administrational friction and controversy. For example, the State Department has (among other things) the strongest impact on the US export control system and has the authority over the US Foreign policy, the Department of Defense (aka DoD or Pentagon) has authority over defence policy, the Department of Commerce on dual-use aspects and the Department of Energy has responsibility over nuclear-oriented issues.[78]

There is in the US a very elaborated export control system that was effective for its purposes the Cold War, but which now can be said to be an overly rigid system reflecting the past. In a globalised world, an export control system ought to better reflect the more open economy and to a higher degree be based on trust or probabilities, not on the suspicion that everything will go wrong.

Apart from the above, there are also other groups or fractions that are seen as being a part of MIC or at least indirectly affecting its outcome. Different parts or groups also act together in flexible constellations, depending on the issue. Several interviewees described Congress as having "strange bedfellows" in defence-related issues, where hidden agendas are addressed under a pretext of "the national interest" and protecting the defence industrial technology base. The hidden agendas would primarily address getting re-elected, thanks to saving jobs in the home constituency. Inside academia and the research community, considerable efforts and finances are being directed towards defence-related issues. In Washington, there are innumerable think tanks, consultancy firms, lobbying groups and other organisations or groups with vested interests in the process. This group is often referred to as the "Beltway bandits", thereby alluding to their offices being situated by the beltway[79] around the power centres in Washington D.C. (departments, President and Pentagon).

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[75] Such connections could be described through the years, but due to the restructuring and consolidation of the US defence industrial landscape in the US during the last ten years, this would be quite complicated. Companies have merged, been acquired and divested and certain corporate names have disappeared. The constituency or service adherence to certain companies are claimed to still remain to a high degree (according to several respondents). To claim that specific choices of certain were made due to such relations, would also be difficult to prove.

[76] Adams, interview.

[77] The nature of the institutionalisation of the defence industry networks in the US and in Europe is quite different.

[78] The export control system is the aggregate system of measures and legislation for controlling the export of defence goods and the technology transfer.

[79] Highway in a circle around Washington D.C.

5.5 Corporate context for transatlantic defence industry integration

The debate concerning why companies should increase their transatlantic integration is not a new issue. This report concentrates primarily on sources after 1995 that are seen as discussing the most important factors and arguments. It is an extensive accord of the debate, but there is a need in relation to the ambition of his report to be meticulous in this regard.[80]

The conditions around 1995

To start out, the prospects for transatlantic defence industry co-operation was seen by the mid 90s as limited and very cumbersome. In a 1996 report from The Center for Strategic and International Studies (CSIS), the situation was commented in the following way:

> *There is an underlying message (that) if, at a minimum, US and European governments and industry are unable to launch a small number of successful transatlantic collaborative programs over the next decade, then the chances of doing so in the longer term are negligible. ... Without the establishment of a more constructive relationship among the United States and Western European governments in the defense cooperation field, the Atlantic Alliance as a whole must accept wasteful and unnecessary duplication of R&D and production. ... it will be impossible to develop far-reaching solutions on reciprocal access for US and European companies to each other's markets until this process is further advanced.*

In other words, the prospects for transatlantic co-operation were in CSIS' view quite bleak.[81]

Several articles, books and papers in the years 1995-98 discussed the dynamics and the context of the transatlantic defence industry, transatlantic defence market, transatlantic defence industry consolidation, transatlantic links or whatever it might have been called. Some of the recurring themes were the reluctance of the defence industry to respond to global market changes that steered other markets, the unevenness between US companies and their European counterparts and the different approaches of the different governments. European governments were accused of sticking too long to national concerns and dreams of national defence capacity sovereignty.[82] The intense rhetoric concerning why so much merging and integration was needed of course attracted a lot of interest from architects of such integrative efforts.[83]

Consolidation of government policy and corporate strategy

John Weston, then CEO of British Aerospace and later also CEO of BAE Systems, discussed in 1996 "The European Defense Industry in the Global Market – The Challenges of Defense Consolidation". Weston saw European consolidation as a necessary first step in order to be

[80] The literature, papers, articles and the speeches discussed are defence-industry specific. There is very little academic literature that discuss the transatlantic defence industry context. The persons referred to in this text are either corporate executives, defence industry experts or scholars, academics or analysts specialising on the defence industry. This more context-specific focus might be accused of being myopic, but I claim that this is the approach that offers the most interesting and explanatory detail of the analysis of the evolution of the transatlantic defence industry context.

[81] The Center for Strategic & International Studies (CSIS, 1996), " Making Transatlantic Defense Cooperation Work", CSIS Panel Report, CSIS, Washington D.C.

[82] See e.g. "A Eurogun is tricky thing", *Economist*, April 8th, 1995; Isnard (1997), "Washington veut conquérir les marches de l'armement en Europe Centrale", *Le Monde*; Wieczorek, "Transatlantic Defence Trade and Changing Defence Markets", North Atlantic Assembly, 1997; "Linking Arms", *Economist*, June 14th, 1997; Jarlsvik, FOA, 1998, "*Amerikansk försvarsindustripolitik*"; *Economist* (1999), "At daggers drawn" and *Economist* (1999), "Transatlantic aerobatics".

[83] See e.g. Celarier (1998) "Bear eyes Europe – Bear Sterns look at defense merger market", Euromoney and Shepherd (1999), "Tapping Rumsfeld's defense savvy", Global Finance.

able to create the necessary American links. He further wished for government actions guiding consolidation by awarding programs in a structure-shaping manner.[84]

Scharpenberg[85] discussed "Transatlantic competition and European defence industries: a new look at the trade-defence linkage" in 1997. He stressed in an elegant way - in relation to the global dominance of the US defence companies - that:

> *American defence companies are no more than vigorously exploiting – as always – what they perceive to be their obvious competitive advantage in the global marketplace. The same is true – not quite as always, however – of the administration's policy of promoting American civil and defence exports. It is simply treating the monopoly status of the United States as the sole superpower as a major competitive advantage in furthering the performance of American business in international trade and as a great opportunity to make the US taxpayers' enormous investments in advanced defence technologies pay off in terms of growth employment and current account balance effects. Such competitive behaviour would not be very remarkable if displayed by other industrialized countries. In the US case, however, it amounts to no less than a clear commitment in international economics as well as security matters.*[86]

According to Scharpenberg, this left Europe with two alternatives: either to challenge the US hegemony by spending vastly more on defence *or* submitting to the role of sub- or niche-contractor. Scharpenberg envisioned the need for European defence companies to become large and sophisticated enough to become attractive collaborative prospects for partnership for the US giants. Thereby mutually beneficial co-operation and integration could be achieved. If Europe would not try to challenge - and become equals with - the US giants, Europe would also lose importance in global economy and security policy.

The US General Accounting Office (GAO) discussed the possibilities for transatlantic integration and joint ventures in a 1997 report. An important conclusion from the report was that "transatlantic industrial partnerships appear to be evolving more readily than transatlantic cooperative programs that are led by governments". The same conclusion was affirmed by a 1998 FOA report.[87]

In 1998, the CEO of Lockheed Martin (the then - and still - world's largest defence company) Vance Coffman discussed "The future of transatlantic industrial partnership". Coffman stressed the need to respond to "challenges of the 21st century" which would lead to the "fundamental realignment of the defence industrial base of the greatest military alliance in history". He warned against the creation of fortresses – he saw alarming tendencies of such fortresses. Fortresses would be both "bad business and bad policy". Coffman described the Cold-War transatlantic co-operation as "for the most part a politically-inspired, MOD-directed activity. The system was not truly cooperative, and it was short from competitive". Coffman envisioned the need for "new patterns of mutually desirable cooperation and partnership … sector-specific strategic alliances and partnerships". Coffman also mentioned the problems of disputes over the availability to source codes and intellectual property rights (IPR) when creating transatlantic co-operation or integration.[88] In this author's opinion, Mr Coffman was truly visionary in some of his insights.

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[84] Weston, 1996, Center for Strategic Decision Research (CSDR), Menlo Park, California. www.csdr.org/96Book.htm.
[85] Scharpenberg, 1998.
[86] Ibid, p. 118.
[87] "Defense Trade – European Initiatives to Integrate the Defense Market", GAO, 1997 and Bjurtoft, 1998.
[88] Coffman, 1998, "*The Future Of Transatlantic Industrial Partnership*", Military Technology.

In 1999, Al Volkman of Pentagon commented upon "European Restructuring and Transatlantic Linkage". He saw it as important that the defence industrial base on both sides of the Atlantic ought to better reflect that military requirements are driven by the demands of coalition warfare. NATO members should therefore strive to synchronise coalition needs with defence industry policies. In order to be able to reap the possible benefits of such transatlantic unison, Volkman states that e.g. common requirements, best acquisition practices and firm interoperability commitment must take place. Volkman also stated: " We recognize that globalization is a reality. One that presents opportunities, but which also presents significant challenges". With these words, he said that he looked forward "to the restructuring of the European Defense Industry".[89]

Interoperability has for decades been a popular political point on the agenda. In theory, perhaps just in the rhetoric, it has been an important goal for increasing the quality of NATO, and also fostering stronger cohesion within it. National security concerns and myopic domestic priorities have been seen as impeding such needs. The industrial alliances - that by some are seen as imperative for actual interoperability going from talk to results - are seen as restricted by such security concerns.[90]

Council on Foreign Relations

"Arming the Future: A Defense Industry for the Future" (1999) was published by the Council on Foreign Relations (CFR) and it penetrates many issues that affect the transatlantic defence (industry) interface. The editors – Markusen and Costigan[91] – address the fundamental challenges of the defence industry ("The Military Industrial Challenge") in 1999 (probably still as applicable) being how nations must relate to their defence capacities. In this, they pose the following questions: Should defence production lines be kept "hot" in order to be prepared for radically increased demand? Should sophisticated weapons be developed now, but the production delayed until later? Why should the US and the European Union pursue military innovation, given their military superiority and the absence of adversaries?[92] Should Europe and the US compete or co-operate? Should nations buy domestic or internationally? Should nations relate to defence industry as any other industry? It should be noted that the book has a clear and open US focus.

The editors further discuss the effects of the US prime contractors in the mid 90s being consolidated from 15 to 4 in just a few years, thereby unbalancing the entire dynamics of the MIC. Furthermore, the increasing importance of commercial technologies creates new problems to solve for the US government, especially since many of the technologies are products of global supply chains. Another question is if the US should try to achieve better economies of scale by exporting the US-developed systems and products. Yet another question is from whom the Pentagon should buy.

Markusen and Costigan also stress the fact that the Post-Cold War environment caused substantial overcapacity in Europe and in the US. The response was to – in a more open and liberalised world – try to export more to third party countries. The companies in the West thereby became more rivalruous.

[89] Volkman, 1999. Speech at Les Echos Conference on Restructuring & Transatlantic Links, April 15, 1999.
[90] See e.g. "Security concerns impede alliances", Aviation Week & Space Technology, 1999. Otherwise, the interoperability argument is very frequent.
[91] Markusen and Costigan (1999), p. 3-34.
[92] This last question does not stand so true in 2002.

Sapolsky and Gholz[93] stress the importance of the US defence industry to restructure, primarily since the consolidation had not to any substantial extent reduced production capacity – it had rather united many production lines in fewer companies. Sapolsky and Gholz suggested that the US government should quit maintaining the self-equilibrating size of the MIC and firstly; pay the bill for closing plant capacity and secondly; redirect the innovation process from automatically addressing the same old parts of the MIC and instead create incentive structures for private firms to want to engage in the innovation process. The existing defence innovation complex was seen as being far too big compared to what it produced.[94]

Pages[95] describes the evolutions of defence mergers from the mid 80s till the late 90s. Until the late 80s, there were extremely "fat" years for industry. After the Cold War, the US government (as so many other governments) fretted a few years before reacting to the new environment. The government then vigorously encouraged consolidation, and by the late 90s had to impede the degree of concentration when the prime contractor number was about to go from four to three[96]. Pages addresses how Pentagon had to change its interaction towards the defence contractors, and also that the US had to change its international behaviour to better reflect the impact of the consolidated defence industrial base. Flamm[97], in the same book, discusses the problematic task of streamlining and prioritising in a further consolidation of the US defence industrial base.

Further in the CFR book, Bitzinger[98] discusses "Globalization in the Post-Cold War Defense Industry: Challenges and Opportunities". He underlines that the defence industry in many countries has been the most protected, coveted and non-disputed industry. The international arms co-operation was for a long time mainly driven by *strategic* rationales. Globalisation and international détente have shifted the rationales to being more economical – thereby shifting "into higher gear". Bitzinger sees benefits from co-operation that have been created by the same, less rigid and more economy-driven defence industry context. Co-operation permits rationalisation and sharing of R&D and development; co-operation can create greater economies of scale; the defence industry supply chain can outsource certain parts to regions or countries where labour costs are lower; countries can more easily get access to other countries' technologies and finally; globalisation can open up otherwise closed markets.

Bitzinger also stresses that cross-border mergers and acquisitions in the defence industry in 1999 was quite a new phenomenon, and also with just a limited number of actual examples. Bitzinger points to that the effects of globalisation fundamentally change the dynamics of the defence industry. Procurement agencies and governments on their part must thereby address new challenges and opportunities, and defence companies on their part are facing both immense challenges in adjusting to the globalised environment as well as they are offered countless possibilities to exploit the possible benefits of the globalised defence industry context.

Markusen and Costigan conclude the book by addressing – among other things – implications for defence co-operation in general, and transatlantic co-operation in particular. The globalised defence industry context challenges security policy driven incentives for US domestic protection of the defence industrial base, Furthermore, when the defence industry is

[93] Sapolsky and Gholz, 1999:i, p. 191-206. Also see Gholz and Sapolsky, 1999 and Sapolsky and Gholz, 1999:ii..
[94] The use of "MIC" in this reference is this author's, not theirs.
[95] Pages, 1999, p. 207-223.
[96] Referring to the blocking of the merger between Lockheed Martin and Northrop Grumman in 1998 by the US government.
[97] Flamm, 1999, p. 224-246.
[98] Bitzinger, 1999, p. 305-333.

on the highly volatile stock market - competing for investors' money - the shareholder initiative can come in stark contrast with the military priorities in case of war. Markusen and Costigan foresaw three different scenarios for the defence industry. The first would further the trend of US dominance and problems of co-operation with less sophisticated European counterparts. The second scenario envisions a dichotomy with a Fortress America and a Fortress Europe. The third – preferred by the authors – depicts when the Western defence industrial body[99] can exploit the peace dividend after the Cold War and reduce over-all capacity in a joint set-up. The third scenario rests on the decreased tensions of the world and the Western supremacy.[100]

Centre for European Reform

The Centre for European Reform (CER) published a book in 1999 called "Europe's defence industry: a transatlantic future?" This book obviously touches upon central issues concerning transatlantic defence industry integration. In some regards the book reflects the debate in 1999, thereby rendering some issues or problems obsolete due to then unforeseen developments.

One issue that permeates the debate in this book was the creation of an *EADC* – a European Aerospace and Defence Company. The idea was to unite important parts of the British, French and German defence industries into one central European defence industry entity. This idea was never realised, but inspired the naming of the later *EADS* – European Aeronautic Defence and Space Company – in 2000.

Keith Hayward[101] in this book discussed the globalisation of the defence business. Hayward underlined that with globalisation no European country can try to remain self-sufficient in defence products. Among European states there is only room for a limited number of competencies on an internationally competitive level in each state. Hayward concludes by saying:

> *The future of the transatlantic, if not the world defence industry, will be defined by an increasingly complex tapestry of national and trans-national firms, joint ventures and international supply chains. … most of the key decisions affecting the global defence industry will be taken in America or at the very least, will be heavily influenced by events in America.*

Bruce Clark discussed in CER the "Dangers of defence industry consolidation". In this sense, Clark discussed the disadvantageous effects of an increasing monopoly situation and that there are so few options that state interference becomes pivotal. The European corporate perspectives were described as quite different from the US corporate perspectives, mainly emanating from their respective – and quite different - institutionalised contexts "back home". Countries also phrase the transatlantic defence industry problems differently and governments see their responsibilities as quite different as well. It is on the one side a rift between the US and Europe, but on the other hand also important differences between European governments.[102] As will be seen later in this report, this still holds true.

Luc Boureau offered a French voice concerning defence restructuring. He pinpointed the often – in the US – underestimated argument for sovereignty: "*Any country which has a*

[99] This author's expression.
[100] Markusen and Costigan, 1999, 409-423. Unfortunately, this third scenario seems rather utopian due to the development after September 11, 2001. See also Markusen, 1999.
[101] Hayward (1999), in CER.
[102] Clark, ibid, p. 16-21.

thriving defence industry sees it as an important part of national sovereignty".[103] In order to understand the European priorities, this is really fundamental.

Further in the book, Gordon Adams discussed "The necessity of transatlantic defence co-operation". Adams pointed out the argument of a "one-way-street" – that the US sells much more to Europe than it buys from it. The ratio was in 1999 7:1. Adams also pointed out that if the US government does not encourage transatlantic integration, this will enhance European fortress tendencies. In accordance with globalisation, the defence industry must reorder itself into a global supply chain, where everyone must be prepared to make sacrifices in order to get a piece of the new order. Adams further stressed the policy ambivalence on both sides of the Atlantic Ocean, where governments with one hand praise the transatlantic gospel, and protect the domestic industry with the other.[104]

Theresa Hitchens discussed in the same book the need for the US government to realise the consequences of the creation of one dominating prime contractor in the transatlantic defence market, since that would lead to unwanted effects concerning decreased competition and efficiency. In her view, therefore, Pentagon should strive to hinder the number of "megafirms" becoming less than three.[105] Robbin Laird then discussed "The inevitability of global defence industry alliances", and posed the question whether the European prime contractors might have an advantage compared to the US counterparts in being later in their consolidation. The European primes should thereby better be responding to and encouraging the benefits of globalisation, whereas the degree of US prime consolidation should have decreased the possibilities to reap such benefits due to the US consolidation into a more rigid, domestic structure.[106]

Finally in the CER book, Charles Grant put forward reasons for encouraging transatlantic partnerships in the defence industry. The five reasons were: *political*: NATO requires political consensus or at least harmonisation in these matters; *military*: multilateral coalition forces require interoperability; *a way around protectionist barriers*: partnerships are able to disarm political roadblocks; *maintain competition* and finally because of the "*Revolution in Military Affairs*" (RMA). Grant stresses that the capability gap that became apparent in the Gulf War and in Bosnia revealed discomforting capability differences between the US and Europe.[107]

Pentagon

Victor Ciardello of the Pentagon Office of Financial & Economic Analysis, in 2000 presented the thereafter very popular metaphor to describe the US defence industrial complex as one iceberg, and the European as another. "Like an icefloe viewed from a passing ship", the icebergs appear to be completely independent - this emanating from few formal linkages, limited co-operation and few opportunities to eliminate excess capacity.[108] Keith Hayward then developed this metaphor further by (apart from adding Eskimos and penguins to the icebergs) describing the icebergs as tiered collaborative structures. The visible - undeveloped - part of the iceberg was what was above the political radar sensitivity level. Below the surface were lower levels – further down the tiers of the supply chain – were there were more elaborated structures of co-operation.[109]

[103] Boureau, ibid, p. 36-39.
[104] Adams, ibid, p. 42-48.
[105] Hitchens, ibid, p. 55.
[106] Laird, ibid, p. 62.
[107] Grant, ibid, p. 63-69.
[108] Ciardello, presentation April 3, 2000, at 2nd PEO/SYSCOM Commanders' Workshop.
[109] Presentation by Keith Hayward of the Society of British Aerospace Companies (SBAC) given at a conference, "Reshaping business strategies in the European defence industry", in London, January, 2000.

Irrelevance of international defense industry mergers?

Gholz (1999 and 2000) questioned the arguments in the general consolidation debate in "The Irrelevance of International Defense Industry Mergers". He questions whether the prime contractor consolidation in Europe really offers or creates any real benefits. He also counterattacks with the hypothesis that European procurement does not benefit financially or in efficiency; it is rather a question of companies simply resisting inevitable mergers. Gholz considers five "conventional wisdom explanations" of the benefits (for Europeans) of European defense industry mergers": increased economies of scale; expanded market access; diversification of political risk; improved planning of R&D efforts and finally enhanced access to innovative technology. Gholz find none of the arguments "very substantial". Neither does he think that the oft-used argument for interoperability will have any real impact. Gholz does not see that European mergers – as opposed to transatlantic mergers – would create any better benefits. Gholz concludes the 2000 article by stating: "International defense industry restructuring will not make much difference, whatever form the deals take."[110]

Emerging collaborative models

In May 2000, Coffman of Lockheed Martin commented at a Washington D.C. conference on "The Defence Industry Today: Implications for Transatlantic Cooperation". He discussed the problems that Lockheed Martin experienced in three ongoing teaming arrangements – MEADS, Tracer and frigates for the Norwegian Navy – and how a future project – Joint Strike Fighter (JSF) – could be affected. In MEADS, technology sharing had been a point of dispute, In Norway; the set-up with Norwegian, Spanish and US companies was by Coffman seen as a possible role model for "multinational partnerships". Concerning Tracer, he saw it as troublesome that the concerned parties (US and UK) had an opportunity to develop a set of common requirements for modernisation, thereby enabling the formation of transatlantic teams, but that this opportunity was never exploited. Coffman concluded by stating that two areas were most important in order to improve transatlantic defense co-operation: that the US must streamline its export control regime and that market access and reciprocity must be created, based on "principles of equality and fairness".[111]

US fortress and MIC rigidity

Ashbourne (2000) made a sharp attack on the transatlantic context by discussing "Opening the US Defence Market". The main message of the paper is that there is strong corporate interest for more partnering ventures, but that the protectionism of the US government and the reluctance to open up its market is "a major obstacle to transatlantic alliances". She discussed why the US does not open its defence market, and in her view the reasons are mainly: US superiority (the US is better off being somewhat insulated), protectionism, protection of jobs, the hard-to-change US institutionalised context, concerns for technology transfer, preferring some weapons staying only in US hands, the US does not have to and that the US will never allow itself to become anything less than the leader. The conclusion, according to Ashbourne, is that there is a strong case for claiming that a "Fortress America" exists.[112]

Sapolsky and Gholz' previous frustration over the non-consolidation of the US defence industry led Sapolsky to address the subject anew in 2001. Under the title "Buying Weapons Without an Enemy", he claimed that the US still has not found its proper role in a world of tamed enemies and weaker allies. The RMA was also seen as something quite nebulous that offers no direction for further policy or consolidation. Peace in itself is also a poor guide in

[110] Gholz, 1999 and 2000.
[111] Coffman, 2000. Tracer has later been closed down.
[112] Ashbourne, 2000.

directing efforts within a defence industry – which exists as a response to military needs that exist in response to achieving certain capabilities in relation to a certain doctrine that corresponds to an interplay between threat assessments and the US self-image of its role in the world. Sapolsky suggested that the military – through its needs - should get larger impact on the restructuring of the defence industry. "*The US pays too much for its weapons because it builds them inefficiently in too many underutilized facilities. These excess facilities are sustained because we lack a clearly identified enemy*."[113]

Andrew Raikes Hargreaves, the UK chairman of EADS, in January 2001 presented the EADS views on "European Defence Integration in the Global Context". As opposed to Gholz (2000), Hargreaves stressed the arguments for European consolidation that Gholz rejected.[114]

Pagoda and Weinrod (2001) put forward five trends that they see as creating increased possibilities and incentives for enhanced business relationships between European and US defence companies. These trends are: reduced defence spending; government policies on both sides encouraging consolidation; defence issues and capabilities on the EU agenda; concerns in the US about continued access to European markets and finally strivings within NATO to close the "technology gap". Pagoda and Weinrod also stress some US considerations as steering the US transatlantic policy: national security; the Exon-Florio Review; industrial security/safeguarding classified information; protection of US security; US export controls; Military/defence exports – the State Department, and finally dual use exports – the Department of Commerce. They further present how Pentagon through its report on globalisation through the Defence Science Board[115] suggests (among other things) to shift from technology protection towards capability preservation and to facilitate trans-national defence industrial co-operation. They also discuss the initiatives (DoP, DTSI and ITAR) from the US with several "Western governments" to harmonise regulations that are seen as impeding the possibility for further defence industry co-operation. They conclude by saying that all national considerations – in the US as well as in Europe – must be weighed against how it affects the prospects of transatlantic co-operation.[116]

In a 2001 report, Jensen discussed "Lower Tier Transatlantic Aerospace and Defense Business Activity". Jensen analyses in what ways the consolidation process of lower tiers fit into the process of prime contractor consolidation.[117] European companies have among the lower tiers found better possibilities to create market presence and get a better presence in the US. The US prime contractors are simply too big for any European company to even consider as a prospect for acquisition. Acquiring and partnering with US companies in lower tiers thereby becomes a possibility for enhancing the corporate portfolio. Jensen sees four primary reasons for this activity: getting access to the large (and growing US defence budget); to be able to buy "under the media screen of the media and the regulatory authorities"; to build respect with US regulators and finally to obtain synergies, penetrate new markets and acquire economies of scale in order to compete more effectively on a global scale.[118]

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[113] Sapolsky, 2001.
[114] Hargreaves, A.R., "European Defence Integration in the Global Context".UK chairman of EADS, presentation at The Defence Procurement Agency, UK, January 2001
[115] Defense Science Board (1999).
[116] Pagedas, C. and Weinrod, B. (2001), "A US perspective on US and European defence industry globalisation: Some general observations", in: *Aerospace Management*
[117] It should be stressed that in the general debate, most of the coverage concerns the activities of the prime contractors and the more prestigious defence programs. Very little attention is given to the consolidation process in lower tiers.
[118] Jensen, 2001, "*Lower Tier Transatlantic Aerospace and Defense Business Activity – An Analysis of Foreign Firms Acquiring US Aerospace and Defence Subsystem and Component Manufacturers",* Kennedy School of Government, Harvard University.

Andrew James has written a number of books and articles concerning implications of the US restructuring and consolidation. In a paper from 2001, he discusses mainly the processes of consolidation as regards mergers and acquisitions (M&A) of Lockheed Martin, Boeing and Raytheon and compares them with the European giants BAE Systems, Thales and EADS. James conveys five lessons from the US consolidation experience. In short, these are: closing a M&A-deal is only one part of the process – a lot of work remains; integration processes after M&A absorbs a lot of management time; create new and effective reporting structures; to realise benefit of new size and synergies might require organisational innovations and finally that M&A might be a prerequisite for survival, bit it is not a sufficient strategy in itself.[119]

5.6 Conclusions

Arguments concerning why there should be transatlantic defence industry integration are in general too rich and contain too much so that they become unmanageable for a fruitful discussion, as for example to say that "we need a truly transatlantic defence industry market". The emphasis is also more often on mergers and acquisitions, than on other forms of intermediary collaborative arrangements, such as joint ventures and teaming arrangements.

Practically all sources agree upon that there should be more transatlantic integration. The only opponents that have been heard of are some Senators and Congressmen that claim that the US instead should revert the integrating process, and find a stricter balance where the US is acting more unilateral, and Europe to a higher extent will have to take more responsibility for its defence and its defence industrial base.[120]

Despite the commitment in the European missile-house MBDA, this is also often not included in such comparisons. James' article (2001:ii) focuses on mergers and acquisitions. This report will later expand on why joint ventures and teaming arrangements are seen as more influential modes for "true" corporate integration in the years to come.

In a sound, un-nostalgic market the effect of the ratio 7:1[121] would just be an effect of some actors being superior. In the defence market, however, this is partly an outcome of the rigidity of the US export control system as well as an effect of the superiority of the overall US product portfolio.

Hayward and Jensen touch upon an important point when they point to that there is more integration in industrial tiers below the prime contractors, below the "political radar screen". This has not been the focus of this report, but it should deserve more attention. It might have ice-breaking spill-over effects for deeper integration on the prime level. The focus for this report is the prime company integration, so therefore the empirical material does not cover this interesting aspect of the transatlantic defence industry integration. My impression (without having very strong proof of it) is that the lower-tier integration to a larger extent is driven by integration of civil technologies and civil companies. This lower-tier, civil-dominated integration will probably have some important spill-over effects on the integration on prime-level and more military-specific technologies.

[119] James, (2001:ii), "*Defence industry consolidation and post-merger management: Lessons from the USA*", Aerospace Management. See also James (1998); James (2000) and James (2001:i).
[120] This according to several interviewees in the US.
[121] As Adams (1999) pointed out, discussed a few pages back.

In all articles and books read, the problems of source codes[122] and intellectual property rights (IPR) are very seldom discussed. This is surprising, since these aspects to my knowledge appear to sometimes effectively block the possibilities for co-operation and technology transfer. Perhaps this is because it rigidly blocks seeds of co-operation at very early stages. These problems do not appear to emerge on the agendas, although I have heard high-level political discussions where this is seen as a major roadblock.

In order to turn from this focus on what has been expressed and stated, the focus now changes to what is being done in the transatlantic defence industry interface. This report exploits an intermediary way, a compromise somewhere in between *on the one hand* the fundamental political turmoil that prime contractor mergers and acquisitions create, and *on the other hand* the gloomy metaphor of Fortress Europe and Fortress America. To calibrate this aim further; there are more positive benefits to be found somewhere in the blurry whereabouts of teaming arrangements and joint ventures.

The presentation of the US MIC is intended to present a comprehensive, but not exhaustive, answer to this question. The MIC in its entirety acts fairly predictable, seen from the outside. The MIC does however consist of several very strong and committed groups of interest that interpret the connections between the wider US foreign policy and security policy contexts and the US defence industrial context in different ways. Depending on how the national interest is defined, interpreted and used, different issues or aspects will be pushed. Depending on the underlying vested interests of the groups of interests, more profound and "true" arguments can be revealed.

The most important actors in MIC are The White House; the Departments of, primarily, State and Defense but also Commerce; the US Congress; The Armed Services and finally a heterogenous group of think tanks, lobbying groups, parts of academia and parts of the research society. Finally, but not least, at the centre of the MIC lies the defence industry itself.

So what are the vested interests? The White House primarily acts through its shaping of the US global posture, the national interest and its security policy. The defence industry is one important element of this. The State Department appears to act in order to decrease the risk of any actual or potential military opponent becoming a larger threat to the US. The Department of Defense is primarily concerned with the creation and sustaining of military capabilities. Department of Commerce promotes US international trade, under the restrictions created by State. The US Congress very strongly puts forward the importance of the US national interest and to reduce international threats to the US as a nation and its global role and posture. It is however apparent that Congressmen and Senators to an important extent are driven by safeguarding the employment and prosperity of their home constituencies.

The Armed Services want to safeguard their autonomy, their size, their capabilities and their technologies. The Services compete fiercely between them for budget dollars, and the allocation between the Services appears to have a stabilising equilibrium, where each Service over a long period of time has had roughly the same percentage.

The think tanks, academia and the research community all represent the interest of some group that has achieved budget dollars, and also the interest of certain interpretations of on what grounds the defence budget should be distributed. Some of these push more fundamental principles, e.g. a reform of the US export control.

[122] Source codes relates to the fundamental software programming in e.g. missiles. These might as a part of the deal be sealed or unattainable. Thereby the customer does not know if there is a function in the missiles that - unknowingly to the customer - will have certain instructions, e.g. not to attack certain aircrafts or vessels.

The defence industry itself pushes and promotes its own well-being, thereby aiming to safeguard its continued existence and a benefit to the shareholders. The defence industry often phrases its interests under an argument concerning the national interest, which in order to serve its interests seems the right thing to do. The security and superiority of the "fighters" is also a common argument used by the defence industry.[123]

[123] Nothing wrong with stressing the national interest or the safety of the soldier, but the real, bottom-line driver for the companies is to create shareholder value.

6 *US drivers and inhibitors for transatlantic defence industry integration*

This chapter is a presentation of drivers and inhibitors in the spring of 2001 for transatlantic defence industry integration on the prime level. There is thereby a shift in focus from process to the standpoints of different actors. These two views should complement each other and support the conclusions later in the report.[124] In an appendix, each driver and inhibitor is described in more detail.

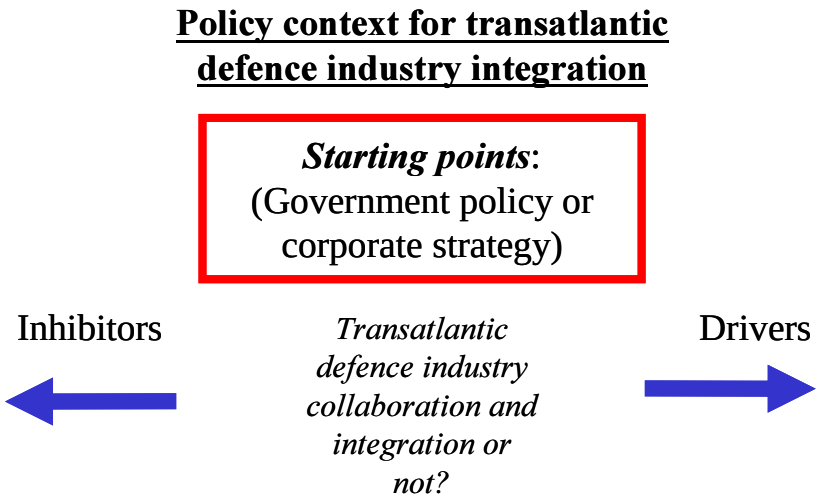

Figure 3. Model for drivers and inhibitors

All in all, 44 interviews were done with people from industry, government, the military, academia, consultants, congress and defence attachées from France, Germany, UK and Sweden. The discussion with each respondent concerned what - from their professional point of view - were the main drivers and the main inhibitors for transatlantic links in the defence industry.

It is important to understand that different groups and stakeholders have different priorities and agendas, and that they all interact. The main drivers and inhibitors for transatlantic defence industry integration will now be presented and discussed.

In all discussion about drivers or inhibitors, they are discussed in order of importance according to the model. This order is in part the author's construction, but mainly the outcome of the comments that were received by the respondents.

Under each heading there is a part called *Starting points*. This is a description of how this community views the world, how they relate to this context and what values they bring to the context. This is a generalisation and a simplification. It is intended to guide the reader and also describe from what standpoints the drivers should be valued.

The following rather long enumeration of arguments (drivers and inhibitors) might seem overly detailed. An important reason for this set-up is that these create a long list of separate arguments, which all have their specific, internal logic. Each argument is isolated in order to be more exact. Some arguments might be stated by several people, some just by certain

[124] See also, an article on of the transatlantic defence industry development over a number of years (1995-2002). Lundmark, M. (2002), "The Transatlantic Defense Industry Market: Future Modes of Integration", in *Breakthroughs*, pp. 11-21, Security Studies Program, Massachusetts Institute of Technology, Cambridge

interest groups and yet others might be completely contradictory to other arguments. Such contradictions are not extensively discussed in the lists of drivers and inhibitors. In the analysis chapter, a broader and more comprehensive discussion and reasoning is presented.

The drivers and the inhibitors are the aspects that by either side – government or corporate – can be seen as either a driving or an inhibiting argument. None of the drivers and inhibitors are put forward by all representatives from the government or the corporate side. Some of the drivers and inhibitors are effects of strict interests of some parts of the government, e.g. Congress or the Services.

Thus, the following drivers and inhibitors are identified arguments for or against increased transatlantic defence industry integration.

6.1 US government perspective

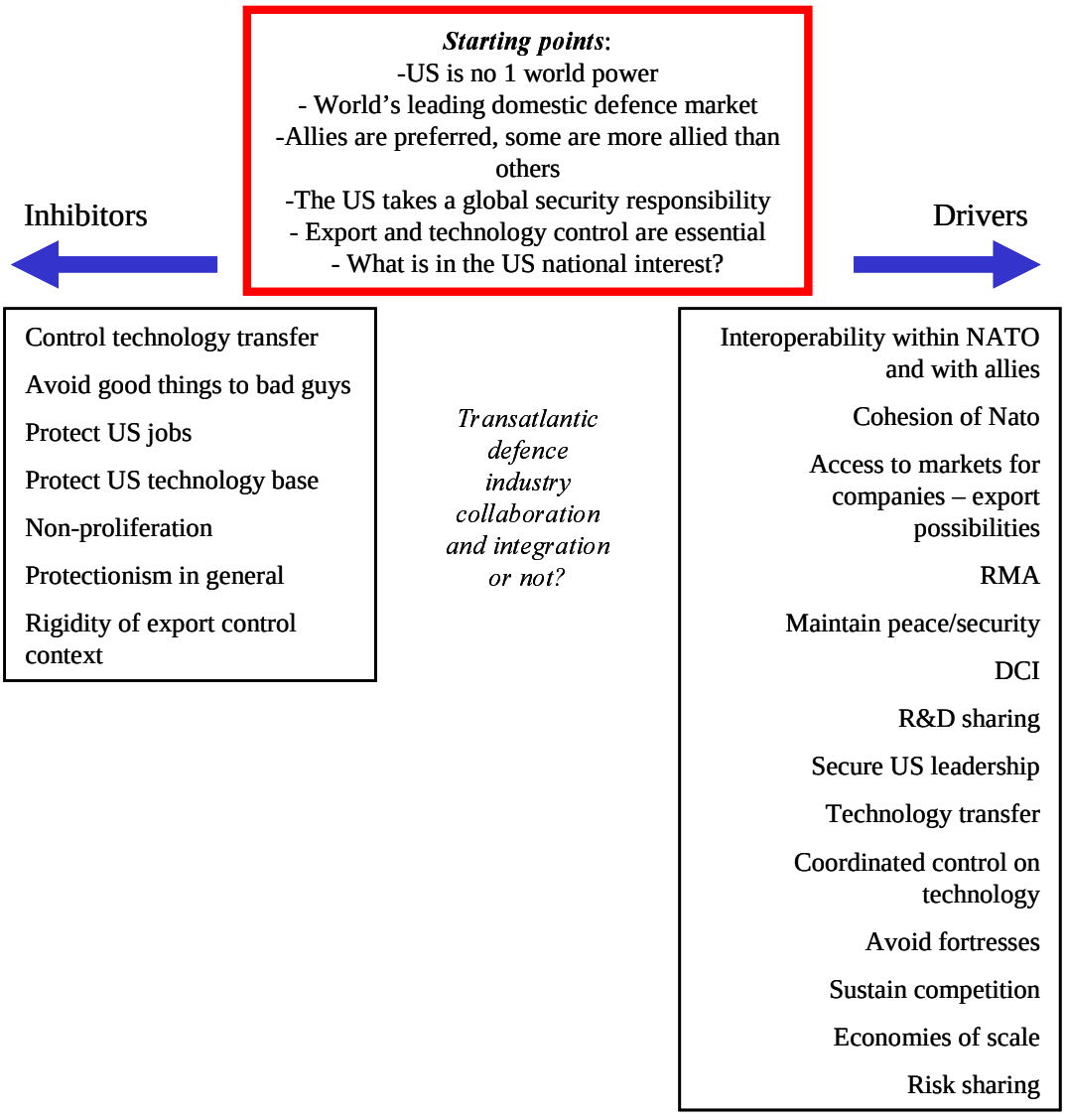

Figure 4. U.S. government policy context for transatlantic defence industry integration

6.1.1 Government starting points

The US is the only super-power in the world. The US has a global security posture, guided by what is seen as being in the interest of the US. Decisions by the US are to a large extent steering for what can be done and not be done in the global defence industry. Despite continuous debates about the dominance of the US, this hegemony is likely to remain undisputed in the foreseeable future.

6.1.2 US government drivers

The main driver for transatlantic links out of the US government perspective is to strengthen NATO, achieve interoperability and sustain a technology transfer to friends and allies. Another important driver is that it creates business opportunities for US companies, and a strong defense industry is seen as being in the national interest. A well-developed set-up for transatlantic collaboration also increases the control of technology transfer, promotes peace and security and secures the US leadership. Another important driver is to create more equal structures of sharing R&D spending in defense matters.

6.1.3 US government inhibitors

When it comes to the inhibitors, the US approach becomes much more fragmented and less united. The special interests of different groups (especially Congress, different departments and the Services) become more divergent and self-centered.

The inhibitor that most clearly is put forward by the respondents was fears for advanced technology getting in the wrong hands, and perhaps being turned towards the US. Further, the rigidity of the export control context makes transatlantic co-operation very cumbersome, which impedes transatlantic links. In addition, a combination of worries about US jobs, protectionism and patriotism conserves the present structure and makes co-operation as well as European direct investment extremely difficult.

6.2 US corporate perspective

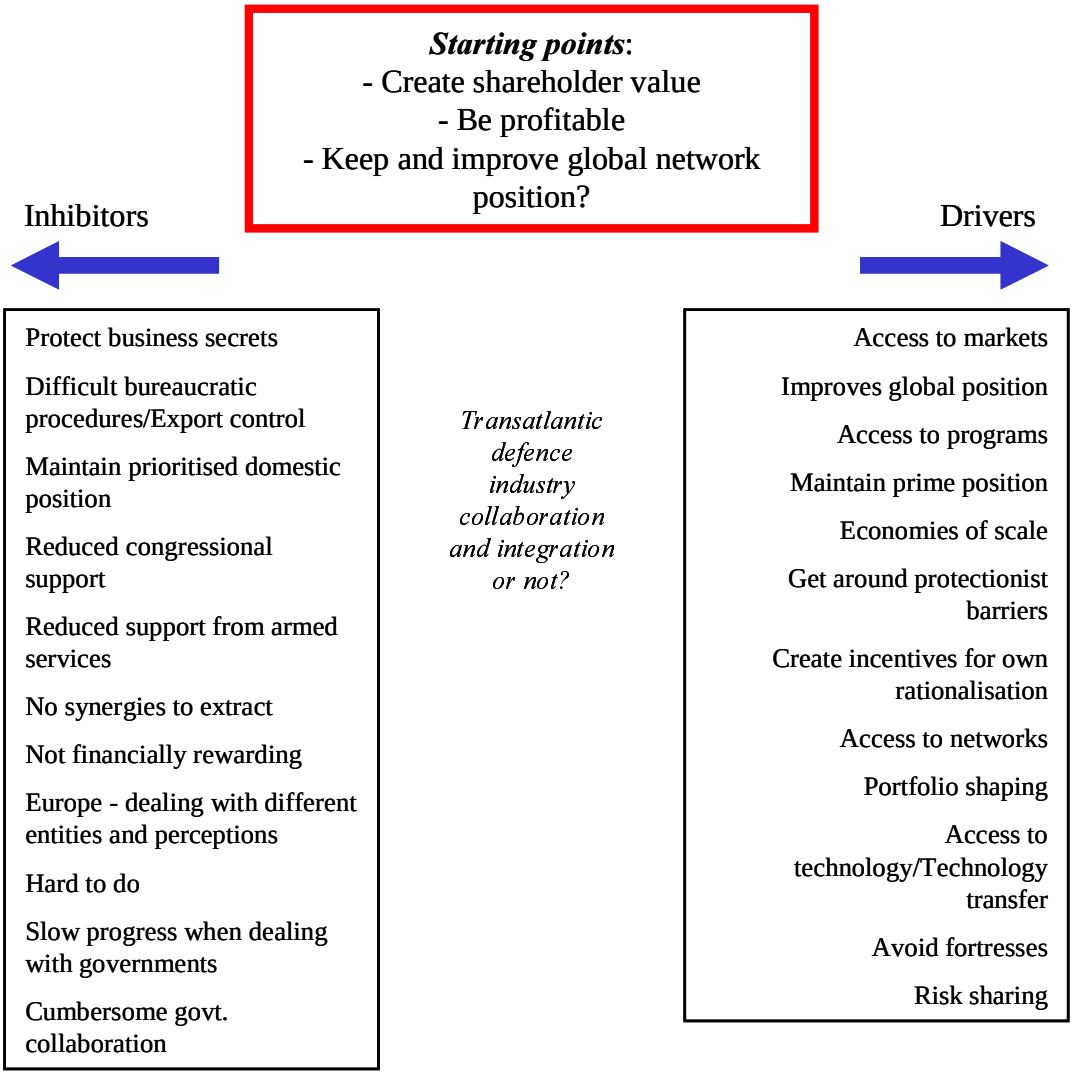

Figure 5. US corporate context for transatlantic defence industry integration

6.2.1 Corporate starting points

The company's primary goal is to create shareholder value. In order to do this, they must be profitable and keep and improve its global network position.[125] The companies know the dominant position of the US, and see that as a supporting factor for their network position.

[125] Profitability can be achieved through a combination of a number of measures. Primarily, it is a process of having revenues being higher than costs, which in its turn can be achieved through lower costs, higher prices, more items sold, more efficiency etc. These measures are however outside the scope of this report. The attractiveness and competitiveness of a company is a combination of how other companies and investors view the studied company – how it is expected to perform and if this attracts partners and investors. To sum up, this is what constitutes its network position.

6.2.2 US corporate drivers

The main driver for US companies is to get access to the European markets; either by creating joint projects[126] or by selling more of the material that the US already has bought (F-16 is a good example). There is of course also European technology that is better than the US, and they want to become a part of that. By partnering with European companies, they can get around protectionist barriers and become a stronger part of European networks. All this improves their global position. In a way, the only new market opportunities or possibilities for expansion might be going into Europe[127].

6.2.3 US corporate inhibitors

There are also some factors that might offset strong arguments for transatlantic links. Many US companies have a fairly secure position, selling steadily to the Armed Forces. So why jeopardize business secrets and a prioritized position? Furthermore, Congress as well as the Armed Forces often prefer all-American solutions. The immense difficulties of dealing with both the US export legislation and the European bureaucracies refrain many companies from engaging into transatlantic ventures – it's simply hard to do. One can also question if there is so much to win from a transatlantic co-operation – are their synergies to extract, is it financially rewarding?

[126] Based on existing US programs or defence solutions.
[127] This was the fact before 9/11. Afterwards the clear market expansion is in the US.

7 *Conclusions*

This chapter merges the findings of the previous chapters and presents the conclusions regarding: modes of integration; pattern of integratioin; interaction between on one hand drivers and inhibitors and on the other hand the pattern of integration; future paths of integration and finally a discussion on how the report suceeded in relation to the research questions.

7.1 Modes of integration

This discussion on modes of integration focuses on strategic alliances, juste retour and work share, teaming arangements, joint ventures and finally mergers and acquisitions.

Alliances (or strategic alliances) are not affecting the transatlantic defence industry integration more than indirectly, company activities must materialise into an actual programme.

Juste retour and *work share* arrangements are still common. The degree of integration is however limited, production is usually compartmentalised through firewalls and rigorous contracts. These market responses for integrative incentives are however ineffective compromises that too much reflect the Cold-War mentality, driven mostly on suspicion, not on trust.

Teaming arrangements is the most common set-up for defence materiel collaboration that is initiated at present. US primes in particular prefer teaming arrangements to joint ventures, since it does not give any commitments to anything else than a specified programme. Teaming arrangements are possible to oversee timewise, since they last as long as the deal is set up. The companies also know what their commitments are – stated in a clearer way.[128] Teaming arrangements do not change the industry structure or push consilidation, it might even preserve the existing structure, as in the case of the European missile industry.[129] A teaming arraangement is a response to a government impulse, a corporate joint set-up to mirror the specific government demand. Joint Strike Fighter is a programme which outcome will have a strong impact on the nature of transatlantic teaming arrangements.

Regarding *joint ventures*, there are very few. Joint ventures should also be separated between *project* and *strategic* joint ventures. Project joint ventures cover (as teaming arrangements) a limited (timewise or production-wise) programme collaboration, but differs from the teaming arrangement in that it pools resources from the companies into a novel corporate body. The strategic joint venture is not limited to a certain programme, it is aimed for collaboration within a specified technological, market or strategic area. It is an expression of a shared vision. Project joint ventures do not increase integration to any larger extent. Strategic joint ventures do however have the potential of much greater future impact on integration and the industrial landscape. The strategic joint venture between Thales and Raytheon – Thales Raytheon Systems – is a possible role model of deepened integration through strategic joint ventures. This joint venture focuses on radar and air surveillance, i.e. areas that are not highly militarily sensitive. EADS is working on several MoU:s with US companies (e.g. Northrop Grumman) in a fashion that resembles how Thales and Raytheon acted before actually creating TRS. The companies have created a mutual platform that is supposed to evolve with technology and product development. Thus, strategic joint ventures offer an advantageous alternative for future market impact. If two larger companies wanted to create a transatlantic strategic joint venture without previous collaborative record, it might have been even more cumbersome – probably impossible. On the other hand – now there is a role model.

[128] Discussions with representatives from Lockheed Martin, Raytheon and Boeing.
[129] Molas-Gallart

Project joint ventures have a history of resembling teaming arrangements since they often cease after the project delivery is completed. It does create contacts and potential for further co-operation, but there is no real long-term commitment in the set-up. Of course, companies can choose to co-operate or be much more open than what would be expected, but generally, project joint ventures provide less integration than what can be envisioned by strategic joint ventures.

Strategic joint ventures are based on a mutual business interest. They share some kind of common vision for the future. The governments involved have approved to the set-up, and know that there is a long-term goal for the co-operation. Thereby, the governments in a way share their vision. The corporate assessment of the market development foresees market growth in the segment that the strategic joint venture centres upon. The respective governments are favourable to these companies. Thereby (if the assessment is not wrong) the companies can be said to have been awarded a future market option by the governments.

Mergers and acquisitions is not a credible mode of transatlantic integration among primes. In the foreseeable future, if major companies would integrate further (i.e. through mergers or acquisitions), the benefits regarding their gains in market position would be offset by the integrational and political problems that would come with the integration of the companies.[130] The present primes have to the most part been created through mergers and acquisitions on the continents. At present (2003) the stronger links between the US and UK have according to some sources made such mergers among primes possible, notably rumours of merger talks during 2002 between Raytheon and BAE Systems.[131]

Mergers and acquisitions are not seen as plausible between the primes in the US and in Europe. Governments have proven not to support such integration. Mergers and acquisitions are prevalent in Europe and in the US, but it is either primes buying lower tier companies or lower tier companies that merge or become acquired by competitors on the same tier. This "below-radar-level" M&A-activity is important, but the focus in this report is integration between primes.

7.2 Pattern of integration

To conclude the findings on the pattern of integration, it points to a continued strong presence of teaming arrangements. Teaming arrangements will to a lesser degree be of work share and juste retour set-ups, and the balance among collaborative structures will shift towards more openness, i.e. more trust-based structures. Strategic joint ventures offer an advantageous opportunity for increased, joint market penetration among primes. Mergers and acquisitions still appear distant.

Companies – in this case primes - also engage in *portfolio shaping*, how companies shape and compose their corporate portfolios. Thereby, they can create crucial technology combinations that constitute the cutting-edge or decisive component in future defence programs. The sum effect of all alliances, joint ventures, teaming arrangements, mergers and acquisitions can be said to constitute the portfolio shaping.

A final phenomenon is what I call *transatlantic wedges*, which does not specifically concern primes but which has an important and neglected effect on the European defence industry context. There is a slow development of transatlantic defense industry integration, and an overall stability of the continental industrial landscapes. European direct investment is limited and does not change the US industrial landscape to any real extent. Each continental context

[130] This impression is reinforced by several interviews, no one foresaw mergers and acquisitions among primes.
[131] Ross Kerber (2003), "BAE scraps for US defense dollars", *Boston Globe*, 31 March, http://www.boston.com/dailyglobe2/089/business/BAE_scraps_for_US_defense_dollars ...

appears to be continentally controlled. There are however a number of eastward investments and processes where US companies and US programs irrevocably will change the European context, transatlantic wedges. Firstly, US companies have acquired Bofors Defense in Sweden, Mowag in Switzerland, Santa Barbara in Spain and HDW in Germany, as well as part ownership of Steyr Daimler Puch of Austria. The acquisition of HDW is especially interesting, since the US non-diesel submarine capacity now has a US company owning the, by far, dominating diesel submarine producer in Europe. Due to these acquisitions, the idea of a European, government-driven consolidation into border-crossing European towers of excellence is weakened since the conditions have substantially changed. US private enterprise will have a saying. Secondly, Joint Strike Fighter – the biggest defense program ever – links to it substantial parts of European aerospace industry and of government aerospace funds for decades. The case of a next European fighter thereby becomes much more fragile. The US does also for the first time ever in a large (even the largest!) defense program make itself truly dependent upon another nation, the UK. The strategic industry impact of JSF can simply not be overstated.[132]

The defence industrial context is to a substantial extent still characterised and steered by the concerns and the context developed during the Cold War. The defence industry will always have unique characteristics due to government concerns for military technologies and capabilities. The defence industry will thereby never become an industry as globalised as other industries of comparable technology or sophistication of development[133] – it will always remain the most restricted industry of all.

I do not believe in a "truly transatlantic defence industry market", the US will always see to that it keeps its supremacy. However, I believe that the transatlantic interface will partly transform towards more trust-based forms of co-operation when arrangements of juste retour and work share are phased out and new co-operative ventures emerge. These co-operations will have the form of joint ventures, teaming arrangements and derivatives thereof. Joint Strike Fighter will probably break new ground in multilateral, collaborative set-ups.

7.3 Connection between drivers and inhibitors and the pattern of integration

In this report, an attempt is made to achieve a deeper understanding of the limited transatlantic defence industry integration by identifying drivers and inhibitors for integration in this specific context.

The first step is to attempt to validate that drivers and inhibitors do offer an explanation for the outcome of transatlantic defence industry integration. Thereafter, the question is how they affect integration. Finally, is there a pattern that can be derived from this causality?

There are no easy answers or solutions to what drives and what inhibits the transatlantic defence industry integration. The lists of drivers and inhibitors show the multitude and the complexity of the interests and arguments that enter into the transatlantic defence industry context. The arguments that are presented for transatlantic defence industry integration should thereby be understood in a more refined manner. In order to understand the logic behind the drivers or inhibitors, they must sometimes be understood out of a multilateral and sometimes a unilateral perspective; sometimes as a strict business perspective; sometimes out of a definition of the national interest or out of the specific vested interests of one of the groups within the MIC. Furthermore, the meticulous export control system that was elaborated during 40 years of Cold War, still dominates the export control logic and the reasoning of many actors.

[132] MIT, ACUS, Géoéconomie
[133] Hayward (2001) and Hayward, presentation at conference at Ecole Militaire, Paris, February 28, 2003.

Government drivers based on multilateral incentives (e.g. NATO cohesion and interoperability) appear to have little actual impact, these arguments are thwarted under patriotic and protectionist concerns without the overarching, flexible argument of the US national interest. The corporate drivers are the ones that drive the limited integration that does occur, thereby probably pushing the government policy process in front of it – governments will have to adjust their defence industrial policies to changing realities in the corporate landscape.

Inhibiting government arguments are over-all mostly used in the debate *inside* the US. These defensive government concerns are suspicious to the benefits of a more globalised defence industry, and strive to maintain a close US control over its defence technologies, capabilities and the US defence industrial technology base. Thereby the US also maintains its global dominant position concerning the dynamics of the defence industry. These inhibitors are clearly unilateral in character.

The corporate inhibitors are mainly united by a lack of belief in the profitability of transatlantic co-operative ventures, mergers and acquisitions. There is also a concern for losing a favoured and favourable position in the US.

Some of the corporate drivers are clearly spelled out and used (e.g. interoperability, NATO cohesion, burden sharing) and others are less altruistic and are not as often spelled out (e.g. safeguard the US hegemony and dominant global position, promote US interests).

7.4 Future paths of integration

The future modes of integration are thus believed to be steered by some strategic joint ventures and large teaming arrangements that indirectly will shape the industrial landscape. For mergers and acquisitions to occur among primes, the overall context shaped by governments must shape to substantial degree.

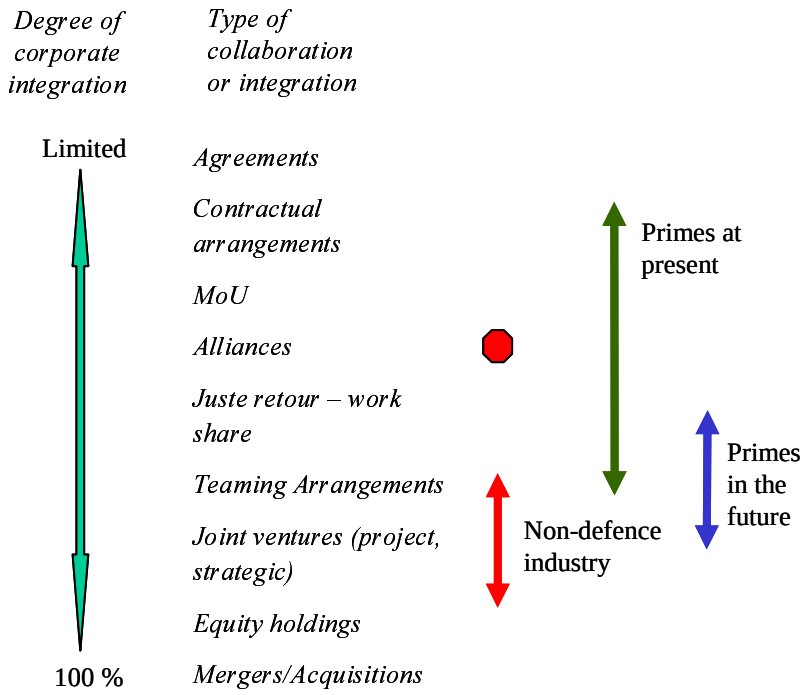

Figure 6. Pattern of integration

The primes at present show a spectrum of integration and collaboration which ranges from contractual arrangements to joint ventures with a focus on defence-specific modes in the form

of juste retour, work share and teaming arrangements. Comparable non-defence industry has integrated further and shows more far-reaching collaboration and integration in the form of alliances, joint ventures and, especially, more mergers and acquisitions. The defence industry is expected to shift its balance among modes of integration towards more of teaming arangements and joint ventures, and less of work share and juste retour. In order for mergers and acquisitions to occur, governments must decrease its control needs and relax export control and technology regimes and thus to a larger extent leave consolidation to industry.

7.5 Conclusions

The US acts fairly predictably and coherent on an aggregate level. If decomposing the MIC and its subsets or different interests groups, the different actors compete for power, money and the phrasing of priorities.[134] It is difficult to prove that the non-occurrence of integration is the result of the interplay of a number of drivers and inhibitors belonging to many actors. I claim, however, that the understanding of the underlying arguments offers a better and more structured understanding for why there is little integration than most analysis on transatlantic defence industry integration.[135]

The US defence industry was in the spring of 2001 in general in better shape[136] than the European, and its continued well-being is more secure due to the huge US defence budget and also due to the present defence-friendly president and his staff. The main driver for US companies is to get access to European markets, either by creating joint projects[137] or by selling more of the material that the US already has bought (F-16 is a good example). There is of course also European technology that is better than the US technology, and they want to get access to that. By partnering with European companies, they can get around protectionist barriers and become a stronger part of European networks. All this improves their global position. In a way, the only new market opportunities or possibilities for expansion might be going into Europe. This was true before September 11, 2001, but now the US defence industry is – in large parts – in a very rewarding flow of financial resources and in a defence-oriented atmosphere.

There are also drivers that might not be regarded as credible, but all of the drivers and inhibitors have been put forward by someone. For example, that US companies would willingly share their technological superiority with a European competitor appears unrealistic. For such an action to actually occur, the US company must be guaranteed some kind of substantial advantage in return. If they are clearly superior, it is hard to see that any competitive advantages could be awarded that they do not already possess. Reducing the technology gap would however enhance European military capabilities, in some way improve interoperability and keep the US companies more "on their toes". The argument thereby becomes favourable in a government perspective, but unrealistic in a corporate perspective.

[134] This polarity apparently conflicts with academic borders in political science. I choose, however, not to further engage in these definitions. One main dichotomy is if a nation acts *unilaterally* (which characterises George Bush II) or *multilaterally* (which characterised Bill Clintons presidency); another is whether a nation is best understood as a coherent, aggregate sum of interests: *unitarian* (as when the US government actors have a coherent interpretation of what constitutes the national interest) or if it should be seen as the outcome of an internal power struggle: *pluralism* (as in my description of the MIC). For more discussion, see e.g. Goldstein (2001), *International Relations*, chapters 2, 4 and 8.

[135] Presented in the chapter on the transatlantic defence industry context.

[136] The average rate of returns was and is in the spring of 2001 higher. However, in 2000, the US defence industry was in general more or less seen as a crisis industry with large losses. The industry health and the stock market perception of the industry varies considerably, but over a longer period of time, the US defence industry has a much stronger position than the European thanks to their "membership" within the huge US military-industrial complex.

[137] Often based on existing US programs or defence solutions.

European companies are more desperate to create some kind of transatlantic venture. The US companies have a much more attractive position. The strategic impact of a strong transatlantic co-operation is much higher for a European company than for a US company, albeit both might be keen on them. The interest is mutual, but the resistance or inhibitors are somewhat different.

The US context is more elaborated, more ambitious and more extreme than the context in any other nation. Coupled to the enormity of the US defence budget, the US context is truly unique and unrivalled.

A common argument to use in the US is that ”it is in the national interest”. This strikes a notion of importance, national pride and concern that to some extent strengthens the argument. It becomes up to the opponent in the discussion to refute the validity of that statement. What constitutes national interest is however clearly biased and phragmented in the ongoing debate. Thereby it is important to attempt to unmask the national interest argument and see what *actual* arguments or agendas that lie underneath.

7.5.1 Suspicion-driven or trust-based? [138]

Several inhibitors emanate from the suspicion or fear that defence materiel or technology might come in unwanted hands. One statement that adequately captures these aspects is that the US does not want ”any uncertainties added”. By strict control – i.e. that all variables are in the direct hands of the US – uncertainties are minimised. This logic is reasonable, but it is very much contradictory to other global trends. *Firstly*, the defence industry is in effect resisting the globalisation that transforms most or all other industries. *Secondly*, the increasing importance for the defence industry of the non-defence industries and the increasing importance of non-defence technologies and solutions causes frictions in business models and hampers potential development. *Thirdly*, demands for coalition warfare and interoperability demands more openness within the global defence industry. *Finally*, the strong incentive for joint development of defence materiel and defence solutions requires more openness. Overall, an expected harmonisation of the defence industry towards a more globalised context and more openness towards non-defence influences and technology is believed to slowly but gradually steer the defence industry towards a more trust-based rather than a suspicion-driven industry context.

The case of a shift from a suspicion-driven context towards a trust-based context is a hypothetical case inspired by proposals of export reform in the US in 2000/01 and supported by the interviews. There is thereby weak *empirical* evidence. The *logical* case for a shift towards more transparent, transatlantic co-operative ventures rests on the following assumptions:

> The US export control context is a product of the Cold War and still has to adjust to the disappearance of the bipolar Cold War context;
>
> Other types of industry are more globalised and have to a higher degree created global, transparent supply chains. Defence companies striving to maximise shareholder value have strong incentives to also benefit from such possibilities;
>
> The defence industry is not leading the technological development more than to a small extent, the civil industry is leading the defence industry;

[138] The notion of a shift from a suspicion-driven to a trust-based context is mainly influenced by the export reform proposals in 2000/01, primarily put forward by Cevasco (2000), CSIS (2001) and The Henry L. Stimson Center (2001). The suspicion-based perspective was reinforced after interviews with officials from the US Congress, where an important concern was to not “add uncertainties” to the defence technology context.

Co-operative ventures marked by the Cold War context will gradually be phased out. New co-operative ventures will to a larger extent be trust-based or at least more open – aiming to benefit from potential benefits of global supply chains – and the balance among co-operative programs will thereby shift. Strategic, cross-border joint ventures (like Thales Raytheon Systems), Joint Strike Fighter and other multilateral co-operative ventures will lead the way. Industry will lead governments towards increased transatlantic integration, not the other way around.

7.5.2 Is there a US policy for transatlantic links?

The US actions are governed by the supreme global position of the US and the clearly dominant global position - in all aspects - of the US defence industry. If studied at a distance, the US actions put together shows a fairly consistent and predictable US behaviour. What is being said is not always in balance with what is being done, but that is not unique for the US (or for politics in general). If studied inside the US MIC, the picture becomes much more fragmented and sometimes even contradictory. There is considerable friction within the US MIC. Different groups have their own agendas, and the outcome in relation to what is materialised - and not materialised - in the transatlantic defence industry context is the result of a huge negotiation game between the vested interests of the comprised elements. Thus, the US overall transatlantic defence industry policy is not synchronised. The clearest common denominator of the arguments and the positions that steer the outward actions of the US defence industry is: What is in the national interest? Behind this standpoint is a wide spectrum of interacting and interdependent arguments, reflecting vested interests.

7.5.3 Accept the gap

In order to be able to discuss the transatlantic defence industry interface, one must accept that there is a transatlantic gap and that that will prevail. I find the idea of an even, truly transatlantic, fair, reciprocal - or whatever kind of industry in that sense you wish to call it - highly unrealistic. [139]

7.6 Research question and aim

The research question is:

- How can the actual transatlantic defence industry integration outcome be explained by US corporate and government drivers and inhibitors for increased transatlantic defence industry integration on the prime integrator level?

This report is not a quantitative study, it is based on a perspective and a methodology that addresses a previously insufficiently researched problem area.[140] The transatlantic integration is defined[141] as limited and the assessment of the drivers and inhibitors describes an institutionalised context with considerable inertia and resistance towards change.

It was claimed earlier in the report that corporate strategy for integration in the defence industry cannot be satisfactorily understood separated from the outer, industry-specific context. The alternatives to this approach are either to only analyse corporate strategy or to take the political science perspective, to see companies as tools for pursuing government goals. The latter perspective largely ignores the fact that companies are private enterprise, with their shareholders as the main stakeholders. Therefore this perspective never appeared

[139] Discussed at more length in Lundmark (2003), ”Accept the gap”.
[140] None of the respondents or any experts on the field had seen a similar study being done.
[141] As an assumption for this study, based on a unanimous accord from all other analyses of the transatlantic defence industry integration.

fruitful, nor have this perspective in other studies come up with relevant explanations for corporate behaviour.[142] Solely analysing corporate strategies on the other hand could come up with a truthful depiction on what actual integration took place, and which partnerships, alliances, joint ventures etc that were formed. It would however be difficult to understand why integration turned out as it did, and what drivers and inhibitors that steered the choices that led up to it. These drivers and inhibitors are clearly the result of an interaction between government and corporate priorities and goals. The arguments that form these drivers and inhibitors are different between government actors and companies, so they need to be separated. Thus, drivers and inhibitors are in a political industrial market a credible analytical tool for understanding the interaction between government policy and corporate strategy and can offer a better understanding of the discrepancy between rhetoric for trans-national industrial integration and the actual outcome of integration – exemplified with the case of the transatlantic defence industry integration among primes.

Why do I claim that drivers and inhibitors help to explain the transatlantic defence industry integration? The overall context that clearly limits and shapes cross-border interaction between companies is structured by national concerns and priorities. The export control system and the outspoken government restrictions on corporate interaction sets a limit on what companies are able to do, and this is clearly more restricted than probably any other industry. Furthermore, the demand for defence products and services is shaped by governments' threat perceptions, which materialise into specifications for certain defence solutions. Companies thereby largely have to abide to what kind of solutions that are demanded – they have to come up with a operational solution. Companies can very seldom develop new solutions or do technology leaps without the customer financing this expensive process. Furthermore, the innovation and the product development is usually executed in close collaboration between companies and government actors (usually Services or procurement agencies). Governments' defence industrial policies are a product of their security and foreign policy posture, and of their domestic defence industrial capacity and ability. Since companies have to project long-term attractiveness, a stable and long-term commitment from a customer is a prerequisite for enduring market presence. The national back-up always consists of one single customer – the government – so therefore there is an inseparable marriage between the two. Thus, government policy and corporate strategy can be analysed in separation, but they are so interdependent that an analysis on how they interact is necessary in order to more deeply understand the cause and effect of transatlantic defence industry integration.

7.6.1 Theoretical and methodological conclusions

New theoretical concepts have been introduced and used: transatlantic wedges, structural tension and political industrial market. These have not been theoretically validated, but can offer some interesting discussion. *Transatlantic wedges* concerns the structural impact of US acquisitions below the prime level, these alter the conditions and possibilities of the case of the defence industry consolidation in Europe being a purely European affair. *Structural tension* concerns the fact that in the defence market there are strong incentives for further consolidation and rationalisation, but this is held back or restricted by government interference or blocking, thus creating and withholding unreleased tensions in the market. The *political industrial market* deals with the purchase of complicated, technology-intensive products; systems that are operated for decades and the purchase is strongly steered by political demands and specifications. The supply chains and industrial landscape consists of large, technology-intensive companies, technology and R&D development demands large

[142] The focus of interest in political science is government policy, so this is hardly surprising.

investments. Companies only sell to other companies or to the end-users: governments, government actors or other politically steered actors. The defence industry is seen as such an industry. The defence industry is extreme in some aspects, but the aim is to relate it to general and relevant strategy literature.

Brunsson's perspective highlights the discrepancy between beliefs and practices. The political rhetoric is driven by politically correct goals as transatlantic security policy convergence, interoperability and equal, globalised and open market access. The corporate rhetoric uses political catch-phrases in order to attain political acceptance. The political practice (by export, technology and investment control), however, still maintains rigid structures that block the desired industrial closeness and integration. The industrial practice is steered by fulfilling its obligations to its owners - thereby addressing shareholder wealth – and companies only engage in the business endeavours and modes of integration that are seen as beneficial and profitable.

Three categories of change were previously discussed as an analytical tool – changes in institutional conditions, technological development and in industrial structure. The second of these was omitted from the theoretical discussion. The first category – changes in institutional conditions – was discussed in chapter 5 concerning the transatlantic defence industrial context. The third category – changes in industrial structure – theoretically connects to the discussion on why industries restructure and companies collaborate and integrate. Empirically, it concerns the centre of interest in this report: the actual integration of companies. These two categories are met in the sixth empirical chapter on drivers and inhibitors. Clearly, a friction exists between the theoretical concepts and the phrasing of the arguments that underlie the drivers and inhibitors. In this regard, more work needs to be done, which I intend to do in my continued research. The defence industry is – according to me – seldom analysed satisfactorily in strategy literature. The industry-specific context has aspects that are partly different, partly unique. The corporate strategies in the defence industry has to a large extent been analysed isolated, thereby developing its own analytical logic and vocabulary.

In literature on supply chain management, international marketing and strategy, mergers and acquisitions are seen as important modes of integration and of entering industrial networks due to how the companies are already connected and interdependent. Clearly, the defence industrial context (shaped by governments) forces intermediary corporate modes of integration – among primes – that are less decisive than mergers and acquistions, i.e. teaming arrangements and joint ventures.[143] The defence industry integration also shows modes of integration and conditions of collaboration that are defence-industry specific, especially work share, juste retour and tesaming arrangements.

Integration was defined as being of three main types: institutional integration, decision integration and execution integration[144], where this study focuses on institutional integration. Aspects of decision and execution integration are touched upon, and it appears as if the (often assumed) link between institutional integration leading to execution integration is weak in the defence industry; national industrial structures are often actively held apart as an important aspect of the collaborative set-ups (especially in the form of work share and just retour). This is seldom highlighted in discussions about the defence industry.

Methodologically, a personalised approach for understanding and explaining industrial integration has been used. This approach appears to have been fruitful in finding analytical tools not found in literature.

[143] The theoretical implications of this is worth noting, but is not further developed here.
[144] Mattsson (1969).

The theoretical as well as the methodological aspects will be discussed in more depth in further analysis[145].

[145] Primarily in an ongoing research work at Stockholm School of Economics/Handelshögskolan i Stockholm.

8 *Policy implications – recommendations for Sweden*

The guiding issue for the Swedish MoD in financing this study (and other FIND studies) is how the conditions for the Swedish defence materiel acquisition is affected by the global consolidation, restructuring, modes of integration and conditions in the international defence industry.

In the following, a strict perspective for the Swedish relation to the US defence community is taken. European restructuring and the Swedish positioning in Europe affect this perspective, but that is not included in the discussion.

Efforts *are* being made in several of the recommended actions. The Ministry of Defence and other defence-related authorities must evaluate and judge how they perform in relation to the offered recommendations.

The guiding focus is how to create stronger and closer links to the US defence industry, i.e. increased transatlantic defence industry integration in a strict US-Sweden perspective.

These policy recommendations might seem cautious, but Sweden is to a large extent left to a reactive position towards the US. Sweden can do very little to affect the overall context, and it is not plausible that Sweden will achieve or be a part of more than a very small number of co-operative ventures with the US – be it industry-created or government-initiated.

8.1 Why transatlantic links?

The defence industry in Sweden would greatly benefit from closer links to the US defence industry.

Firstly, they are thereby able to interact with the vastly superior and many times bigger US defence industrial base. The US defence industry has a much wider range of technologies. It is at the cutting edge – often alone at the edge – and is therefore the most attractive collaborative partner.

Secondly, the defence industry in Sweden can get a share of the outcome of the huge US R&D budget.

Thirdly, by being chosen collaborative partner with a US partner, the global attractiveness of a company is increased, thereby improving the market position and the competitiveness. It is simply fundamental to be a central part of the strongest global networks.

Fourthly, the US defence market is by far the most expansive defence market.

8.2 How create, support and sustain transatlantic links?

The Swedish government must support the defence industry in Sweden in getting better and better positions in relation to the US defence industry. This is done by persistently and distinctly making the competencies apparent to the US authorities.

Initiatives for co-operation must receive top-level support from ministries, the procurement agency (FMV) and the military. Swedish defence programs with strong support from planned Swedish spending that fits with goals for future Swedish capabilities and also fits with the competencies of the defence industry in Sweden must be better “marketed” in order to decrease a tendency to design and produce strictly Swedish solutions.

The fundamental change of the Swedish defence towards a network-based defence and international missions changes the Swedish demand. Projects in line with this transformation should receive higher priority for creating bi- or multilateral co-operation. The Swedish government must in some cases take the lead in order to steer and give guidance to the

defence industry in Sweden in these directions. The government-financed and government-led studies towards a network-based defence must reorganise and prioritise to go from the present vision-creation to more hands-on testing and development.

Analyse in what areas Swedish interests, capabilities and competencies match with US priorities and strive to create communication with appropriate US units or groups concerning such issues. Consequences of US transformation of its grand strategy and doctrine should be a part of such an analysis.

A successful, appropriate and unhesitating presence and determination in and towards international coalitions and in conflict areas, is in all likelihood important for the general impression of the Swedish abilities.

Finally, the positive acceptance that Sweden recently has received from the US administration creates improved possibilities for deeper and wider co-operation with the US[146]. This must continue to achieve the highest focus and care.

8.3 The US defence budget is more than 100 times bigger than the Swedish defence budget …

Sweden is not in the position to change the conditions of the global defence industry or the conditions for international defence co-operation. Sweden must adapt its strategies to what will increase the US interest. The top priorities for such goals must then be clearly supported by all elements of the Swedish defence-related authorities in synchronisation with the defence industry.

[146] This refers to the inclusion of Sweden in DTSI, DoP/Globalisation Talks and ITAR. These initiatives were discussed earlier in the report in chapter 3.

References

Books and journals

Achrol, R., Reve, T. and Stern, L. (1983), "The environment of marketing channel dyads: a framework for comparative analysis", *Journal of Marketing*

Adams, G. (1999), "The necessity of transatlantic defence co-operation", in: *Europe's defence industry: a transatlantic future*, Centre for European Reform (CER), London, p. 42-48.

Adams, G. (2001), "Fortress America in a changing transatlantic defence market", in *Between cooperation and competition: the transatlantic defence market*, Schmitt, B. (ed), Chaillot papers 44, Institute for Security Studies, Western European Union, Paris.)

Anderson, J.C., Håkansson, H. and Johanson, J. (1994), "Dyadic business relationships within a business network context", *Journal of Marketing*

Andersson, M. and Lilliecreutz, J. (2000), *Supply chain strategies and sub-tier structures – findings from three supply chains in the Swedish defence industry*, FOA User report, FIND Programme, Swedish Defence Research Establishment, Stockholm

Ashbourne, A. (2000), *Opening the US Defence Market*, Centre for European Reform Working Paper, Centre for European Reform (CER), London

Aspen Institute (1998), "A New Transatlantic Agenda for the Next Century", Aspen Institute, Berlin

Axelson, M. & James, A., (2000), *The defence industry & globalisation: challenging traditional structures*, FOA User report, FOA (Swedish Defence Research Establishment, Stockholm

Axelson, M. (2001), *Defence industry shift – from manufacturing to services*, FOI User report, FOI (Swedish Defence Research Agency, Stockholm

Axelson, M. and Eriksson, E.A. (2002), *Towards an Industry for Network Centric Defence? Creating information age defence systems,* FOI User Report, FOI, Stockholm

Axelsson, B. and Easton, G. (eds. 1992), *Industrial networks: A new view of reality*, Routledge, London

Bengtsson, L. & Skärvad, P-H. (1988), *Företagsstrategiska perspektiv* [Corporate Strategic Perspectives], Studentlitteratur, Lund

Bengtsson, L., Holmqvist, M. and Larsson, R. (1998), *Strategiska allianser – från marknadsmisslyckande till lärande samarbete* [Strategic alliances – from market failure to learning co-operation], Liber Ekonomi, Malmö

Besanko, D., Dranove, D. and Shanley, M. (2000), *Economics of Strategy*, John Wiley & Sons, Inc, New York

Bischak, G. (1999), "Contending Security Doctrines and the Military Industrial Base", in: *Arming the Future: A Defense Industry for the 21st Century*, Markusen, A. and Costigan, S. (eds), Council on Foreign Relations, New York

Bitzinger, R. (1999), "Globalization in the Post-Cold War Defense Industry: Challenges and Opportunities", in: *Arming the Future: A Defense Industry for the 21st Century*, Markusen, A. and Costigan, S. (eds), Council on Foreign Relations, New York

Bjurström, E. (1999), *Många vägar in i framtiden* [Many paths into the future], A & U Förlag, Stockholm

Bjurtoft, V. (1998), *Joint ventures and their role in European defence industry restructuring*, FOA User report, FOA, Stockholm

Blankenburg, D. (1996), *Business Network Connections and International Business Relationships*, dissertation, Department of Business Studies, Uppsala University

Blankenburg Holm, D., Eriksson , K. and Johanson, J. (1999), "Creating value through mutual commitment to business network relationships", *Strategic Management Journal*

Boren, D. (1999), Introduction: The Context and the Challenge, in: *Preparing America's Foreign Policy for the 21st century*, Boren, D. and Perkins, E. (eds), University of Oklahoma Press, Norman

Boren, D. and Perkins, E. (eds., 1999), *Preparing America's Foreign Policy for the 21st Century*, University of Oklahoma Press, Norman

Boureau, L. (1999), "The need for a European Champion – two French views", in: *Europe's defence industry: a transatlantic future*, Centre for European Reform (CER), London, p. 39-41.

Brown, M.; Coté, O.; Lynn-Jones, S. and Miller, S. (2000), *America's Strategic Choices*, MIT Press, Cambridge.

Brunsson, N. (1996), *Institutionalised beliefs and practices – the case of markets and organisations*, SCORE Report series 1996:6, Stockholm University

Castells, M., (1999) The Information Age: Economy, Society and Culture, Volume 1: *The Rise of the Network Society*, Blackwell Publishers Inc, Oxford

Castells, M., (1999) The Information Age: Economy, Society and Culture, Volume 2: *The power of identity*, Blackwell Publishers Inc, Oxford

Cateora, P. and Graham, J. (2002), *International Marketing* , 11th edition, McGraw-Hill, New York

Center for Strategic and International Studies (CSIS) (1991), *The Atlantic Partnership – An Industrial Perspective on Transatlantic Defense Cooperation*, CSIS, Washington D.C.

Center for Strategic and International Studies (1996), *Making Transatlantic Defense Cooperation Work*, CSIS Panel Report, CSIS, Washington D.C.

Center for Strategic and International Studies (2001), *Technology and Security in the 21st Century: US Military Export Control Reform*, CSIS, Washington D.C.

Center for Strategic and International Studies (2003), *The future of the transatlantic defense community*, Final report of the CSIS Commission on transatlantic security and industrial cooperation in the twentyfirst century, January 2003, CSIS Press, Washington D.C.

Cevasco, F. (2000), *Survey and Assessment – Alternative Multilateral Export Control Structures*,; Hicks & Associates, Inc, Henry L. Stimson Center and Center for Strategic and International Studies (CSIS); CSIS, Washington D.C.

Clark, B. (1999), "More harm than good? The dangers of defence industry consolidation", in: *Europe's defence industry: a transatlantic future*, Centre for European Reform (CER), London, p. 16-21

Coffman, V. (1998), “The Future Of Transatlantic Industrial Partnership”, *Military Technology*, 4/98, p. 49-53.

Collins, D. and Montgomery, C. (1999), Creating Corporate Advantage, in: *Harvard Business Review on Corporate Strategy*, Harvard Business School Press, Boston

Cooper, C. and Argyris, C. eds, (1998), *Encyclopedia of Management,* Blackwell Business, Oxford

Defense Science Board (1999), *Final Report of the Defense Science Board Task Force on Globalisation and Security*, December, Office of the Under Secretary of Defense for Acquisition and technology, Washington DC

Dowdall, P. and Braddon (1992), ”Puppets or Partners: The Defence Supply Chain in Perspective”, in: D.Latham, A. and Hooper, N., eds. (1992), *The Future of the Defence Firm: New Challenges, New Directions*, NATO ASI Series, Series D: Behavioural and Social Sciences, Kluwer Academic Publishers, Dordrecht

Doz, Y. and Hamel, G. (1998), *Alliance advantage – the art of creating value through partnering*, Harvard Business School Press, Boston

Flamm, K. (1999), "Redesigning the Defense Industrial Base," in: Markusen and Costigan (eds), *Arming the Future: A Defense Industry for the 21st Century*, Council on Foreign Relations, New York p. 224-246

Ford, D ed., (1990), *Understanding Business Markets: Interaction, Relationships and Networks*, Academic Press, London

Forsberg, R. (1995), *The Arms Production Dilemma – Contraction and Restraint in the World Combat Aircraft Industry*, MIT Press, Cambridge

Forsgren, M. (1989), *Managing the Internationalization Process – The Swedish Case*, Routledge, London

Gansler, J. (1988), *The Defense Industry*, MIT Press, Cambridge

Garrette, B. and Dussauge, P. (1996), *Les Strategies d’Alliance*, Les Editions d’Organisation, Paris

General Accounting Office (1997), “Defense Trade – European Initiatives to Integrate the Defense Market”, Report to the Secretary of Defense (GAO/NSIAD-98-6), *General Accounting Office*, Washington D.C.

Gholz, E and Sapolsky, H, (1999), “Restructuring the American Defence Industry”, in Sigal, L (ed), *The Changing Dynamics of US Defense Spending*, Praeger Publishers, Westport

Gholz, E. (2002), “Why globalization Will Not Affect the Defense Industry: Political Incentives against Cross-Border Defense Restructuring”, Patterson School of Diplomacy an International Commerce, University of Kentucky, Lexington

Goldstein, J. (2001), *International Relations*, 4th edition, Longman, New York

Granovetter, M. (1992), “The Sociological and Economic Approaches to Labor Market Analysis: A social, Structural View”, in: Granovetter, M. and Swedberg, R. *The Sociology of Economic Life*, Westview Press, Boulder

Grant, C. (1999), ”Transatlantic alliances and the revolution in military affairs”, in: *Europe’s defence industry: a transatlantic future*, Centre for European Reform (CER), London, p. 63-69.

Gustafsson, L. (1988), *Strategiska allianser* [Strategic alliances], Mekanförbundets Förlag, Stockholm

Hammarkvist, K-O., Håkansson, H. and Mattsson, L-G. (1982), *Marknadsföring för konkurrenskraft*, Liber Förlag, Malmö

Hayward, K. (1999), "The globalisation of the defense business", in: *Europe's defence industry: a transatlantic future?*, pp. 8-16, Centre for European Reform (CER), London

Hertz, S. (1992), "Towards more integrated industrial systems", pp. 105-124, in Axelsson and Easton (eds), *Industrial Networks – A new view of reality*, Routledge, London

Hertz, S. (2001), "Dynamics of alliances in highly integrated supply chain networks", *International Journal of Logistics: Research and applications*, Vol. 4, No. 2, pp. 237-256

Hitchens, T. (1999), "America's vital role in European defence industry restructuring", in: *Europe's defence industry: a transatlantic future*, Centre for European Reform (CER), London, p. 49-55.

James, A (1998), *Post-merger strategies of the leading US defence aerospace companies*, FOA User Report, FOA-R—98-00941-170—SE, Swedish Defence Research Establishment (FOA), Stockholm

James, A (2000), *Medium sized defence electronics companies and US defence industry restructuring*, FOA User Report, FOA-R—00-01474-170—SE, Swedish Defence Research Establishment (FOA), Stockholm

James, A (2001:i), "The prospects for a transatlantic defence industry", in: *Between cooperation and competition: the transatlantic defence market*, Schmitt, B. (ed), Chaillot Papers 44, January 2001, Institut d'Etudes de Securité, Western European Union, Paris

James, A (2001:ii), "Defence industry consolidation and post-merger management: Lessons from the USA", *Aerospace Management*, Vol. 1, Number 3, p. 252-267

Jarlsvik H. (1998), *Amerikansk försvarsindustripolitik - The defence-industrial policy of the United States*, FIND Programme, Swedish Defence Research Establishment (FOA), Stockholm

Jensen, M. (2001), *Lower Tier Transatlantic Aerospace and Defense Business Activity – An Analysis of Foreign Firms Acquiring US Aerospace and Defense Subsystem and Component Manufacturers*, John F. Kennedy School of Government, Harvard University, Cambridge

Johansson, J. and Mattsson, L-G. (1994), *The Markets-as-Networks tradition in Sweden*, Reprint series 1994/8, Department of Business Studies, Uppsala University, Uppsala

Keller, W. (1994), *Arm in Arm – The political economy of the world's arms trade*, BasicBooks, New York

Kirzner, I. (1973), *Competition and Entrepreneurship*, The University of Chicago Press, Chicago

Kissinger, H. (1995), *Diplomacy*, Simon & Schuster, New York

Klepsch, E. (1979), *Two-Way Street – USA-Europe arms procurement*, Brassey's, London

Krasner, S. (1978), *Defending the National Interest – Raw Materials Investments and US Foreign Policy*, Princeton University Press, Princeton

Krause, K. (1992), *Arms and the state: patterns of military production and trade*, Cambridge Studies in International relations:22, Cambridge University Press, New York

Laird, R. (1999), ”The inevitability of global defence industry alliances”, in: *Europe's defence industry: a transatlantic future*, Centre for European Reform (CER), London, p. 56-62.

Lindgren, F. (1998), *Interoperability as a Factor in Armaments Collaboration – The relationship between task integration and technical integration*, FIND Programme, Swedish Defence Research Establishment (FOA), Stockholm

Ludvigsen, J. (2000), *The International Networking between European Logistical Operators*, dissertation, EFI, Stockholms School of Economics, Stockholm

Lundmark, M. (2000), *Benchmarking in the Swedish Defence Industry – perspectives in four companies*, Swedish Defence Research Establishment (FOA), Stockholm

Lundmark, M., Axelson, M., Bjurström, E. and Lindgren, F. (2000), *Striving for security of supply – the Swedish model of mutual dependencies*, FIND Programme, FOA User Report, Swedish Defence Research Establishment (FOA), Stockholm

Lundmark, M. (2002), ”The Transatlantic Defense Industry Market: Future Modes of Integration”, in *Breakthroughs*, pp. 11-21, Security Studies Program, Massachusetts Institute of Technology, Cambridge

Lundmark, M. (2003), “Accept the gap”, in: *Transforming NATO Forces: European Perspectives*, eds: Nelson, R. and Purcell, J., pp. 113-135, Atlantic Council US, Washington D.C.

Lundmark, M. (forthcoming, 2003), “La coopération transatlantique de défense et son influence sur l’industrie d’armement. Entre convergences et divergences”, *Géoéconomie*, Paris

Markusen, A. “The rise of world weapons”, *Foreign Policy*, Spring 1999, p. 40-51

Markusen, A. and Costigan, S., eds. (1999), *Arming the Future – A Defense Industry for the 21st Century*, Council on Foreign Relations, New York

Markusen, A. and Costigan, S. (1999), “The Military Industrial Challenge”, in: *Arming the Future – A Defense Industry for the 21st Century*, Markusen, A. and Costigan, S., eds, p. 3-34, Council on Foreign Relations, New York

Markusen, A. and Costigan, S. (1999), “Policy Choices in Arming the Future”, in: *Arming the Future – A Defense Industry for the 21st Century*, Markusen, A. and Costigan, S., eds, p. 409-424, Council on Foreign Relations, New York

Mattsson, L-G. (1969), *Integration and efficiency in marketing* systems, Stockholm School of Economics, dissertation

Mattsson, L-G. and Hultén, S. (eds. 1994), *Företag och marknader i förändring – dynamik i nätverk* [Companies and markets under change – dynamics in networks], Nerenius & Santerius förlag, Stockholm

Military Balance, The (2002), *Edition 2002/2003*, The International Institute for Strategic Studies (IISS), London

Mills, C.W. (1956/1971), *Makteliten* [The Power Elite], Rabén & Sjögren, Stockholm

Mintzberg, H. (1983), *Structure in fives – Designing effective organizations*, Prentice-Hall International, Englewood Cliffs

Mintzberg, H., Quinn, J.B. and Ghoshal, S., (1998), *The Strategy Process*, Prentice Hall, London

Mintzberg, H., Ahlstrand, B. and Lampel, J. (1998), *Strategy Safari – A Guided Tour Through the Wilds of Strategic Management*, Free Press, New York

Molas-Gallart, J. (1999), *The European missile industry*, CRIS Papers 1, Centre for Research in International Security (CRIS), Manchester

Mowery, D. and Rosenberg, N. (1999), *Förnyelsens vägar* [Paths of Innovation], SNS Förlag, Stockholm

Mowery, D. and Nelson, R. eds. (1999), *Sources of Industrial Leadership – Studies of Seven Industries*, Cambridge University Press, Cambridge

Normann, R. (1975), *Skapande företagsledning* [Management for Growth], Bonnier Alba, Stockholm

Oliver, D. (2001), "Current Export Policies: Trick or Treat?", in *Defense Horizons*, December 2001, p. 1-8

Ottosson, J. (1997), "Path dependence and institutional evolution", in: *Evolutionary economics and path dependence*, Magnusson, L. and Ottosson, J. (eds), Edward Elgar, Cheltenham

Owens, B. (2000), *Lifting the fog of war*, Farrar, Straus and Giroux, New York

Pagedas, C. and Weinrod, B. (2001), "A US perspective on US and European defence industry globalisation: Some general observations", in: *Aerospace Management*, Volume 1, number 1, p. 23-34

Pages, E. (1999), "Defense Mergers: Weapons Costs, Innovation, and International Arms Industry Cooperation," in: Markusen and Costigan (eds), *Arming the Future: A Defense Industry for the 21st Century*, Council on Foreign Relations, New York p. 207-223

Perrow, C. (1986), *Complex Organizations – A Critical Essay*, McGraw Hill, New York

Posen, B. and Ross, A. (1996), Competing Visions for US Grand Strategy, in: *International Security*, Vol. 21, No 3 (Winter 1996/97, pp. 5-53.

Rosen, S. et al (1973), *Testing the Theory of the Military-Industrial Complex*, Lexington Books, Lexington

Rice, C. (2000), Promoting the National Interest, *Foreign Affairs*, January/February 2000, p. 45-62

Sapolsky and Gholz, (1999:i), "Private Arsenals: America's Post-Cold War Burden," in: Markusen and Costigan (eds), *Arming the Future: A Defense Industry for the 21st Century*, Council on Foreign Relations, New York p. 191-206

Sapolsky, H. and Gholz, E. (1999:ii), "The defense monopoly", *Regulation*, 1999, p. 39-43

Sapolsky, H. (2001), "Buying Weapons Without an Enemy", *Breakthroughs*, Spring 2001, Vol X No.1, p. 27-35, Security Studies Program, Massachusetts Institute of Technology, Cambridge

Scharpenberg, J. (1997), "Transatlantic competition and European defence industries: a new look at the trade-defence linkage", *International Affairs*, 73 1 (1997), p. 99-122.

Schumpeter, J. (1943), *Capitalism, socialism and democracy*, Harper & Brothers, New York

Selznick, P. (1957), *Leadership in Administration*, Harper and Row, New York

The Henry L. Stimson Center and Center for Strategic and International Studies (CSIS) (2001), "Study Group on Enhancing Multilateral Export Controls for US National Security: Final Report", Washington D.C.

Strandqvist, K. (forthcoming dissertation), *Flyg till varje pris? – Om tillkomsten aven svensk flygindustri* [Airplanes, no matter the price? – About the creation of a Swedish airplane industry], Stockholm School of Economics, Stockholm

Swedberg, R. (1994), *Schumpeter – Om skapande förstörelse och entreprenörskap* [Schumpeter – About creative destruction and entrepreneurship], Ratio, Stockholm

Thorelli, H. (1986), "Networks: Between Markets and Hierarchies", *Strategic Management Journal*

Trubowitz, P. (1998), *Defining the National Interest – Conflict and Change in American Foreign Policy*, The University of Chicago Press, Chicago

von Vorys, K. (1990) *American National Interest*, Praeger, New York

Wieczorek, N. (1997), "Transatlantic Defence Trade and Changing Defence Markets", Draft general report, North Atlantic Assembly

Williams, C. (2001), *Holding the Line – US Defense Alternatives for the Early 21st Century*, MIT Press, Cambridge

Zakheim, D. and Weinberger S. (2000), *Toward a Fortress Europe?*, Center for International and Strategic Studies (CSIS), Washington D.C.

Zakheim, D. (2001), *Export Controls and Military Planning*, Study Group on Enhancing Multilateral Export Controls for US National Security, Working Paper No.7, The Henry L. Stimson Center, Washington D.C.

Articles, speeches, www etc.

Adams, G. (2001), "European Security and American Engagement", *Defense News*, September 3-9, 2001

Agüera, M.(2002), "Nato Turns Focus to 21st Century Role – Shifts Away from Post Cold-War Expansion", *Defense News*, February 25 – March 3, 2002

Aerospace Industries Association (AIA), (2001), *Explanatory Notes (Proposed changes to the export control system)*, Press briefing from AIA, March 7, 2001

Barrie, D. and McKenzie, C. (2001), "EU Struggles With Rapid-Reaction Capabilities", *Defence News,* November, 2001

Barry, C. (2001), "US, Europe differ on defense strategies", *Philadelphia Enquirer*, February 5

Bender, B. (2000), "USA to expedite NATO requests for key weapons", *Jane's Defence Weekly*, 26 July, 2000

Celarier, (1998), "Bear eyes Europe – Bear Sterns look at defense merger market", *Euromoney*, May 1998, p. 43-45

Ciardello, V. (2000), "*Mergers, Acquisitions and Foreign Investment – Implications for Acquisition Managers*", presentation April 3, 2000, at 2nd PEO/SYSCOM Commanders' Workshop

Coffman, V. (2000), "*The Defense Industry Today: Implications for Transatlantic Cooperation*", remarks made before the Atlantic Council of the United States and The Centre for European Reform, May 4, 2000,Washington D.C.

Defense News (2000), "Be bold Mr. President", editorial, November 20

Defence Systems Daily, March 1, 2002, *EADS signs sourcing MoUs with Thales and Honeywell*, http://www.defence-data.com/current/page13745.htm

Economist (1995) "A Eurogun is a tricky thing", April 8th

Economist (1997) "Linking Arms", June 14th

Economist (1999), "At daggers drawn", May 8th

Economist (1999), "Transatlantic aerobatics", June 5th

Eland, I. (2001), "The Bush military blueprint", *St. Louis Post-Dispatch*, April 17

Gehrmann, W. (2002), Scharpings Luftnummer – Der Eurofighter richtet ein desaster im Haushalt des Verteidigungsministeriums an, *Die Zeit*, Wirtschaft 10/2002

Gholz, E. (1999), "Wall Street Lacks Realistic View of Defence Business", *Defense News*, Dec 20, 1999

Gholz, E. (2000), "The Irrelevance of International Defense Industry Mergers", *Breakthroughs*, Spring 2000, Vol IX No.1, p. 3-11, Security Studies Program, Massachusetts Institute of Technology, Cambridge

Hargreaves, A.R. (2001), "European Defence Integration in the Global Context", UK chairman of EADS, presentation at The Defence Procurement Agency, UK, January 2001

Hayward, K. (2000), Society of British Aerospace Companies (SBAC), presentation given at a conference, "Reshaping business strategies in the European defence industry", in London, January, 2000

Hayward, K. (2003), "Defence industry globalisation", Society of British Aerospace Companies (SBAC), presentation given at conference, "Histoire de la coopération européenne dans l'armement") at École Militaire, Paris, February 28, 2003.

Isnard, J. (1997), "Washington veut conquérir les marches de l'armement en Europe Centrale", *Le Monde*, July 1, 1997.

Koch, A. (2001), QDR aims to transform US forces*, Jane's Defence Weekly*, August 22, 2001

Loeb, V (2001), Democrats Grill Defense Nominees On Arms Control, *Washington Post*, June 6, 2001

Meilinger, P. (2001), The US Defense Review: Forward to the Past?, *Defense News*, June 4

Myers, S. and Dao, J. (2001), Bush's plans for the Pentagon include base closings and money for missile defenses", *New York Times*, February 28

Pfaff, W. (2001), Atlantic currents flow toward disconnection, *International Herald Tribune*, February 8

Ratnam, G., Sherman, J. and Svitak, A., (2001), Bush Opens Arsenal to Mideast – Pakistan, Oman, Egypt, UAE Could Receive Long-Awaited Jets, Spare Parts from US, *Defense News*, September 24-30, 2001

Ray, N. (2001), *The alliance and the challenges facing the Euro-Atlantic community,* retired president of Raytheon International, presentation in Bled, Slovenia, October 5

Richburg, K. (2001), After 100 days, Europe divided on Bush, *Washington Post*, April 29

Ricks, T. (2001), Strike Force, Missile Defence split US allies, *Washington Post*, February 5

Ricks, T. and Pincus, W. (2001), Pentagon plans major changes in US strategy – Rumsfeld envisions shift in size, focus of military, *Washington Post*, May 7

Safire, W. (2001), Octogenarian futurist, *New York Times*, April 16

Sapolsky, H. and Gholz, E. (1997), Indefensible Defense Costs, *The Wall Street Journal*, July 11, 1997

Shepherd (1999), "Tapping Rumsfeld's defense savvy", *Global Finance*, Sep. 1999

Sherman, J. and Svitak, A. (2001), Attacks Reshape Defense, *Defense News*, September 22, 2001

Singer, P.W. (2001), Who's the Big Winner? – All Services Likely to Reap Rewards, *Defense News,* December 17-23, 2001

Sloan, S. (2001), The US and Europe need new marriage vows, *Wall Street Journal Europe*, February 21

Sparaco, P. (1999), "Security concerns impede alliances", *Aviation Week & Space Technology*, April 26,1999

Strömberg, H. (2002), "George Robertson: 'Europa är en military pygmé'" [Europe is a military pygmy], *Försvarets forum*, 1/2002

Svitak, A. (2001), State Dept. Passive on License Reforms, Officials Say, *Defense News*, Feb. 5, 2001

Svitak, A. (2001), Report: Radically Overhaul Exports Oversight, *Defense News*, March 19, 2001

Svitak, A. (2001), US Execs: Export Rules Stall US-European Teams, *Defense News*, March 19, 2001

Svitak, A. and Sherman, J. (2001), Defense Reviews Delay Trade Reform, *Defense News* August 20-26, 2001

Svitak, A. (2001), US Export Reforms Stalled, Not Forgotten, *Defense News*, December 17, 2001

Svitak, A. (2002); Sweden, US in Trade Deal; *Defense News*, 28 January, 2002

Svitak, A. (2002), State commits to export reform, *Defense News*, 18-24 February 2002

Szandar, A. (2001), US export controls mean the two-way street is more one-way than ever, *Interavia, Business & Technology*, No. 639, Feb 2000

Volkman, A. (1999). Speech at Les Echos Conference on Restructuring & Transatlantic Links, April 15, 1999. Volkman was then acting Deputy Under Secretary of Defense in the US.

Weston, J. (1996), "The European Defense Industry in the Global Market – The Challenges of Defense Consolidation", *Center for Strategic Decision Research* (CSDR), Menlo Park, California. www.csdr.org/96Book.htm

Williams, C. (2001) Redeploy the Dollars, *New York Times*, February 16

Zuckerman, M. (2001), Rethinking the next war, *US News & World Report*, March 5

9 *Appendices*

Appendix I Definitions

A smaller number of concepts used frequently in the report are here discussed and defined: market vs. industry, defence-related materiel, defence programs, collaboration, industrial networks, market position, co-opetition and institutionalisation.

Difference between market and industry

In this report a market is constituted by the interaction and the exchanges that occur between the actors that are involved. Actors are apart from companies also government actors of different kinds. Markets are usually defined by geography, product, customer or technology. In this case the geographical focus is between the US and Europe[147], the product focus is defence materiel, the customer focus is governments buying for their armed forces but no technology focus is applied.

An industry is referring to the actual corporate entities that participate in the exchanges concerning defence-related materiel. "Industry" is a device that enables us to ignore the interdependence between different commodities and actors, so that adjustments within the industry can be assumed to be isolated from the changes occurring outside it.[148] Industry is thereby a simplification of the market exchange, limited to the corporate map.

Defence-related materiel

It is not possible to draw a clear line on the outer boundary on what goods and services should be seen as defence materiel. Some products and services are only applicable to defence uses, but otherwise many products and services are used both for defence uses and in other markets. The common denominator for defence-related materiel is that they are acquired for defence uses, and the origin is not in focus.

Programs

Companies that engage in large industrial projects, often with other partners in consortia, are in the defence industry referred to as being engaged in programs. A program is in this context a major development of systems and competencies into a larger solution for the customer. Generally, this could be in the form of creating an airport, a larger ferry, a train system, a hydro-electric dam or a fighter airplane. The primes that are discussed in this thesis achieve their identity as a prime by being able to manage such big programs, or at least being one of the few companies that co-ordinate the whole package.

Collaboration

According to some basic capitalistic assumptions, every company strives to become a monopolist in their line of business. Companies do however co-operate. Axelrod (1984) introduced a "Co-operation Theory", which discusses why selfish actors that aim to pursue their own self-interest – under no central authority – choose to co-operate. In short, the two key requisites for co-operation to thrive are that the co-operation must be based on reciprocity and that the shadow of the future is important enough to make this reciprocity stable. Co-operation can be defined as two or more actors that choose to pursue a similar or common goal. Co-operation is in this text used as a synonym to collaboration.

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[147] Europe is used as a wider term, but points to the most important defence-industrial nations (United Kingdom, France, Germany, Italy, Sweden and Spain – in that order). Since the focus on industry is on *primes* (the small number of large companies that can integrate larger defence systems – discussed later in the thesis), the actual countries that are most concerned are United Kingdom, France and Germany.

[148] Kirzner (1973), p. 119-120.

Industrial networks

Business relationships do not develop in isolation, but are connected to one another and can fruitfully be studied within a context of connected network relations and business relationships. Mutual dependent relations are elements in wider organised network structures[149]. Similarly, Granovetter (1992) has stressed that it is important to avoid slipping into dyadic atomisation; i.e. viewing dyadic relationships as if they were isolated from other relationships. Network theories claim that a company's strengths and competitiveness is dependent upon its relations to its customers, suppliers and competitors. The company's network position is a sum effect of the impact of these relations.

Market position

There are many different ways for companies to achieve or reach a stronger or more favourable market position. The most straightforward way is to simply sell more, thereby achieving a larger market share (assuming a total market that is not growing). Outside of this, there are many different corporate strategies in order to improve (or maybe just defend) the company's market position. A company engages in *positioning* when it is attempting to improve its market position. "Positioning is the act of designing the company's image and value offer so that the segment's customers understand and appreciate what the company stands for in relation to its competitors".[150] This refers primarily to a company that sells consumer goods for private consumption. In the defence materiel market, the customers are very much aware of the products and are able to test them. The main thing in the defence market, characterised by a diminishing number of companies, is to improve the market position by strengthening the market presence, i.e. to increase the probability to sell or get a share of programs.

Co-opetition

Co-opetition is the label for when companies on a competitive market co-operate in order to respectively achieve better competitiveness, and they are at the same time competitors in other respects, markets or products. Co-opetition can take many forms, it applies to all of the below modes of integration. Co-opetition is frequent in all industrial sectors. In order to create co-opetition, some kind of co-operative arrangement must be agreed upon. If this agreement does not include pooling of resources, it can also be labelled *agreement-based*. If it pools resources, it is a *joint venture*.[151]

Institutionalisation

Institutionalisation refers to that organisational behaviour not solely rests in its own organisation, formal structure and its announcement of goals and purposes. Organisational behaviour is better understood – according to the institutional view – in informal groups, conflicts, dependencies on outside groups, interaction with its environment and a pattern of behaviour between the organisation and its environment. The environment consists of the actors, institutions, suppliers, regulations, alliances, striving for power and influence and so forth that constitute its outer reality. If a company or an industry is heavily institutionalised, it is difficult to get inside the networks or get access to the crucial processes and the context is difficult to change. Values that steer interorganisational behaviour are created, changed and

[149] Hammarkvist, Håkansson and Mattsson, 1982; Achrol, Steve and Stern, 1983; Thorelli, 1986; Håkansson, 1989; Ford (ed), 1990; Larson, 1992; Mattsson and Hultén, 1994; Axelsson and Easton, 1994; Anderson, Håkansson and Johanson, 1994; Blankenburg Holm, 1996; Blankenburg Holm, Eriksson and Johanson 1999, Lundmark et al, 2000.
[150] Kotler (1988), p. 308
[151] Bjurtoft, 1998, p. 9-10.

reinforced through organisational processes. The institutional school stresses that organisations and industrial contexts can get a life of its own, which steers more than the people who, presumably, are in control. In order to thrive in an institutionalised context, the administrative leader must become a "statesman". [152] In the context of this thesis, the institutionalisation refers to how defence companies are strongly institutionalised into national contexts and national actors, after decades of classified and protected interaction – often reinforced by a patriotic connotation. It is naturally difficult for a foreign company to enter such a context. In fact, an often used example of institutionalisation is the Military-Industrialised Complex (MIC), discussed later in this thesis. The organisation can be seen as having an inner structure and an outer mission. The social values of the outer mission must permeate the organisation and lead its inner social values. Thus, the organisation must be synchronised with its environment and the role it plays in it.[153] Organisations are seen as being deeply embedded in wider institutional environments which suggests that organisational practices are often either direct reflections of, or responses to, rules and structures built into their larger environments. The assumption (with an institutional view) is that organisations exist in socially constructed communities composed of similar organisations.[154] The organisation of the market thereby creates a norm for interaction and relating to each other, and the more institutionalised it is, also make changes of behaviour and participating actors more difficult.

[152] Perrow (1986) whose discussion on the institutional school (ch. 5) rests largely on Selznick (1957).
[153] Normann (1975), p. 49.
[154] Cooper/Argyris, *Encyclopedia of Management*, p. 301-3.

Appendix II List of interviews

The respondents are presented in the chronological order of the interviews.

Company/organisation	Position	Field of expertise	Number of persons
Massachusetts Institute of Technology, Center for International Studies (CIS)	Director	Arms proliferation	1
Massachusetts Institute of Technology, Security Studies Program (SSP)	Professor of Public Policy and organization, Director of SSP	Defence industry consolidation, defence innovation, force structure	1
Massachusetts Institute of Technology, Security Studies Program (SSP)	Senior Research Fellow	US defence budget	1
Swedish Embassy, Washington D.C.	Minister for Economic Affairs		1
Swedish Embassy, Washington D.C.	Defence Attaché + asst D.A.		2
University of Kentucky, Patterson School of Diplomacy and International Commerce	Assistant Professor	Defence restructuring, military innovation	1 (several occasions)
French Embassy, Washington D.C.	Adjoint Defence attaché	Defence industry co-operation	1
Atlantic Council	Researcher	Defence industry consolidation	1
Harvard University	MBA student	Author of exam paper on transatlantic consolidation	1
Massachusetts Institute of Technology	Principal Research Initiative	Lean Aerospace Initiative (LAI)	1
Hicks & Associates	Vice President	Corporate acquisitions and mergers, export control	1
Science Applications International Corporation (SAIC)	Project director, Strategic Assessment Center		1
The Henry L. Stimson Center	”Study Group on Enhancing Multilateral Export contriols for U.S. National Security”	Export control	2
Institute for Defense Analysis (IDA)	Research staff member, strategy, forces and rersources division	Defence restructuring, defence collaboration, govt regulations	1
Teal Group	Senior Analyst	Defence and defence industry	1
Pentagon, Office for Acquisition, technology and Logistics	Director, Financial and economic analysis	Defence collaboration, export control	2
Aerospace Industries Association	Vice President	Govt relations,	1

	International Affairs	lobbying, defence restructuring and collaboration	
George Washington University	Professor, International Affairs	Defence industry integration	1
General Accounting Office, Acquisition and Sourcing		US government policy for export control, mergers and acquisitions, and defence collaboration	3
British Embassy, Washington D.C.	Defence Attaché + staff	*10.*	3
Northrop Grumman	Analysis Center	Strategic analysis	5
Charles River Associates	Director of Aerospace and Defence Consulting	Defence restructuring, Corporate mergers and acquisitions	1 (several occasions)
Naval War College, Newport, RI, Strategic Research Dept		Defence industry transformation, Naval procurement	3
Smiths Industries, Aerospace	Vice president, government relations		1
The Carlyle Group	Chief Financial Advisor		1
GenCorp	Director, International marketing and sales		1
Center for Strategic & International Studies (CSIS)	President and CEO (previously 3rd in Pentagon)	Defence, export control, arms proliferation	1
Lockheed Martin	Vice President, Plans and Analysis		1
Lockheed Martin	Director, Western Europe		1
Council on Foreign Relations (CFR)	Professor, Director for Planning program		1
German Embassy, Washington D.C.	Counselor, Defence Research and Engineering	Defence collaboration, industrial affairs	1
Boeing	Manager, JSF Business Development		1
Raytheon	Director, International Policy and Relations		1
Boeing	Senior Principal Technical Specialist		1
Armed Forces	Colonels in the US services, at MIT		4
US Congress	Advisor to		1

	Congressman		
US Senate	Advisor to Senator		1
Massachusetts Institute of Technology, Security Studies Program (SSP)	Associate Director SSP	Force structure	1

Appendix III Sugestions for further research

An obvious suggestion is to investigate the drivers and inhibitors on the European side.

The extent of integration on levels below the prime level.

Smiths industries (from the UK) has achieved a strong US presence without much publicity at all. What has their strategy been? (Smiths is not a prime, but an interesting case).

A thorough overview and assessment of the actual integration events that have occurred and this could also be compared with other industries in order to evaluate how limited, or not limited, the transatlantic defence industry integration really is.

To map the teaming arrangements, and analyse what kind of integration they create.

What is the success of different modes of integration – how profitable, success rate from idea to actual production, how much integration, how much has lead to more co-operation in other programs/projects?

The typology of modes of integration could be developed further.

Transatlantic R&D programs is another aspect of integration, but such information is likely to be classified. In relation to this, the degree of transatlantic demonstrator co-operation, which can be seen as a precursor of industrial integration to come.

How much corporate integration has been created by project joint ventures? Appears to insufficiently researched. Do they normally lead to further collaboration?

Further develop the theoretical concepts introduced in this report: political industrial market, transatlantic wedges and structural tension.

Create a more elaborated model for how government strategy interacts with corporate strategy in a context as in this report

Is this much or is this little integration that has been observed in the transatlantic defence industry? How is it in comparison with other market or industries? Other theories concerning this? The conclusion is that there is not much. Maybe this is because so many people keep stating it. A comparison with other industries or markets would bring more light to this.

Are there developments that are good for industry but bad for the state, and vice versa?

Appendix IV Extended discussion on drivers and inhibitors

The findings described under each driver are in most cases not referred to any single respondent (interviewed person). The charts are an accumulative, aggregate effort, where the different drivers were gradually refined and increased in numbers. The extensive list of respondents and literature should help to validate the presented model and the analysis.

Each driver and inhibitor is described briefly and out of the angle of the party that advocates it, with no more interpretation and analysis than what is needed in this chapter (the analysis is presented afterwards).

Government drivers

- Interoperability[155] within NATO and with allies

NATO is one important forum for the US to act out its security interests and NATO is the primary instrument for co-operating with Europe in military and security policy issues. In order to make such co-operation possible, interoperability is said to be[156] crucial.[157]

- Cohesion of NATO

The US has certain interests and obligations to Europe. The NATO strength is crucial for the US in order to fulfil these goals. In order to maintain a strong common base for co-operation and stronger momentum in the future, it is important that there are strong links and channels for communication, transfer and exchange (be it information, technology or products/services) in the transatlantic interface. By creating industrial links, a stronger foundation for future NATO strength is created.

- Access to markets for companies – export possibilities

The US is interested in a strong and competitive domestic industrial base. Such an industrial base is beneficial for the interests of the US. If the US defence industry is present in Europe, it gets more business, and can also extract technology transfer and inspiration from its European counterparts. There is also a straightforward incentive to help US companies sell abroad, thereby creating US jobs and strengthening these companies. A strong defence industry is seen as being in the national interest; it strengthens the options for the US and gives it a stronger position towards the rest of the world. The argument used by higher department officials have been that the allies must be interoperable with the US and also simply that the government wants to help its companies - as any other state would do.[158]

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[155] Interoperability is an often used argument for integration. On a scale from low to high task integration, *compatibility* is when the capability of two or more entities can function without mutual interference. A definition of *interoperability* is that it is achieved when two items or agents can operate effectively together. *Interchangeability* exists when two items or agents possess such characteristics that make them equivalent in performance and can be exchanged without altering the items themselves. *Commonality* means using identical equipment and does thereby facilitate total co-functioning between materiel systems. Interoperability in the everyday debate comprises all four forms. The common denominator of the debate is that interoperability (as the word is used) concerns the ability of armed services of different nations to co-operate militarily. Interoperability could be seen in three dimensions: interoperability between systems, services and allies. See Lindgren, 1998.

[156] "Said to be", since NATO officials and numerous committees have been working with this issue for decades, without much actual progress.

[157] Interoperability was revealed as not being especially developed in the Gulf War, Kosovo and Bosnia. If the concerned nations have a true aim to operate jointly in coalitions, the issue of interoperability will remain the most popular argument. However, if the institutional resistance persists, it might remain just a slogan.

[158] See Bender, *USA to expedite NATO requests for key weapons*, Jane's Defence Weekly, 26 July, 2000. It was striking that several of the programs or platforms (as described by this article) that were offered to allies were

- RMA and NCW

The Gulf War in 1991 revealed certain capabilities within the US doctrine that created clear advantages for the allied forces (which in effect mostly was based on US technology). These new capabilities showed that innovations and new solutions had given the allied forces clear domination in information processing and battlefield awareness. These dramatic new insights were collectively labelled as being part of RMA – Revolution in Military Affairs.[159] The term RMA has according to some writers become outdated, and another newer term that encompasses a broader spectrum is NCW - Network Centric Warfare[160], and the latest term is Transformation.

In order for a continued development towards joint capabilities within NATO, it is claimed to be important that the larger developments of RMA are co-ordinated within NATO, since it has to do with such fundamental and explorative ventures.

During the combined or coalition operations with the US involved - during the Gulf War and later on – it has been apparent that the US is way ahead in certain technologies and also has a much wider breadth in RMA. This has created a long-lasting and strong discussion about Europe having to decrease the technological gap compared with the US.

- Maintain peace/security

The two world wars in the 20th century originated in Europe and the epicentre of the US-Soviet confrontation was along the Iron Curtain in Europe. After WWII, the US wanted Europe to stand united with the US against the Soviet Union. The European Community – later the European Union - started out from initiatives in order to keep Europe united and strong through economic co-operation within the coal and steel industries. Co-operation is said to foster peace. By creating collaborative bonds between the US and Europe, the propensity to fight or disagree within that group is decreased. A strong, united relation between the US and Europe also produces a synergetic effect – the joint impact of such an alliance stabilises its borders as well as within Europe. This argument was clearly weakened due to the Soviet collapse, but is still claimed to be important.

- DCI

The aforementioned capability gap that is claimed between the US and NATO Europe has initiated a specific program/initiative within NATO called DCI – Defence Capabilities Initiative [161] The US and the other NATO members have obligations to NATO and to DCI. Therefore they must work towards closing the gaps identified in DCI. DCI is however stated so ambitiously that a fulfilment of all of the DCI goals is not credible. Nonetheless, the member states have obligations to these goals.

- R&D cost sharing

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programs with insecure budgets and prolonged life. If programs can get a nimbus of being multilateral and creating interoperability and splitting R&D costs between countries it is – politically – much harder to kill.

[159] Owen, 2000

[160] RMA is more of a way of using existing sophisticated sensors and information processing equipment and systems in the battlefield in order to achieve superiority towards your opponent, for example in precision and decision speed. The three main components of RMA are usually labelled decision superiority (DS), dominant battlespace awareness (DBA) and precision engagement (PE). NCW is somewhat more philosophical and is more geared towards the network architecture of systems, and how systems are connected to each other – system of system integration. NCW could very well encompass RMA, but NCW can be seen as a wider concept than RMA. For RMA, see Owens, 2000 *(+ Lebicki+Grant).* For NCW and system of system integration, see Axelson and Eriksson, *Towards an Industry for Network Centric Defence? Creating information age defence systems* (2002).

[161] More references*!* Andreani, Bertram, Grant + Mind the Gap)

There has for years been a heated debate concerning the different levels of R&D spending on the two sides of the Atlantic Ocean. The US spends more than all of Europe together. The US spends four times as much as NATO Europe on R&D. Europe spends 60 % of the US spending on defence, but does not receive 60% of the capabilities.[162] The US therefore has a sound argument to create transatlantic links, so that the US and European states can co-operate and that the European states within these co-operations can take more responsibility for R&D spending.

- Secure US leadership

There has been several different initiatives in Europe in order to co-ordinate European spending and European initiatives in defence spending. By doing this, this weakens to some extent the US control over the developments in Europe concerning defence spending. By creating more and stronger arms co-operation and arms development in a joint, transatlantic setting, the US hegemony is secured.

- Technology transfer

The transatlantic technology transfer is generally seen to almost entirely go in one direction – from the US towards Europe. This is true to a high extent. It is not correct to believe that all interesting and new technology originates from the US. European companies and states do have a lot to offer the US.

The case for promoting a technology transfer towards Europe can be stated in three ways. First of all, a technology transfer towards Europe enhances or strengthens the European military capabilities. Secondly, some claim that by agreeing to technology being transferred to Europe, European companies become more competitive, and that puts pressure on the US companies to compete with the Europeans. Thirdly, the technology transfer can help European companies to innovate on a more even level in areas where the US is seen as having a decisive advantage towards Europe – thereby indirectly decreasing the technology gap.

Technology transfer is more and more seen as a tiered structure, where different NATO members receive different treatment and that "friends"[163] - as for example Sweden[164] – can be included on a prioritised level where it receives better technology transfer than several NATO members. The US is through its initiatives *Declaration of Principles* (DoP)/*Globalisation talks* and *Defense Trade and Security Initiative* (DTSI), and to some extent also the *International Traffic in Arms Regulations* (ITAR).[165] I claim that DTSI and DoP has partly been used by the US in order to decrease the impact of LoI/Framework Agreement in Europe – a sort of divide-and-conquer strategy. If the US can deal with each state bilaterally, the potential impact of a united Europe is lessened. On the other hand, the argument for increased state co-operation is sound and strong. The latter, more positive argument does not in any way falsify the strength of the former, more conspiratorial hyporeport.

- Co-ordinated control on technology

The spread of sensitive defence technologies is a matter of fundamental concern to the US. "Good technology is not supposed to get to bad people", is an argument that is often used in order to argue in favour of strict regulations for control of technology. By being a part of a transatlantic context and thereby influencing and controlling it, the US can limit the unwanted technology spread.

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[162] Harris, presentation, October 5, 2001, Bled, Slovenia
[163] The US has increasingly converted into stating that they collaborate with "friends and allies", not just allies.
[164] Svitak (2002); Sweden, US in Trade Deal; *Defense News*.
[165] DoP is administered by Department of Defense and the latter two by State Department. For a deepened discussion concerning these initiatives, see Adams:i, G (2001).

- Avoid fortresses

In the aftermath of the discussions about a technology gap between the US and Europe, as well as the existence of unilateralist and/or isolationistic tendencies in the US and European consolidating initiatives; a discussion arose concerning the creation of fortresses. Due to these divergent trends, the US on its side is seen to be enforcing a Fortress America and Europe a Fortress Europe. These fortresses are then expected to have different priorities and defence systems, creating a divergent force between the US and Europe. Such tendencies are unwanted in the view of increased integration. By engaging in a transatlantic collaborative interface, such tendencies are expected to be lessened.

- Sustain competition

There is an anxiety both in the US and in Europe that the ongoing defence industry consolidations will create too few and too large companies in order to sustain a sound and true competition. That would be to the disadvantage of nations – the oligopoly would create worse conditions for procurement. Such competition woes can relate to either side of the Atlantic Ocean. By creating or fostering transatlantic ties, there is a push towards breaking such isolated and dysfunctional oligopolies.

- Economies of scale

It is in the US government's interest that its companies can sell larger numbers of a product, since that divides the R&D costs over larger numbers and that it makes the US company more profitable and competitive. If such a foreign sale is taken into consideration at an early stage, the US government can exert pressure on the US company to take that into the budget and decrease the unit price for the US government.

- Risk sharing

There is an inherent risk in engaging in major projects. The larger the uncertainties, the greater the risk. In defence projects, there is usually an element of coming up with new solutions or doing technology leaps. Failures in such large endeavours can cause enormous costs and loss of public appeal. By pooling resources and initiative with other countries and/or companies – e.g. in a transatlantic set-up – the risk of failure is spread between many actors. It is also reasonable to assume that the inclusion of many actors might create a more advantageous diversity of solutions.

Government inhibitors

- Control technology transfer

There are strong forces in the US that advocate a high level of control over technology transfer. The system could be said to be suspicion-based, that everything is treated as if it probably will go wrong if you do not control it closely. Practically all countries are treated the same in the licensing procedures that are mandatory today – regardless if it's Germany or China. This is how the system is today. Therefore, there is an argument for having a strict and closely monitored technology transfer process. The main advocates for this are substantial parts of Congress and it is also represented by the vested interests that reside in the State Department bureaucracy. By controlling this process, you also have a strong influence on the arms development.

- Avoid good things to bad guys

This resembles the previous argument, but it has a wider grasp. In the previous argument, there is a stricter and narrower limitation that might exclude even the UK. In this argument, the issue is to see to that weapons do not get to states or actors that more clearly are potential

adversaries to the US (e.g. al-Qaida, Libya, Iraq and North Korea). This and the previous argument are not contradictory, the ones who state the previous argument definitely state this one. Avoiding good things to bad guys is less paranoid than the previous. Advocates for these arguments are probably everyone in the US, an important aspect is if you put this argument as the most important or not, and also what kind of defence materiel you want to restrict. Restriction suggestions have in the interviews ranged from computers and genetic knowledge to air-to-air missiles (nuclear technologies were not mentioned, but that was probably seen as self-evident). There is also an important aspect on how restrictive the US is supposed to be with the restricted items.

The states mentioned above ("states of concern", previously "rogue states") are not geographically situated so that they could be seen as belonging to the transatlantic context. Large US fractions – probably a majority of the people involved in the defence trade – are concerned with the defence materiel export record of France, Germany and Italy – the 2nd to 4th biggest arms producers in Europe – since they have exported to and collaborated with states that the US disapproves of[166]. By exporting defence materiel to France, Germany and Italy, the opposing parties claim that that could mean that the technologies or the defence materiel could come in the possession of those unwanted states.

- Protect US jobs

There are protectionist fractions that see as their main goal to protect US jobs. Several Senators and congressmen are very closely linked to their constituencies and they see as an important goal to see that any defence-related jobs in their constituency must be protected. Strong lobby groups push the same issue, e.g. unions and trade organisations. An effect of the strong links between congressmen and their constituency is that major programs get spread out to very many states, areas or cities that have been supported by their congressman.

- Protect US technology base

There is a concern by some parties that the US technology base must be protected, and that requires that the defence industry must be viewed as, and protected as a national asset. The US defence technology base should therefore be kept as diverse and big as it presently is in order to make certain that the US has many options, some would even go as far as saying as many options as possible. The defence industry is in this view an important cornerstone of the US global security posture – it gives the US a spectrum of possibilities, doctrinary flexibility and it is something that gives the US a security policy momentum.

- Non-proliferation

This argument borders the first and the second arguments. Some claim in using this argument that e.g. no air-to-air missiles at all should be distributed to any other country, thereby keeping the missiles purely US-held - that the source codes in the missile black boxes still are off-limits is not seen as sufficient. Others claim that the US should be much more restrictive in selling as many airplanes as they do. A fundamental argument in this respect is that no US weapon, platform or technology shall ever be turned against the US.[167] This argument connects to a striving to reduce or eliminate uncertainties.

- Protectionism in general

It can be argued that a sum effect, or a common denominator, of many of the inhibiting factors emanates from a tendency in the US to act chauvinistic and unilateral. A quick study

[166] According to US sources, France has collaborated with China, Germany with Iraq and Italy with Libya.
[167] See Forsberg (1994) and Keller (1995), + interview with Keller (2001).

of the US context (by a foreigner) reveals that everything is seen out of what is in the US interest, and that the US uses the leverage that its dominant global position gives it.

- Rigidity of export control context

The export control system in the US is an important instrument for controlling the technology transfer as well as restricting the spread of arms. The system also has strict control over how and to what extent US companies are allowed to collaborate with or even talk to European counterparts. The export control context becomes a strongly inhibiting factor, by some seen as a problem, by some as a sound restriction that corresponds with and safeguards the US interests.

Corporate drivers

- Access to markets

The most commonly mentioned driver is that companies want more business. The European markets have traditionally been protected due to nationalistic concerns, the US companies have a lot to offer - both as partners and as sellers - and therefore this is a very straightforward driver. It is difficult for US companies to get access to the European market (and vice versa), and an actual transatlantic link of any kind is a step towards increased access to the European market. Market access can be achieved directly through sales, or a potential for better market access might be achieved through MoU:s, alliances or joint ventures and from the outcome of mergers and acquisitions.

- Improves global position

Larger defence industries that do not sell solely to their "home" government must continuously develop their global position. This is achieved by having a solid and rewarding network position that make them attractive and competitive. If a company enlarges its business contacts by selling to Europe or collaborating with European companies – its position is improved. The company gets more options and gets a competitive advantage (in this respect) compared to the competitors that do not have a transatlantic link.

- Access to programs

US companies used to a greater extent than today be able to sell entire systems to European states.[168] Nowadays, buying a system wholesale from the US is not the preferred present solution by most European states. European states prefer to purchase major defence materiel in multilateral set-ups, thereby ensuring that the domestic defence industry gets a part of the production and that they also achieve the strongly coveted transatlantic link. By having a presence in Europe through some kind of collaborative venture or ownership, US companies improve their chance of becoming a part of such a multilateral set-up. Each succeeded participation in a multilateral project strengthens the European presence and the possibilities for more programs. The US company learns the market and gets a stronger network position.

Getting a part of a European program might also be the only possible way to increase the sales; the company's US market position might be locked or there might not be any programs under way in the foreseeable future.[169]

[168] Sapolsky, interview.
[169] The approach towards transatlantic links and the US defence industry is quite different in different countries. In e.g. Netherlands, Belgium, Denmark and Norway, there is not much defence industry to safe-guard. Therefore the governments in these countries can strictly put emphasis on getting the best value for money.

- Maintain prime position

The defence market is characterised (among other things) by over-capacity, a decreasing number of major programs and a shrinking number of prime contractors. European companies hope to sell to the US, and US companies hope to sell to Europe. Since the number of programs has been decreasing and probably will continue to decrease, each achieved prime project position makes the other competitors worse off. Presently, the market for manned tactical aircraft contains too many models and some are claimed to be outdated on arrival (especially Eurofighter is sometimes accused of this[170]). The Joint Strike Fighter (JSF) is a truly pivotal case – both for the US industry structure and for the future of the global aerospace industry.[171]

- Economies of scale

US companies in most cases initiate a project or a system due to orders from the Services. By selling more to Europe, the production numbers are increased and the R&D costs can be divided among several states and thereby several defence budgets.

- Get around protectionist barriers

The European defence market is heavily institutionalised and has strong nationalistic flavours. A US company might have problems to get past such barriers of entry to the defence market. By having a distinct transatlantic link the chances of getting a piece of the action increases. The stronger the link, the higher the possibilities. The strength of the link could depend on many things – e.g. previous collaborative history, invested capital or direct ownership. The local presence then might become pivotal.

- Create incentives for own rationalisation

As stated before, the defence industry has over-capacity and there is a structural tension due to unresolved market deficiencies. Protectionist or nationalistic behaviour might block the possibility for defence companies to make more drastic rationalisations. If a company engages in a multilateral project or purchases a foreign company, it has a better possibility to argue for rationalisations that in practice otherwise would have been impossible to implement.

- Access to networks

Companies collaborate and form - due to collaborative patterns – networks of companies. In the defence industry, such networks include government and military actors. The networks are also to a fundamental extent steered by national policies and doctrine. Such networks might be seen as national or regional (e.g. in Europe). Due to the high level of institutionalisation, it is hard for a new company to enter the network. By getting some (any?) kind of network presence or partnership, other contacts or synergetic effects might come to the entering company. It is a way of eroding institutionalised resistance, gradually and indirectly.

- Portfolio shaping

Larger companies usually have a mix of businesses, subsidiaries and affiliates. The sum effect of this mix creates the company identity as well as its market position. This mix is referred to as the company portfolio. By adding or taking away elements in this mix, the impact is altered. Companies therefore actively strive to add elements, to achieve network positions or market positions that are more favourable.

[170] See Gehrmann (2002), Scharpings Luftnummer – Der Eurofighter richtet ein desaster im Haushalt des Verteidigungsministeriums an, *Die Zeit.*
[171] JSF is discussed in more detail later in this report.

The portfolio is altered for example by getting a part of foreign programs or co-operations, by creating joint ventures, by divesting parts of the company or by acquiring foreign companies. As is being stressed in more consumer-oriented markets, it is also a process of maintaining and enhancing the corporate identity – one might even say the brand. A track record of international co-operation and flexibility might impress important pressure or lobby groups. JSF is for example strengthened by the fact that it is argued for as an *international* as well as a *transatlantic* program.[172]

- Access to technology/Technology transfer

The European defence industry and the European governments rely upon and are dependent upon the technology transfer eastwards over the Atlantic Ocean. The European market of course produces technologies and solutions that are superior to the US alternative. Companies therefore have an interest to get access to certain European technologies, or perhaps simply to have a firm presence in crucial technology areas.

- Avoid fortresses

It is in no one's interest that fortresses are created, unless perhaps some extremely xenophobic US fractions or some Euro-romanticist without proportions. Thereby it is in the interest of companies to stifle such tendencies. The argument for this must however be out of the hands of the individual company, and hardly a prioritised goal – rather a wish. It was however put forward by some company representatives.

- Risk sharing

Companies can in the defence industry – as in any industry – decrease risk for itself by pooling resources and risk with other companies.

Corporate inhibitors

- Protect business secrets

US companies in general have a higher level of technology, thanks to the more ambitious US defence spending. They have a comparative and competitive advantage towards the European companies, they do not want to give that away very easily. As in any industry.

- Difficult bureaucratic procedures/Export control

The licensing procedures, the export control regulations and the slow pace of bureaucracies that deal with this context – these are all seen as fundamentally impeding factors. Strong and clear business interests for co-operation are hamstrung and delayed. The export control context is seen as a defence-specific factor that is very troublesome.

- Maintain prioritised domestic position

A US company might have strong links with the government, a good record of successful business with the government, business is steady and not so troublesome. Congressmen might be supporting their home constituency industries and the Services generally prefer all-US defence materiel solutions. European companies have small chances of getting inside these loops. By wanting to add a foreign company, this safeguarded community gets rocked. Some actors claim that foreign actors "add uncertainties", that the situation is less in control

[172] The program is thereby strengthened in some people's eyes, not all. It depends on your personal or vested interests. According to some interviewees, some fractions (e.g. certain senators or congressmen, interests within the Services) decidedly prefer all-American programs and see multilateralism as a weakness and as adding an unnecessary uncertainty.

compared to before. A US company might therefore be better off not wanting to include foreign companies.

- Reduced congressional support

Congress has very strong standpoints on jobs and on national security. Congress has to approve of the proposed spending from the President. Since there is a history of protectionism and suspicion towards multilateralism in Congress, there is also a case in this regard not to include foreign companies.

- Reduced support from Armed Services

See the two above for explanation.

- No synergies to extract

Some US industrialists were doubtful if there really are any synergies to extract for them in a stronger and deeper transatlantic partnership or acquisition of some kind. Firstly, the US company might see itself as superior - technologically or otherwise. Secondly, it might also foresee itself buying itself or entering into a more cumbersome, ambiguous and politically driven process – without the business getting better at all.

- Not financially rewarding

Several multilateral ventures have proven to become very complicated to manage, with years of extended and changing negotiations. The most common reason for such added difficulties have foremost been governments changing their mind or not being able to agree on specifications of some kind. The financial rewards are therefore bleak, and the risk of failure is too high. The project might go on at a preliminary stage for years, but end up in nothing. A project might also be hard to get profitable or optimised since the specifications and solutions might contain too many compromises.

- Europe - dealing with different entities and perceptions

The US defence materiel context is well known to its companies, and there is only one government to deal with (although the government can speak with many voices …). In a multilateral setting with European counterparts, US companies have to deal with other, different political contexts that definitely are more complicated and harder to grasp for them. Priorities are different in different countries, regulations are different and so on. A European venture can therefore simply be cumbersome.

- Hard to do

Another straightforward inhibitor is that a transatlantic venture of any kind requires a lot of administration, uncertainty and wheelin' and dealin'. It is simply hard to do. If there is other attainable business to go for, that might be the choice.

- Slow progress when dealing with governments

An inhibiting factor is that when there are propositions from industry for co-operation, different governments have to have a saying concerning if they agree to this co-operation or not. The more governments involved; the messier the patterns of co-operation. This fact impedes actual ventures and the restructuring speed; it conserves the present structure. Companies might even refrain from taking part in transatlantic ventures.

- Cumbersome government co-operation

When there is an actual project going on, the development is often slowed down – sometimes immensely – by government regulations. Compared to other industries, there is no similarity. This inhibits the transatlantic defence industry integration in the same way as the previous.