ABSTRACT

The purpose of this dissertation is to anticipate changes in the international system by examining changes in Western defence industries. The defence industries are a mechanism for producing power. In an anarchic international system, power is the means by which states find security. To produce power through a defence industry, a state must possess a range of attributes of power. The investment needed to produce an array of defence equipment is considerable, and so a state must possess appropriate economic resources. The cost also necessitates acts of political will, to direct resources away from other ends which might be more readily enjoyed. Finally, the defence industry must produce equipment that is strategically relevant—which requires a high level of technology derived from domestic research and development. The structure of the international system is fundamentally a question of the nature of the distribution of power, and the factors that make up state power are all to be found in defence industries. The question posed here is “to what extent is change in the system predictable through looking at trends in the defence industrial base?”

After establishing the theoretical perspective, this paper goes on to look at the changes that are taking place in the strategic environment. This is followed by an analysis of the forces that act upon the defence industrial base, and of the implications of the adverse trends that they generate. From these, the indicators which signal change in the international system are derived. Then the responses of both state and industry are examined to test for the presence of these indicators. Finally, the conclusion is an assessment of how changes in the defence industrial structures of the West reflect and may be able to anticipate change in the international system.
The international system is the highest order of political organisation. As such, the nature of the system is of great interest, and major changes in its structure are of great interest also. Despite attention given to it, predicting the future of the international system has proven to be a difficult task—reality has foiled expectations. Continuity has obtained where change was expected: Europe has not returned to balance of power politics; Japan did not emerge as a rival superpower. Change has occurred where continuity was imagined. Most striking of these was the largely unheralded end of the Cold War: a decades-old struggle ended not in war, but by the voluntary abandonment of the struggle by one side. Unexpected change is the more serious, for it offers little chance for preparation. While the end of the Cold War was probably a benign change, all system level changes will not be. What follows is an attempt to find a new barometer.

This dissertation will be using the defence industrial base as a device for looking at change in the international system. Subject to political interventions, economic forces, and strategic requirements, defence industries are boxed in by a variety of pressures to which they must adapt. It is in these adaptations that the readings can be made. The other subject is the international system itself. This dissertation will be looking therefore in two directions, one with a “political-economy-of-defence” eye at the defence industrial bases in the West, and the other through a hegemonic stability theory lens at the international system.
In addition to satisfying a personal interest in the subject matter, this dissertation is intended to contribute to the field by making an unusual connection. The defence industrial base is a small niche, but it lies at a particular nexus of forces which makes it correlate with the needs of system-level theory. This may make it the ideal indicator. The thesis will proceed to decide whether a change in the international system can be perceived in the defence industrial sector, and, if so, what kind of change it may be. As noted, this is a venture to be undertaken with caution—but it is perhaps better to be prepared for a change that does not come than to be found unready by change that does come.

I would like to thank my supervisor, Dr. David Haglund, for his patience, guidance, and insight. I am grateful to Dr. Charles Pentland for his suggestions and assistance in the early stages, helping propel the enterprise forward. The fine attention to detail that Dr. Kim Richard Nossal paid to my dissertation was invaluable. I am delighted that Dr. Alistair Edgar was able to come and offer his perceptive contributions. I also wish to thank Dr. Ugurhan Berkok, for his continuous enthusiasm and for bringing me into the defence economics world at RMC. The staff at the Political Studies department was of great help, particularly Karen Vandermey, without whom I would have failed to navigate the administration. A great deal of the research for this paper was derived from anonymous interviews with industry observers and NATO officials undertaken over the last five years. These sources are generally not noted except where a large section would otherwise go unaccounted. I am grateful for their willingness to offer their time and invaluable expertise. Also, I wish to express my appreciation to the Department of
National Defence, whose support through the Security and Defence Forum made that research possible. Finally, I would like to thank my Mum and Dad, for everything.
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<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>AMRAAM</td>
<td>Advanced Medium Range Air-to-Air Missile</td>
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<td>ASD</td>
<td>Alternate Service Delivery</td>
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<tr>
<td>AWACS</td>
<td>Airborne Warning And Control System</td>
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<tr>
<td>BGT</td>
<td>Bodenseewerk Geratetechnik</td>
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<tr>
<td>BMD</td>
<td>Ballistic Missile Defence</td>
</tr>
<tr>
<td>BRITE</td>
<td>Basic Research in Industrial Technologies for Europe</td>
</tr>
<tr>
<td>CASA</td>
<td>Construcciones Aeronáuticas S.A.</td>
</tr>
<tr>
<td>CEA</td>
<td>Commissariat à l’Énergie Atomique</td>
</tr>
<tr>
<td>CF</td>
<td>Canadian Forces</td>
</tr>
<tr>
<td>COTS</td>
<td>Commercial-Off-The-Shelf</td>
</tr>
<tr>
<td>CVF</td>
<td>Future Aircraft Carrier</td>
</tr>
<tr>
<td>DASA</td>
<td>DaimlerChrysler Aerospace SA (previously Daimler-Benz Aerospace SA)</td>
</tr>
<tr>
<td>DCI</td>
<td>Defence Capabilities Initiative</td>
</tr>
<tr>
<td>DCN</td>
<td>Direction des Constructions Navales</td>
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<tr>
<td>DDSA</td>
<td>Defence Development Sharing Arrangement</td>
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<td>DIB</td>
<td>Defence Industrial Base</td>
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<tr>
<td>DND</td>
<td>Department of National Defence (Canada)</td>
</tr>
<tr>
<td>DOD</td>
<td>Department of Defense (United States)</td>
</tr>
<tr>
<td>DPSA</td>
<td>Defence Production Sharing Arrangement</td>
</tr>
<tr>
<td>EADC</td>
<td>European Aerospace and Defence Company</td>
</tr>
<tr>
<td>EADS</td>
<td>European Aeronautics, Defence and Space company</td>
</tr>
<tr>
<td>ECSC</td>
<td>European Coal and Steel Community</td>
</tr>
<tr>
<td>EDA</td>
<td>European Defence Agency</td>
</tr>
<tr>
<td>EFIM</td>
<td>Ente Partecipazioni e Finanziamento Industrial Manifatturiera</td>
</tr>
<tr>
<td>ERRF</td>
<td>European Rapid Response Force</td>
</tr>
<tr>
<td>ESDP</td>
<td>European Security and Defence Policy</td>
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<tr>
<td>ESPRIT</td>
<td>European Strategic Program for Research in Information Technology</td>
</tr>
<tr>
<td>EUCLID</td>
<td>EUropean Co-operation for the Long-term for Defence</td>
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<tr>
<td>GD</td>
<td>General Dynamics</td>
</tr>
<tr>
<td>GDLS</td>
<td>General Dynamics Land Systems</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>GE</td>
<td>General Electric Co. (United States)</td>
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<tr>
<td>GEC</td>
<td>General Electric Company (United Kingdom)</td>
</tr>
<tr>
<td>GIAT</td>
<td>Groupement des Industries de l’Armée de Terre</td>
</tr>
<tr>
<td>GIE</td>
<td>Groupement d’Intérêt Économique</td>
</tr>
<tr>
<td>GPS</td>
<td>Global Positioning System</td>
</tr>
<tr>
<td>HDW</td>
<td>Howardstwerke-Deutsche Werft</td>
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<tr>
<td>HST</td>
<td>Hegemonic Stability Theory</td>
</tr>
<tr>
<td>IFOR</td>
<td>NATO Implementation Force</td>
</tr>
<tr>
<td>IRI</td>
<td>Instituto per la Riconstruzione Industriale</td>
</tr>
<tr>
<td>ISAF</td>
<td>International Stabilization Assistance Force</td>
</tr>
<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>ITARS</td>
<td>International Trade in Armaments Regulations</td>
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<tr>
<td>Acronym</td>
<td>Full Form</td>
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<tr>
<td>JSF</td>
<td>Joint Strike Fighter</td>
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<tr>
<td>KBR</td>
<td>Kellogg, Brown &amp; Root</td>
</tr>
<tr>
<td>LFK</td>
<td>Lenkflugkörpersysteme</td>
</tr>
<tr>
<td>MEADS</td>
<td>Medium Extended Air Defense System</td>
</tr>
<tr>
<td>MES</td>
<td>Marconi Electronic Systems</td>
</tr>
<tr>
<td>MNC</td>
<td>Multinational Corporation</td>
</tr>
<tr>
<td>MNE</td>
<td>Multinational Enterprise</td>
</tr>
<tr>
<td>NASSCO</td>
<td>National Steel and Shipbuilding Company</td>
</tr>
<tr>
<td>NCW</td>
<td>Net-Centric Warfare</td>
</tr>
<tr>
<td>OCCAR</td>
<td>Organisme Conjoint de Coopération en Matière d’Armament</td>
</tr>
<tr>
<td>PED</td>
<td>Political Economy of Defence</td>
</tr>
<tr>
<td>PSM</td>
<td>Projekt System und Management</td>
</tr>
<tr>
<td>QDR</td>
<td>Quadrennial Defense Review</td>
</tr>
<tr>
<td>RACE</td>
<td>Research into Advanced Communications technologies</td>
</tr>
<tr>
<td>RMA</td>
<td>Revolution in Military Affairs</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>Research and Development</td>
</tr>
<tr>
<td>SAGEM</td>
<td>Société d’Application Générales de l’Electricité et de la Mécanique</td>
</tr>
<tr>
<td>SAIC</td>
<td>Science Applications International Corporation</td>
</tr>
<tr>
<td>SEPECAT</td>
<td>Société Européene de Production de l’Avion d’Ecole de Combat et d’Appui Tactique</td>
</tr>
<tr>
<td>SEPI</td>
<td>Sociedad Estatal de Participaciones Industriales</td>
</tr>
<tr>
<td>SFOR</td>
<td>NATO Stabilization Force</td>
</tr>
<tr>
<td>SIPRI</td>
<td>Stockholm International Peace Research Institute</td>
</tr>
<tr>
<td>SNECMA</td>
<td>Société Nationale d’Etudes et Construction des Moteurs d’Aviation</td>
</tr>
<tr>
<td>STOVL</td>
<td>Short Take-Off and Vertical Landing</td>
</tr>
<tr>
<td>UAV</td>
<td>Unmanned Air Vehicle</td>
</tr>
<tr>
<td>UDI</td>
<td>United Defense Industries</td>
</tr>
<tr>
<td>UNPROFOR</td>
<td>United Nations Protection Force</td>
</tr>
<tr>
<td>V/STOL</td>
<td>Vertical/Short Take-Off and Landing</td>
</tr>
<tr>
<td>WEAG</td>
<td>Western European Armaments Group</td>
</tr>
<tr>
<td>WEU</td>
<td>Western European Union</td>
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<tr>
<td>WMD</td>
<td>Weapons of Mass Destruction</td>
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CHAPTER ONE
INTRODUCTION

The purpose of this dissertation is to anticipate changes in the international system by examining changes in Western defence industries. In an anarchic world, power is the key measure of states. Military might is the primary measure of power.\(^1\) For an advanced industrial state, economic strength is a key factor in the wherewithal to produce military might. Political systems provide the will to use economic strength to produce military might and the will to use that military might. The defence industrial base is an intermediary. It is the device by which states use their economic strength to produce military might internally. The defence industrial environment consists of more than just the procurement needs of the state. Defence industrial firms are also subject to developments in product and production technologies. Advancing technology drives change in the defence industries, which determines the way that ways that states can and

---
\(^1\) The two major understanding of power are capabilities and influence. Power will be understood here as capabilities. Military capabilities are foremost, but other factors such as economic strength, natural resources, and technological advancement are also important. These will be discussed in further detail in Chapter Two. For a definition of influence as power, see Robert A. Dahl “The Concept of Power,” Behavioral Science 2 (July 1957): 201-215. Here power is understood to mean the ability of one actor to affect the actions of another. Capabilities enter Dahl’s scheme as the base of power—a potential to exploit. To this are added scope (the range of actions that can be influenced) and the amount of power (the probability of the recipient responding to the application of power). Influence is only observable during specific interactions, and is variable across different issue areas. This is compatible with detailed analyses. Power understood as capabilities allows for the agglomeration of capabilities in different realms of engagement, and can be measurable in the absence of particular interactions. Aggregating capability is essential to developing a consistent picture of the international system. This is important for a broader level study.
cannot generate power. Thus changes in the international system may be anticipated through an examination of the structure of the defence industrial system.

Changes in the distribution of power in the international system may come about during a major war. Shifts in power occur much more rapidly during wartime, and the victors tend to emerge with greater power than the vanquished. This clarity may not be available if a major shift in international security occurs during peacetime. The defence industrial base may offer insight into change in the world. Unlike most industries, the defence industry is a matter of national security all of the time. Whilst some other industries may be vital in wartime, agriculture or energy for instance, they are not usually regarded as sensitive for security in peacetime. The defence industry may serve as a barometer for some forms (but probably not all forms) of structural change because of its security role during peacetime. The question posed here is “to what extent is change in the system predictable through looking at trends in the defence industrial base?”

The need for security gives states a motivation to change their place in the system. Even without that motivation, the global distribution of power changes over time. That is because of the principle of uneven development: development occurs irregularly rather than uniformly across the world. “What kind of change?” is a more interesting question. It could be the minor changes in the rules of exchange which are a routine part of system maintenance. This is essentially the continuity option: higher order changes will mandate these transaction changes as well. It could be that accommodating changes in the distribution of power demands a reassessment of state relations and grand strategy for

2 It may be: the disintegration of the Soviet Union was clearly understood as a major shift in the structure of the international system, even if it was unexpected and not the result of direct conflict.
all the major states. Or it could be a change to a different system in which new concepts of strategy (and, indeed, concepts of state) must be devised.

Since the defence industries are essential to giving a state its place in the international “pecking order,” and building defence equipment takes time, there is a lag between changes in defence industrial capabilities and changes in military might. Changes in the defence industrial structure of a state may be useful in assessing a state’s ambitions in the international system. Changes in the way that the defence industries are structured can also presage changes in the nature of the system itself. New ways of generating power will mean new bases for power, and new assessments of power in the system. The international system is composed precisely on the interactions of states. If states cannot generate power on their own, then they cannot be the sole constituents of the international system. A new system must emerge.

This dissertation will examine the defence industry as a means of investigating levels of change in the international system. The investigation will proceed along two main lines. The first will be an analysis of the status of Europe as a possible challenger to the primacy of the United States. The way in which European defence industries are being restructured will serve as a means of assessing the ambitions of European states and the European Union in the international system. The way in which U.S. defence industries are being restructured will serve as a means of assessing the United States’ perception of the security and threats to its primacy. The second line of enquiry concerns how the defence industries of the West are being affected by broader changes in technology and commerce, many of which are associated with globalisation. The particular goal here is to determine whether the national defence industry can continue to
exist in its current form, and what consequences this might have for the international system.

Perceptible Change

The interaction of states in the international system has generated an international structure that has proved durable, even in the face of conflict. Major states typically possessed the internal resources to meet the challenges faced within the system. Those challenges were presented by the existence of other major states whose capabilities might be estimable, but whose long-term intentions were unknowable. The international security environment has changed markedly over the last two decades. After the relative stability of the Cold War security situation, the post-Cold War era was much more ambiguous and fluid. Indeed, the world has moved beyond the immediate post-Cold War era into a period characterised by U.S. power and globalisation. For the major powers, there are a few dangerous states, but much of the danger is from non-state actors. Traditional inter-state military rivalry is no longer the major kind of threat to international security, particularly in the West.

The danger of war between competing industrialised states with mechanised military force has lessened. So-called “rogue” states, possessing or seeking weapons of mass destruction and their delivery systems, or sponsoring terrorist activity abroad, are of greater concern in the West. A mechanised war against a smaller state is still a viable option. Sometimes it is the failure of some states to continue as viable governing entities that causes international instability in some regions. Civil war, genocide and large scale migrations can be affronts to Western values as well as long-term dangers to the
international system. Failed states can also harbour transnational terrorist groups that seek to bring harm to populations and destroy national infrastructure. The common thread to these dangers is asymmetry—they have the capability to do great damage, out of proportion to their size and the value of their assets.³ While the United States has frequently been targeted for terrorist attack, rarely have those taken place on its home soil. The 9/11 terrorist attacks were remarkable for their scale by any standard. The actions of the United States and its partners in Afghanistan and Iraq, at least partly in response, illustrate both the changing character of the threat, and the difficulties of a state structured response. It is hard to gauge whether the U.S. and its coalition partners have been able to inflict a comparable amount of damage to Al-Qaeda, or even to determine what “comparable” might mean.⁴

Is a new international security environment coming into being? Change can be seen in the emergence of new threats which are transnational and asymmetric. The recent major security operations that the United States and other nations have undertaken can be identified by country—Afghanistan and Iraq—yet the traditional interstate war model needs to be augmented. Both operations are very much in response to major terrorist attacks on U.S. soil. The war in Afghanistan was directed more at the terrorist operations that used the country as a base; eliminating the Taliban regime was excused on the basis of its support for such terrorist operations. The toppling of the government did not signal the end of the operation. The Iraqi campaign has been notable more for guerrilla-type


⁴ Cronin observes that the traditional U.S. strategy is based on cost-benefit calculations, seeking to raise the costs of war with America to an unacceptable level: such a strategy is unlikely to succeed against a
attacks on U.S. and coalition forces more than for invasion casualties. Neither state was capable of presenting much threat to the U.S. or other Western states directly, although the claim was made in the case of Iraq for its possession of weapons of mass destruction (WMD). The war in Iraq was a traditional interstate war at the outset. It was not a difficult war for the United States and its allies to win. Maintaining control afterwards in the face of irregular resistance has proven much more difficult.

Threat does not wholly define the security environment. The other side is capability. Capabilities have been transformed by development in computers, communications and information technologies. These are the driving force behind globalisation, affecting both the ways of conducting business and the ways of conducting warfare. In military circles, the transformation is loosely described as the Revolution in Military Affairs (RMA). The U.S. has harnessed advanced technologies in the pursuit of its goals. The invasion of Iraq involved the deployment of precision weapons combined with advanced sensors and information management. Relatively little manpower was needed, at least for the actual invasion. The RMA may represent fundamental change in the way of waging war. The impetus comes from computing and communications, and new information technologies in particular. The major innovation of the RMA is Net-Centric Warfare (NCW). NCW capitalises on advances in information technology to improve the efficiency and effectiveness of military operations through networking systems:

---

Four basic tenets of NCW and a set of governing principles for a network-centric force have been identified. Together, these tenets and principles comprise the core of NCW as an emerging theory of war in the Information Age. The four tenets of NCW help us understand the enhanced power of networked forces. At the same time, they constitute a working hypothesis about NCW as a source of warfighting advantage:

- A robustly networked force improves information sharing.
- Information sharing enhances the quality of information and shared situational awareness.
- Shared situational awareness enables collaboration and self-synchronization, and enhances sustainability and speed of command.
- These, in turn, dramatically increase mission effectiveness.  

Networked systems can improve capabilities by giving a more accurate and timely view of the “battlespace,” enabling a faster and better allocation of military resources. These technologies are already in the arsenals of large corporations, co-ordinating far-flung holdings and complex production structures. The wider RMA involves transforming the structure of the military to maximise the potential of NCW. Personnel need to be more highly skilled rather than more numerous. A long reach is needed: forces should be rapidly deployable over great distances. There must be the capacity to maintain them in theatre. Accuracy and lethality are vital—targets will no longer be large and distinctive, but instead small and difficult to distinguish from proximate civilian personnel and infrastructure. The perceived need is for light and lethal forces, capable of rapidly engaging and destroying precise targets. Special forces will be particularly valuable. To properly implement or effect an RMA will demand changes to organisation, doctrine, equipment and personnel. 

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Another kind of change is perceptible in Europe, where major industrialised states are surrendering parts of their sovereignty to a supra-national entity, the European Union (EU). While the development of the EU can be traced back to the early post-war period with the European Coal and Steel Community, it remained fixed on matters of “low” politics. NATO retained a virtual monopoly on Western European security structures. After the Cold War, the EU has slowly begun to assert its security ambitions. When tested in the Balkans, Europe came up short—neither its organisational nor its military resources proved sufficient. European defence spending was small and divided compared to the U.S., and defence-oriented Cold War organisation persisted. Despite having about two and a quarter million soldiers in uniform, the combined efforts of European states could not bring enough forces to bear to coerce a small country physically within Europe. It was only with the intervention of the United States that order could be brought to the states of the former Yugoslavia. Embarrassing as it was, this provided a spur for Europe to redouble its security efforts. The EU absorbed the Western European Union and set a public “headline goal” for 60,000 troops and other military resources to be made available for European command by 2003. While it was declared that the EU did possess capabilities in the desired fields, the overall capabilities that materialised fell short of those intended. In 2004 the EU adopted a new Headline Goal for 2010.8

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Change in the International System

Logically prior to the problem of change in the international system is the assessment of its current organisation. It will be assumed that the international system was broadly Westphalian and bipolar during the Cold War. In this period, the realist assumption of anarchy also holds—states were generally sovereign. Each state is ultimately responsible for its own security, and the best way to achieve security is to increase in power relative to neighbouring and other possibly threatening states. Security has a zero-sum quality—a gain for one state implies a corresponding loss for others. This is the security dilemma. One source for change in the system is change in relative power. This has a ripple effect, as states seek alliances to find greater security. Balance of Power theory suggests that states ally against a greater power. This proceeds until the allied bloc achieves security by amassing greater power. The originally powerful state now too must must seek allies. In the early years of the Cold War, this process continued until most of the major powers were aligned with one of the two emerging superpowers.

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9 Smaller states sometimes found themselves dominated by major powers as satellites. Post-war defeated powers lost sovereignty owing to their historical circumstance.


11 Balance of Power theory faces a strong competitor in the form of Balance of Threat theory, presented by Stephen M. Walt in “Alliance Formation and the Balance of World Power,” *International Security* 9, no. 4 (Spring 1985): 3-43. Balance of Threat builds on Balance of Power by adding proximity, offensive capability and offensive intent to aggregate power as factors which determine alliance formation. This dissertation will, in part, examine how intent may be inferred by looking at the defence industrial base. It will also examine how changing technologies are changing the capabilities employed for expeditionary warfare. Including the additional factors of Balance of Threat theory at this stage would thus presume or prevent a conclusion.
For realists, a common beginning for an assessment of the international system is the distribution of power. Since the beginning of the modern international state system, the most significant measure has been the number of great powers. By definition, great powers are those that have the wherewithal to affect the international system. By Gilpin’s way of thinking, dominant states are those that “have sought to exert control over the system in order to advance their self-interests…The distribution of power among states constitutes the principal form of control in every international system.”

According to Mearsheimer, “[t]o qualify as a great power, a state must have sufficient military assets to put up a serious fight in an all-out conventional war against the most powerful state in the world. The candidate need not have the capability to defeat the leading state, but it must have some reasonable prospect of turning the conflict into a war of attrition that leaves the dominant state seriously weakened, even if that dominant state ultimately wins the war. In the nuclear age a great power must have a nuclear deterrent that can survive a nuclear strike against it, as well as formidable conventional forces.”

Great powers are not necessarily equal, for they can be ranked by the amount of power they possess.

The Cold War itself was a period of exceptional clarity. Two nuclear superpowers and their allies faced each other in confrontation seeking to mould the world system to their liking. The world in the early 21st century is typically much more convoluted. A consistent driver for change can still be found. Change in the international system derives from differentials in the growth rates between great powers.

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12 Robert Gilpin, *War and Change in World Politics*, Cambridge: Cambridge University Press, 1981, 29. Gilpin takes from Raymond Aron (1966 p. 95) that “In each period the principal actors have determined the system more than they have been determined by it.”
Growth rate may bring a new great power into the system. This upsets the hierarchy and the balance of power. An observable manifestation of change is the accommodating shift of alliances. A failure to find that balance of power can result in warfare. It can be argued that the 19th century unification of Germany presented a change that proved too difficult to accommodate, and in the following turmoil, world wars erupted. Great power wars tend to reorganise decisively the hierarchy of great powers, and sometimes eliminate them altogether.

The last century has been witness to two very important transformations in the international system owing to changes in the distribution of power. The first was the move from the multi-polar system of several great powers to a bipolar system of two superpowers after the Second World War. Devastated by effects and exertions of war, the European powers and Japan fell out of the first rank of powers, leaving only the United States and the Soviet Union. The second transformation is the fall of the Soviet Union, which marked a change to a unipolar system with but one superpower, the United States. The United States is clearly the pre- eminent state in the international system. The extent of that pre-eminence is debatable. For some the system is unipolar, but the U.S. is not hegemonic. The debate will be explored further in Chapter Two, but the U.S. will be understood as hegemonic here. It is able to set the rules by which states interact in the international system. According to Gilpin, hegemony “refers to the leadership of one

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state (the _hegemon_) over the other states in the system."¹⁵ Most of the world adopted a liberal trading order in congruence with the desires of the U.S., and organised near the peak of U.S. relative power. States that diverge from this norm are punished by the system rather than by the U.S. itself.

Hegemonic Stability Theory (HST) will be employed. HST is useful because it categorises and theorises change in the international system. There are three such distinct levels of change. The highest level of change is systems change. This is a profound change in which the basic units of the system become something different. The last systems change was the creation of the Westphalian state system in Europe and its extension to the rest of the world. Here the state became the basic unit, replacing the various principalities and kingdoms, and virtually eliminating the overlapping sovereignty of the Church. Sovereignty was thus contained in each state, and was not shared with other states or bodies. Anarchy became the principle of international organisation.

The intermediate level of change is systemic change. This change takes place within the existing system: the Westphalian anarchy persists, and sovereignty remains at the state level. It is the distribution of power that changes. The great power conflicts discussed above sometimes result in systemic change. In this century, the aftermath of the Second World War transformed the international system from a multipolar system to the bipolar system of the Cold War. The fall of the Soviet Union brought about another systemic change from bipolarity to unipolarity. The dynamics of each system are markedly different. Multipolarity allows for balance of power politics. Bipolarity only

¹⁵ Gilpin, _War and Change_, 116. Italics in the original text.
allows for two opposed camps, and unipolarity does not allow for great power dynamics at all. The nature of the units is what remains unchanged.

The smallest level of change is transaction change. Transaction change is a change in the operating rules of the international system to reflect smaller changes in relative power between individual units. The unification of Germany altered the power dynamics in Europe in the late 19th century without bringing about a systemic change—the system remained multi-polar. These changes are often by rising states who perceive that their privileges in the international system are no longer representative of their place in the system. Transaction change is the most common form of change, and may be used to prevent or delay higher order changes. They may be a prelude to a higher order change, so such changes are closely watched and analysed. The rise of China as an industrial state is changing its relationship with the United States. This is reflected by the views of both China and the United States over the entry of China into the World Trade Organisation. Strategic tension was also seen in the recent “painting” of a U.S. satellite by a Chinese targeting laser.

The Defence Industrial Base

The defence industry is a subject that lies at a conjunction of politics, economics and security. The modern Defence Industrial Base (DIB) consists of an array of manufacturers and service providers that support and sustain the defence efforts of the armed forces and defence departments. It might better be termed a “Defence Goods and Services Base”. It has also been referred to as the “Defence Industrial and Technological Base” emphasising the importance of the high technology character of defence products.
However, much defence production remains firmly in the “low technology” category: robust simplicity can be an asset. Perhaps because of its strategic role, there is also a tendency to include a prescriptive element to DIB definitions. Treddenick offers a typical example, noting that ideally, a DIB should have two characteristics: ”first, it must provide the normal peacetime materiel requirements of the armed forces. Second, it must be capable of rapid expansion to meet and sustain increased wartime demands.”

The defence industrial base (DIB) has been described as “...those sectors of a country’s economy that can be called upon to generate goods, services, and technology for ultimate consumption by the state’s armed forces.” A distinction between a “broad” and a “narrow” understanding of the DIB is also helpful. The former consists of all industries that can be employed for military purposes. A narrow interpretation of the DIB only includes those industries that produce distinctively military equipment. Sandler and Hartley offer a range of definitions from various sources, without settling on any in particular. Some of their illustrations fall into each of the two categories. Sandler and Hartley observe that none of the definitions consider the difference between industrial plant and production on one hand and research and development on the other.

The Office of Technology Assessment definition is “[t]he combination of people, institutions, technological know-how, and facilities used to design, develop, manufacture

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the weapons and supporting defense equipment needed to meet national security objectives.”

One suggestion for refining it, offered by Miskel, involves two modifications. The security objectives are defined to be “technological superiority and sustainability,” and the people, institutions, technological know-how and facilities are restricted to those physically located within the United States and Canada. He also adds additional support functions, “to include transportation services like sealift and airlift and consumable supplies (like meals, ready-to-eat, combat fatigues, and pharmaceuticals).”

The defence industry is not simply an industrial sector unto itself. Instead, it consists of the defence-related parts of many industrial sectors. At what might be described as the peak are the prime contractors, taking responsibility for delivering a final product to their customers. “A prime contractor is responsible for the design, development and integration of the most complex weapons systems and platforms for a wide range of different military requirements, and to provide the primary interface with the final customer. A “semi prime” is able to undertake this top-level function for a limited range of weapons systems and less complex platforms.”

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21 Miskel, Buying Trouble?, 32.

22 Ibid., 32-3.

23 Ibid., 33.


various levels of subcontractor. Some subcontractors may take responsibility for entire subsystems or subassemblies. Others may be supplying mundane parts that are equally applicable to civil products. Firms further down the supply chain may not be able to gauge the extent to which their products are used for defence purposes. Defence corporations often operate in many defence sectors. However, it is sensible to divide the defence industry into broad sectors, to bring some order to the field. Defence sectors can be differentiated by their type of productive input and level of value-added, level of technology and their prestige value. Major parts of the defence industry include aerospace, defence electronics, naval systems, automotives, and ordnance. Aerospace and defence electronics are the most technology-oriented sectors and carry the greatest prestige, and often enjoy the greatest investment. Shipbuilding is the most labour intensive of these industries and, in a free market, industrial states are hard pressed to compete with newly industrialised and industrialising countries. Automotives require a certain level of industrial capability. Wheeled vehicles are built by many states, but tracked vehicles are less common. Ordnance requires a chemical capability, and is distinguished from other sectors by its emphasis on sustainability. In combat, ordnance can be expended with great rapidly. Peacetime production levels need to be rapidly expandable to keep pace.

The wider defence effort includes the production of goods and the use of services in support of the defence effort apart from the actual activities of defence. It is these goods and services that comprise the modern Defence Industrial Base. It might better be termed a “Defence Goods and Services Base”. It has also been referred to as the

“Defence Industrial and Technological Base” emphasising the importance of the high
technology character of defence products. The term “Military Industrial Complex”
applies to the defence industry, the military, how they interact, and how they interact with
the government. The term does carry an implication of collusive or insidious
behaviour.27 Although it is typically applied to the United States, it can be applied to
other states. The term will not be used here, for the reasons above, and one other. The
purpose here is to analyse the connection between the defence industrial base and the
international system rather than the linkages between the defence industrial base and the
state. “Defence Industrial Base” (DIB) will continue to be used here.

Defence itself is perhaps best understood as a collection of services. What might
be understood as “core” defence activities, such as manning infantry battalions and
operating fighter aircraft, are almost always undertaken by the direct representatives of
the state. The defence industry, however, has been only partly a state responsibility in the
West. Private defence contractors have provided the industrial pillar for defence effort.
Moreover, the state has been withdrawing from defence functions, especially in the post-
Cold War period. Defence industries have been mostly privatised. Some defence
services have also been privatised. Such functions as administration, training and
logistics are sometimes contracted out to private actors, falling out of the core of defence
activities.

For strategic purposes, the broader definitions of Defence Industrial Base are
likely to be appropriate. Analytically, the narrow definitions are of more interest. The
broader elements mainly serve the civil sector, and therefore are mainly subject to

commercial pressures. Defence Industrial Base will henceforth be used to mean the domestically located providers of goods, services, and technologies specifically intended for defence purposes except for those core defence service functions undertaken by the state.\(^2^8\) Defence purposes are those that are used for protection or furtherance of national interests, however defined, by military means. This definition does include foreign-owned enterprises based domestically, but not foreign-based subsidiaries of domestic firms. Core services that are privately provided, such as military training are included, but not if they are state provided. Defence goods are included whether state or privately owned: in this way both state arsenals and private munitions manufacturers are included. The definition does not include those industries particular to the broader definition of DIB: those industries and service providers that could be employed for defence purposes but that normally operate only in civilian commercial activities.

**Rationale**

The defence industrial base helps safeguard the sovereignty of a state.\(^2^9\) A strong DIB avoids the need to rely on other states to supply defence needs.\(^3^0\) The acquisition of

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\(^2^8\) This definition represents a starting point. Civil technologies have been incorporated into defence equipment for decades. There is a case for using a more inclusive definition to make allowance for dual-use technologies, the incorporation of civil technologies into defence equipment, and in defence production. This dissertation will discuss this matter in detail. As we shall see, the civil realm is overtaking the defence realm in what are becoming the core technologies of defence, through the implementation of the Revolution in Military Affairs. So while the commercialisation of defence is not a long-term trend, there is a qualitative difference in that trend. The traditional definition will best illustrate how the defence industrial base is changing.


foreign equipment implies a certain dependence relationship of the buyer on the supplier. There is the risk that in time of need the foreign supplier might withhold attrition replacements, spare parts or the necessary maintenance. The reason for a failure to supply may be political, or could simply be that the supplying state has its need of its own industries. Indeed, in time of conflict the supplier might be willing, but the logistics might be impossible. In the long-term, such shortfalls could perhaps be filled by domestic industry, but it is more difficult in the short-term. For nations having or seeking great power status a DIB capable of producing a near complete range of defence equipment is perceived as an asset if not a necessity. Smaller states have not typically been able or willing to devote the necessary resources to build a complete DIB; however few states are without a defence industry altogether.

While the DIB is essentially domestic—by definition—it nevertheless has significant international ramifications. The ultimate buyers of defence equipment are almost always states. In some cases the seller is also the state, either as an intermediary between a private industry and a foreign state buyer, or as the actual producer. Defence equipment sales are used as a tool of foreign policy and are understood to affect national and international security. It is these dimensions that lend the subject to a political analysis. In the case of Canada, the state-owned part of what could be understood as the DIB only supports the Canadian Forces. Most purchases are routine affairs, but the major capital procurement items are political decisions, and are often subject to intense political debate. However, the decision-making process has not necessarily been guided primarily by security concerns. Other political and economic factors weigh in heavily; in Canada
this is especially true with regard to regional consequences. The offset demand for the purchase of the Boeing C-17 airlifter was 100 percent of the value of the contract for both the initial purchase and the life-cycle maintenance. Of the initial purchase, 60 percent of the offset value was to be in specified packages. All sales of defence equipment to foreign buyers are also political matters.

The defence industry lies in a curious position where strategy, economics and politics converge. Some element of all three must be included for a well-rounded analysis. Political studies, a subject with unclear boundaries, is perhaps the most helpful of the three positions from which to study this subject: it is best able to accommodate the other concerns. As noted above, the DIB has both domestic and international dimensions. The significance to foreign affairs and international trade suggests an international security framework within political studies. Defence industry literature is a component of the field of the Political Economy of Defence (PED) “For PED, the agenda and questions are those generated by the interface among economics, politics and security.” Whilst defence and politics have been inextricably tied, matters of defence have held an unusual position in economics. Defence has often been considered exempt from the general principles of economics, following from Smith’s reluctant preference for

31 Treddenick, “Economic Significance,” 44.

32 For Canada, however, sales to the United States are routine, so much so that statistics are not kept.

“defence over opulence”. 34 However, with such cost pressures as noted above, economics has returned to the realm of defence.

The field of the Political Economy of Defence, a fairly new field, can be usefully divided into three categories. These are “(1) the political dimensions of economic actions in the defense realm; (2) the economic dimensions of political actions in the defense realm; and (3) the security dimensions of political economic actions.” 35 The first incorporates alliance and arms race behaviour, as well as military dependence, export policy and weapons co-operation. The second includes the consequences of procurement policy, and of the economic relationship between defence industry and the state as a buyer, of regional spending and defence imports. The third field encompasses such aspects as uneven growth, imperial over-stretch, and structural consequences of military spending, as well as microeconomic models of international relations. 36 This dissertation will be looking at questions from the first and second categories, but not to examine the narrow fields typical of those categories. Instead it will be using them to examine the broader issues from the third category. Hegemonic Stability Theory operates at the structural level, similar to the types of enquiry in the third field.

There does not appear to be any hegemonic stability literature that specifically addresses DIB issues in detail. However, discussions of the U.S. and European defence industries may make use of hegemonic assumptions. The environment for the defence industry has changed significantly: the post-Cold War phase has passed into a new

34 Kennedy, *Defence Economics*, 10. Indeed, Canada was left temporarily without any practising defence economists when John Treddenick moved to Germany.


phase, the “post-post-Cold War” perhaps. Concerns about major power rivalry and war in Europe recede and similar concerns are applied to the future of Asia. The immediate problem is an altogether different kind of security threat: cross-border terrorism. Much effort has gone into the analysis of how the nature of international security has changed. Analysis of the changes needed for the use of military force has also been evident. The defence industries are necessary to support armed forces, but are also subject to some pressures that are entirely separate. The U.S. has been trying to bring about a Revolution in Military Affairs (RMA), achieving a level of military capability a magnitude higher than the rest of the world. This would change the focus of defence industrial activity and would also require considerable new investment on the part of the Canadian government if Canada is to keep pace and continue to be able to fight alongside its strongest ally.

**Change in the Defence Industrial Base**

Advanced technology can provide a vital edge in warfare and is therefore crucial for national security. The technological dimension to warfare was illustrated starkly in the Persian Gulf War, where numerically and mechanically strong Iraqi forces were largely ineffective in the face of coalition forces, which excelled in both the electronic and the mechanical aspects of warfare. States in security competition will expend vast resources to find a military edge. Most of a state’s resources develop slowly: population, natural resources, and wealth. New technology offers the prospect of making a difference on the battlefield in the short-term. During the Cold War, both the United States and the Soviet Union spent liberally on military technology with the aim of finding an advantage through innovation. Such advantages tend to be fleeting. The other side, in
seeing what is possible, will likely be able to imitate the technology more quickly and cheaply than it could be developed originally. If defence technology becomes globalised, then this core national element of security will be lost to the power of the state.

“Cutting-edge” military technology tends to be kept apart from commercial technology, protected by secrecy. One of the general defence industrial environment conditions to which firms in both the United States and Europe must react is the rise of commercial technologies. Military technology is falling behind commercial technologies, in particular in computing and communications. The research and development resources available to multinational firms are often greater than the resources available to state-dependent defence contractors. The Defence Industrial Base is the mechanism by which new technologies are usually transferred to the military. It has become pragmatic to adopt modified commercial systems rather than design and that specifically military systems. This represents a dilemma for national security. The firms that build commercial computing and communications systems are already globalised, or at least internationalised. Imposing national security restrictions on these firms is difficult. If they are headquartered domestically it is possible, but it would impede their ability to compete with foreign-based firms, generating the security risk of weaker development in the future. If those firms are headquartered abroad, then such restrictions may cause them to abandon the national market. For traditional defence industries, the near monopsonist position of the state is a strong bargaining position. Since the military represents only a small portion of sales to computer and information technology firms, it is difficult to impose pressure as a major buyer.
The DIB is caught in a double bind, for it is not merely a conveyance for technology, but it is also a consumer and a recipient of technology. Communications and information technologies have had a great effect on major commercial firms, particularly manufacturers of complex goods. Information technology is used to coordinate the production system. It allows multi-national corporations to spread their production chains around the world to low-cost producers for each stage. The defence industries have been largely isolated from the commercial trend towards globalised manufacturing. As much of production has been kept domestic as has been feasible. For strategic reasons, the higher manufacturing costs have been accepted. The trend towards the commercialisation of defence production and services makes it more difficult to maintain this condition of near autarky in the defence sector. The opportunity costs of avoiding globalised production are increasing.

This change in the nature of the defence industry may cause a change in the nature of the international system. The self-reliance with which great powers have conducted their security affairs may become impossible amidst the globalisation of the defence industries of the world. Some traditional defence items may remain viable on a national level. However, the advanced technologies that are perceived to be vital for the future of warfare are those that are most likely to be globalised. They will be available to all with the resources to acquire them. Changes in the international system stemming from globalisation or internationalisation have been predicted before. Previous theories that interdependence and the imperative of economic well-being would prevent warfare were shown unfounded. Such confidence was misplaced, for welfare can be exchanged
for security. The changes wrought by globalisation are different, for the basis of national security itself is at stake: there is nothing to exchange.

A systemic challenge might be perceptible in the defence industries also. Europe has been mooted to be a possible challenger to the hegemony of the United States. Defence industrial integration is a good indicator that states share a high level of trust. The dependence that derives from relinquishing national control of the defence industry is of great strategic significance. Perhaps the only greater strategic dependence would be the lack of national control over the armed forces themselves. European defence industrial integration is therefore a remarkable event, a milestone in the development of Europe as a political entity. It shows the extent to which Europe has become a pluralistic security community. Despite a longstanding alliance, the U.S. and European defence industries remain distinct. The consolidation of the European defence industrial base has been long sought by those who would like to see a stronger Europe on the international stage. Until recently, that has not been shown to be sufficient motivation.

The nationalism with which states have traditionally regarded the Defence Industrial Base makes it a good topic with which to assess the prospects for change at a system or systemic level. The reserve with which states have treated their defence industries shows this. The defence industry has become a crucial component of the Westphalian system, and perhaps the last bastion blocking the way to a new kind of international security system. If the international system is to be characterised by

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37 Huntington referred to the formation of the European Union and the development of a common currency as “undoubtedly the single most important move toward an antihegemonic coalition” Samuel P. Huntington, “The Lonely Superpower,” *Foreign Affairs* 78, no. 2 (March/April 1999): 45.

“globalisation” in the future, then the defence industry offers a crucial test. A globalised defence industry would undermine the national basis of security, just as national DIBs are seen to protect it. However, if changes in the defence industry are not like globalisation, but rather restructuring to bolster national (or supranational for the EU) power bases, then there is good reason to believe a systemic challenge is underway. Military forces remain a dominant element of power and prestige in the system. Such power requires a defence industrial base to support it. The United States and the European Union, with large defence industrial bases, and possibly serving as hegemon and challenger, are the subjects with which to test the magnitude of change in the international system.

A Canary?

Some signs of what to expect may be found in Canada. In comparison to the United States, Canada seems like a small country. From a wider perspective, Canada is a major industrialised nation, a member of the G-8 group of leading industrial states plus Russia. On the other hand, Canada is not understood to be a great power (“middle power” has been one popular description), and has the smallest economy of the original G-7. Outside the G-7, only China’s economy has eclipsed Canada’s in terms of Gross


40 Dewitt and Kirton classify Canada as a “principal power” which is similar in essence to a great power. The argument is predicated on the decline of the United States as the hegemonic power and the subsequent formation of a more “diffuse” international system. The argument also sometimes seems to be a projection
Domestic Product. Canada is also peculiar for its exceptionally secure situation, arising from a combination of geographic and strategic causes. Canada is surrounded by the world’s largest ocean; an icy ocean; an ocean with allied powers on the far side; and it shares a border and a close association with the greatest power of the age, the United States. Canada has been able to allow its defence expenditure to fall well below the NATO average. In its own interest, the United States would prevent Canada from falling under the influence of a hostile power.

For some states, their DIB is an important part of the economy for its employment, high technology character and contribution to the balance of payments. The Canadian DIB is not an especially great part of the Canadian economy, either in terms of number of jobs, or in terms of contribution to the national product. Canadian defence spending in 2004-5 was about C$13.3 billion, and total defence expenditure, about C$14.1 billion where GDP amounted to C$1.2 trillion. This is about 1.2 percent of GDP. The NATO average for 2004 was about 2.8 percent of GDP (1.9 percent if the U.S. is excluded), placing Canadian expenditure a little above Belgium and Spain, both at 1.4 percent, and only distinctly higher than Luxembourg and Iceland, the latter having no military. Germany, Hungary, Latvia and Lithuania are other low spenders, at about 1.4-1.5 percent of GDP. The political importance is greater than its size would suggest.

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The armed forces constitute a major part of state expenditure over which the government can use significant discretion. “Value for money” became a high priority for a department that had been the recipient of repeated budget cuts. In current times of surplus, however, the government has greater flexibility. Canadian defence spending has been more stable since 1999, hovering around 1.1-1.2 percent of GDP. This implies real increases in the defence budget which are comparable to economic growth.

The low defence spending and high perception of security has made the Canadian DIB more vulnerable than those of other states. The process in Canada has not been without controversy. The cancellation of the Avro Arrow in 1959 marked the end of an independent design capacity for fighter aircraft. Even now, some Canadians recall the cancellation with regret and anger, regarding it as a political betrayal of Canadian ability and industry.

The Canadian DIB consists of about 1,500 domestically owned small and medium sized enterprises, with branches of large foreign or multinational defence firms. The bulk of the product of Canadian firms is bound for the domestic market—the Canadian Forces. The United States is the biggest export market, typically taking about half of Canadian exports. Despite this, Canada is only the eighth-place international supplier to

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the United States Department of Defense. Complete items of major equipment are usually intended for Canadian Forces use. Otherwise, the defence industry produces mainly components for integration into foreign equipment. The Canadian Association of Defence and Security Industries represents 500 firms, with about 70,000 employees, with a total revenue of about 7 billion dollars. Half of that revenue is derived from exports. The specialised nature of the Canadian DIB has led to a condition in which it is unable to supply the whole needs of the Canadian Forces, yet is highly dependent on export sales: this looks more like a market-driven industry than an industry carefully husbanded to protect national defence capabilities.

If it is becoming more difficult for a state to maintain an independent defence industrial base, then it should affect smaller states first. Indeed, Canada’s DIB diverges from that of other major states by its lack of independence. From the U.S. point of view, Canadian firms and subsidiaries have often been viewed as being part of the North American DIB—almost as domestic firms. At least until recently, even in the ever-integrating European Union and its predecessors, the major states have sought to maintain their defence industrial autonomy. Autonomy is not surrendered easily, as states seek to maximise the position of their own industries in the European system, and transfer adjustment costs to other states. Other Western major powers were physically

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47 Bernie Grover, *Statistical Overview of the Canadian Defence Industry for the Year 2000*. Ottawa: Canadian Defence Industries Association, 2002, 14. Also despite Canada’s privileged supplier status to the United States, which will be discussed in Chapter 7. This study was apparently the last in a series of uniquely informative biennial studies. The author speculates that the statistical analysis of the defence industry was unhelpful to the sponsoring organisation’s lobbying efforts: despite an apparently difficult environment, the defence industry was shown to be thriving.


closer to the threat of the Soviet bloc, and thus had a higher perception of threat and were willing to spend more on defence. With that threat alleviated, and indeed the prospect of a major mechanised war in Europe slim, at least outside the Balkans, the situation has changed. European powers are the next candidate for losing the autonomy of their defence industries to the forces of globalisation. The ultimate test is the United States. Technology is perhaps the core of the U.S. military power. It is what makes the U.S. military machine stronger than its possible opponents, which typically have a numerical advantage in soldiers and sometimes in machineries of war. The U.S. is determined to maintain this technological advantage in the interests of maintaining primacy in the international system. The RMA that the U.S. is propelling has the goal of leapfrogging the capabilities of other states’ armed forces, putting the U.S. military in a class of its own. With some irony, the types of technologies that the U.S. hopes to harness for this goal are derived from commercial technologies. Computer, communications and information technologies are the core of the system of systems approach. Only the periphery is more military focussed: sensors and information gathering on one hand, and rapid precision weapons on the other. The previous, almost purely military focus on platforms is relegated to second place. Commercial technologies have not only superseded military technologies, but have taken “centre stage” by becoming the crucial technologies of warfare.

How do changes in defence industries presage changes in the international system? The DIB is the means by which states build their power, and it is power which determines states’ places in the international system. Developments in technology are changing the basis of national power. These defence industries are not only subject to
these developments, but also transmit these developments to the state’s military machine. Thus two subjects of change are logically linked. In the next chapter, the theoretical means to explore the nature of that link must be established.
CHAPTER TWO
THEORISING CHANGE

This chapter will detail how the topic will be examined. In order to look at change in the international system, it is first necessary to establish the theoretical base. This will help determine what to look at and what to look for: it will serve as a means of organising the data. It will also look at the current structure of the international system. This will provide a starting point, a base from which deviations may be seen. In the current structure can be found both the forces for stability and the forces for change. Finally, it will consider what kinds of change are possible, as determined by the theory. This will show, in broad terms, what change might look like.

Appropriateness of Hegemonic Stability Theory

Hegemonic Stability Theory is a suitable theory for this undertaking for three major reasons. Firstly, its conception of the world is a reasonable starting point. The global political order is, or at least has been, hegemonic.\(^1\) Hegemony is a condition characterised by political, military and economic asymmetry, with one state holding the bulk of international influence on each measure. The United States has filled the role of hegemon, having undertaken to provide some stability in the international system. There

\(^1\) This argument will be supported below.
is some debate about the latter point, but it is sufficient that the U.S. has provided stability over industrialised parts of the international system in recent history. HST is a political theory that considers the same dimensions as the defence industry: political, economic and strategic. It is unusual in striking a balance between economic and strategic reasoning, a juncture also occupied by the Defence Industrial Base.

The United States re-asserted its primacy in the post-Cold War world. The long period of relative economic decline against Japan and Germany in particular came to an end as both the major continental European economies and the Japanese economy slowed. The Japanese recession was particularly intractable. The Soviet Union was dismantled, and its major successor Russia was forced to retrench amidst restructuring. Both the old challenger and the mooted new challengers had faltered. Meanwhile, the United States economy recovered. The U.S. was able to continue to invest in its armed forces, and in military research and development.²

Although American power is not uniformly welcome around the world, serious ideological challengers or geopolitical balancers are not to be found. Scholars who a decade ago were debating the prospect of co-operation and conflict in a post-hegemonic world are now debating the character and future of world politics within an American unipolar order.³

Yet there are signs of possible change. A unipolar order is not necessarily a hegemonic order. If the U.S. was to retreat into a more isolationist position, then the world would revert to non-hegemonic unipolarity.

In terms of resources, a combined Europe offers the only immediate possibility

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³ Ibid.
for a balancer in the system. The EU’s combined economic resources are equal to those of the United States. Its collective diplomatic experience and connections are considerable. However, Europe is not (yet?) a unified actor, so its collective weight cannot be reliably directed. The experience of the European Union’s development suggests that the goal of forging the EU into a single state would take a considerable amount of time and effort. Making that into the goal would likely take even more. China is a potential future challenger to the system, rather than a potential immediate challenger. Where the EU could, in principle, reorganise itself into a challenger, China does not yet possess the necessary political, military and economic potential resources. High sustained growth suggests that the economic resources may become available, and the military resources would be a short step behind. China’s increasing political assertiveness suggests that it will not become a civilian power in the model of post-war Japan or Germany, but will insist on recognition appropriate to its world position. China’s status as a challenger is predicated upon the continuation of its continued high rate of economic growth. There remains the possibility that China’s economic growth could stall, or that its political system may flounder under the challenges of maintaining central control amidst a rapidly developing economy and society. There is at least one ideological challenge to the hegemonic order. Radical Islam is violently opposed to the United States and its world role, or at least its world role with respect to the Islamic world. It does not have the cohesive political, economic and military resources of a national hegemonic challenger, for the few states that espouse or support such positions are too weak to overturn the international system.
HST is also pragmatic, in that it offers a method for understanding change. It presents and details three particular and discrete patterns for change—at the transaction, systemic and system levels. These levels of change constitute more of a typology of change than mechanisms. The theory is parsimonious, necessary in given the number of influences on the defence industries. Change should be directly observable in the defence industries. Those changes should manifest themselves in distinct and distinguishable ways. The DIB will be a good indicator for the levels of change. More precise indicators will be developed below. National security and foreign policy are inextricably linked to the availability of defence equipment for purchase and sale. As such, “indicators” may be a somewhat misleading term here, for changes in the DIB are causally linked to changes in the international security system. The outcome is important, for the levels of change have distinct consequences for the security of the West and the rest of the world. The developments in the DIB alone are important, for the DIB is a significant component of state sovereignty.

Structure of the International System

The international system derives from the interaction of the major political units that comprise the system. In general, these interactions are not intended to form such a basis. Rather, the political units seek to promote their own interests through their relations with other states. The system possesses emergent qualities: qualities not characteristic of the units that comprise the system, but emerge through the interaction of
the units. These emergent qualities become constraints on the actions of the units.\(^4\)

Waltz, a structural realist, provides an elaborate definition and description of the structure of the international system. He starts with a description of system structure, generalised beyond states.

- Structures are defined, first, according to the principle by which a system is ordered. Systems are transformed if one ordering principle replaces another. To move from an anarchic to a hierarchic realm is to move from one system to another.

- Structures are defined, second, by the specification of functions of differentiated units. Hierarchic systems change if functions are differently defined and allotted. For anarchic systems, the criterion of systems change derived from the second part of the definition drops out since the system is composed of like units.

- Structures are defined, third, by the distribution of capabilities across units. Changes in this distribution are changes of system whether the system be an anarchic or a hierarchic one.\(^5\)

The main feature of the international system, according to Waltz, is anarchy: it is not ordered or organised hierarchically. Anarchic systems are characterised by self-help. Each unit, each state, must be prepared to undertake any of its initiatives on its own, without help from other states. This forces states to adopt a general purpose aspect. The units of a system characterised by anarchy are “functionally undifferentiated”: every unit must undertake the same minimal set of tasks to survive in the system. The second part of the differentiation above is therefore null. As long as anarchy is in effect, only changes in the ordering principle or distribution of capabilities are possible.\(^6\) However,

\(^4\) Kenneth Waltz, *Theory of International Politics*, Reading, Mass: Addison Wesley, 1979, 91. Waltz draws a comparison to markets, which “are individualist in origin, spontaneously generated, and unintended.”

\(^5\) Ibid., 100-101.

\(^6\) Ibid., 93.
while the units, in this case states, have the same functions, they are by no means indistinguishable. States have greatly different resources and capabilities at their disposal. Their ability to undertake those necessary functions in the international system determines their ability to survive, or indeed, thrive in the system.

Except in extraordinary circumstances, survival is the most basic and most important goal of states. Security will be the overriding motivation when survival is in doubt. When states feel relatively secure, they will be able and willing to develop further goals. Not every state act will be determined by the quest for security. However, states will not deliberately act to jeopardise their security in seeking their other goals. Each state is responsible for deciding how best to approach whatever issues it may face. No other unit has the authority to dictate how a state organises its internal affairs. Internally, states are centralised and hierarchic, in contradistinction to the international system. Any state may choose how to conduct itself in the international arena, and to define and pursue its national interests.

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7 Other possible units include empires, tribes and city-states.

8 Ibid., 97. “Functionally undifferentiated” is Waltz’s expression.

9 Ibid., 91-2. Here Waltz notes that occasionally other goals may override the simple survival motive. One of the few examples of this rare condition is the Democratic Republic of Germany actively seeking reunification with the Federal Republic of Germany. From the point of view of East Germany, this entailed the dissolution of the state in favour in incorporation into West Germany. It is clear that this is an exceptional case and has much to do with the fact that Germany was rendered non-sovereign through occupation and riven from without after the Second World War.

10 Ibid., 88. Therefore, comparisons between a state’s internal structures and the international system are unlikely to be enlightening.

11 Held & McGrew describe it thus: “For sovereignty is understood here to mean political authority within a community which has the undisputed right to determine the framework of rules, regulation and policies within a given territory and to govern accordingly. Sovereignty should be distinguished from state autonomy, or the state’s capacity to act independently, within circumscribed parameters, in the articulation and pursuit of domestic and international policy objectives.” David Held and Andrew McGrew, “Globalization and the Liberal Democratic State.” Government and Opposition 28, no. 2 (1993): 265.
their own interests with equal validity:12

When a state surveys the environment to determine which states pose a threat to its survival, it focuses mainly on the offensive capabilities of potential rivals, not their intentions. As emphasized earlier, intentions are ultimately unknowable, so states worried about their survival must make worst-case assumptions about their rivals’ intentions. Capabilities, however, not only can be measured but also determine whether or not a rival state is a serious threat. In short, great powers balance against capabilities, not intentions.13

Division of labour is one way to improve resource allocation and thereby increase capabilities. This is not the norm in an anarchic system. Anarchic systems are instead characterised by “self-help”. Although the efficiency gains from specialisation are attractive, the nature of anarchy works against it in two ways. One is that any gains from specialisation must be divided. If state A gains more from a cooperation than state B, then state B has to worry how state A will use its gains. State A has the opportunity to increase its capabilities relative to state B, and therefore presents a security challenge for state B. Even if the gain is divided equally, it would alter the balance of power between the two states unless they are of equal size. In this way, even large gains may not be attractive: indeed, they may make cooperation less attractive.14

The other problem with division of labour is that it leaves each state dependent on the other for the tasks the other state has been selected to perform. It may also be dependent on the other state to be a market for the product of its own tasks. For smaller states, such dependence or independence may be necessary. The high costs of autarky are so great as to constitute a greater threat to national security. Nevertheless, even those

12 Waltz, Theory of International Politics, 96.


14 Waltz, Theory of International Politics, 105.
states are likely to minimise their dependence where possible and will be selective about the states upon which they become dependent.\textsuperscript{15} When great powers find it a greater security risk to maintain independence, self-help may not be possible: the system takes on a different character.\textsuperscript{16}

\textbf{Unipolarity}

Analysis of the structure of the international system dwells on the distribution of power, especially with regard to the number of great powers. The fall of a great power and its replacement with another would not constitute a change for the system. Of course, it would matter very much for the states involved.\textsuperscript{17} The structural realist view is supported by Waltz, who observes that “capabilities are attributes of units, the distribution of capabilities across units is not. The distribution of capabilities is not a unit attribute, but rather a system-wide concept.”\textsuperscript{18} This justifies the common international relations practice of analysing the system in terms of the number and relative power of the “great powers”. It is a major part of the determination of the structure of the

\textsuperscript{15} Ibid., 106.

\textsuperscript{16} Waltz has been criticised by a variety of authors, such as Alexander Wendt in “Constructing International Politics” \textit{International Security} 20, no. 1 (Summer 1995): 71-81, whose constructivist view adds shared knowledge and practices to national resources to form social structures. David A. Baldwin, “Power Analysis and World Politics: Old Trends Versus New Tendencies,” \textit{World Politics} 31, no. 2 (January 1979): 161-194, questions the fungibility of power resources. For a variety of other criticisms, and Waltz’s responses, see Robert O. Keohane, ed. \textit{Neo-Realism and Its Critics}, New York: Columbia University Press, 1986. Most authors take issue with the abstraction inherent in Waltz’s scheme. The parsimony of the Waltz’s structure is important for this purpose. While relative power may not be a good predictor of particular encounters, the structure of the system is not dependent upon particular encounters but of all of them put together.

\textsuperscript{17} The emergence and decline of great powers may result in systemic change but not systems change. These levels of change will be discussed below.

\textsuperscript{18} Ibid., 98.
While it may matter a great deal to individual states where they lie in the international system, it is only the distribution of power in the system that is a characteristic of the system.

Structure refers to the basic units of a system (meaning states, at the international level) and their arrangement within that system. It is possible to identify several strands of power-oriented research on structure and war, each focussing on the effects of a different set of variables: (1) the size of the system, often referring more specifically to the number of major powers; (2) the extent of alliance commitments; (3) the tightness and discreteness of those linkages; and (4) the concentration of power within the system.20

A common understanding of the current distribution of power is that it is sharply concentrated in one state: the United States. Wohlforth describes the world as being “unambiguously unipolar”.21 Unipolarity is a “structure in which one state’s capabilities are too great to be counterbalanced”: all of the other great powers put together are insufficient to balance the strongest.22 Other observers find the system to be more nuanced. Nye considers the world to be unipolar on a military dimension, but multipolar on the economic dimension. The U.S., Europe and Japan are the three poles economically. The third dimension, transnational relations, is not characterised by a concentration of power.23

19 Ibid., 97.


22 Ibid., 9.

Huntington believes that there was a “unipolar moment” when the Cold War ended, but it was brief. The world has already moved to a new condition, one he termed “uni-multipolar”: a system with one superpower and a number of great powers. Only the United States has a full range of power resources, where other powers have some strengths and some weaknesses. The U.S. needs the assistance, or at least the acquiescence, of regional powers to effectively employ force abroad. That necessity prevents the world from being fully unipolar. It is also an increasing problem for the U.S. as few states outside of its close allies are willing to offer such help, seeing the U.S. as a threat rather than a friend. In a unipolar world, counter-balancing is impossible, and in a multipolar world it is unlikely that one power would be singled out so. However, in a uni-multipolar world, it is a “natural phenomenon,” and Huntington perceives its beginning. An important difference between the uni-multipolar world and the unipolar world is that the great powers are threatened by the superpower. The great powers have interests on which the superpower may tread. As such, the other great powers seek to convince the U.S. to stay away from regions in which their national interest may be threatened. Huntington understands the formation of the EU to be the most significant anti-hegemonic development: cultural similarities have helped make it durable. Other anti-hegemonic moves, between Russia and China, between China and India and so on, are impeded by cultural differences. Fortunately, the relatively similar culture of the


25 Some observers note a natural connection between India and the United States: both are part of the “Anglosphere”: see for instance Parag Khanna and C. Raja Mohan, “Getting India Right,” Policy Review 135 (February/March 2006): 43-61 (although they do not use the term “Anglosphere”). This may account for difficulties in making anti-hegemonic combinations involving India.
U.S. and the EU aids co-operation between the two, even as power rivalry divides them.26

Huntington also observes that the United States is very strong in all of the major respects on which the strength of states are measured: “population size and education, natural resources, economic development, social cohesion, political stability, military strength, ideological appeal, diplomatic alliance, technological achievement.” This is in marked contrast to other possible challengers.27 The combined EU score would be strong in most categories. As a federation comprised of states which are democratic and wealthy, with a diverse society and economy, the EU is well placed to become a presence in the international system.28 The EU’s diplomatic position is unusual, with EU diplomats operating alongside national delegations. Compared to the U.S., the EU tends to be less “with us or against us” in its approach to diplomacy. Clearly, even the aggregate European defence capabilities are far inferior to the U.S. The DIB provides support to the military strength measure and is reflective of the technological appeal and economic development measures.

Social cohesion may be low, due to the multinational character of the Union. Ideological appeal is likely quite high for the same reason. The EU offers a variety of

26 Ibid., 36-48.


28 Ibid., 93.
prosperous places with various cultures for immigrants to live—in some cases, altogether too many for the liking of the host country.\textsuperscript{29} It is quite possible to conceive of a European ideological appeal comparable to the American one. “Throughout the world, people line up at the doors of American consulates seeking immigration visas. In Brussels, countries line up at the door of the Community seeking admission.”\textsuperscript{30} Conversely, the U.S. ideological appeal is in some ways in decline. There is unlikely to be a shortfall of those seeking entry to the United States, with its relatively open society and high standard of living. Abroad, the U.S. faces a declining reputation. “Those who want what America has but can’t get it are stuck in their hopeless lives under corrupt and repressive regimes. On the other hand, those who don’t want it can’t escape its ubiquitous presence. Either way there is combustible resentment and anger across the Muslim world”.\textsuperscript{31} Even the prospect of a U.S. invasion of Iraq generated an unfavourable reaction around most of the world. Worldwide public opinion of the U.S. has fallen even further during the occupation. Accounts of abuse at the Abu Ghraib prison, and the nebulous status of prisoners at Guantanamo Bay have further undermined the international appeal of the United States, this from a peak of favourable U.S. sentiment in the aftermath of 9/11. By comparison, the appeal of Europe has suffered


less amidst the “war on terror,” and uninvolved China has made some gains by virtue of its economic performance.32

Keohane suggests that, for hegemonic purposes, control over raw materials, capital, and markets is important, and so is the ability to produce valuable goods efficiently.33 The latter category would seem to comprise both high value-added goods and desirable goods. This scheme is rather basic, and does not give the U.S. a clear lead. The U.S. does have reasonably assured access to raw materials, is influential in the flow of capital, and possesses a great internal market. On these counts, Europe as a whole scores well also, with the possible exception of raw materials. Defence equipment falls into the “highly valued goods” category, and it is one in which European efficiency has generally been lower than that of the U.S. Both the U.S. and Europe have, at times, seemed uncompetitive in the production of highly valued commercial goods.

Nye suggests a study of seven power resources in assessing a state’s position in the world. Four of these are fairly measurable: natural resources, military might, economic strength, and science and technology. The other three are more intangible, but reasonably clear: national cohesion, “universalistic” culture, and influence in international institutions. The U.S. has been strong in all dimensions.34 Europe appeared to be the second strongest of the major contenders. The other major contenders, Japan, China, and Russia, trailed further behind. Europe’s weaknesses lay in its military

32 Ibid., 19.
34 Though there are signs of decline, particularly in the form of resistance to U.S. ideals. More on this anon.
capacity and especially in “national” cohesion.35 Nye also draws on Daniel Bell’s technological revolutions idea. The United States leads the world in the third technological revolution, which is based on the conjunction of computing and telecommunications systems. These sectors constitute the most important measure of strength; previous measures of industrial strength may decline without consequent implications for U.S. power.36 This may be applicable to the highly valued goods idea in Keohane’s list, giving the U.S. a distinct advantage over its competitors. With respect to the DIB, it is similar to Huntington’s scheme, supporting military might and reflecting economic strength and science and technology.

There are four elements to structural power in Strange’s scheme, control or influence over: security; the structure of production; the structure of finance and credit; and knowledge.37 This gives the European Union much more to do than the previous measures of power. Europe defers to the U.S. on international security much more than it does in other military measures. The U.S. model of production has been gaining favour since the end of the post-war boom, and the end of the Soviet grand alternative. The introduction of the Euro as a common currency and the establishment of joint European technology ventures such as ESPRIT and BRITE suggest that progress is being made to match the U.S. on the other two categories.38 The DIB is involved in all four elements here. The ability to build and supply defence goods is clearly a part of the influence over

35 Nye, Bound to Lead, 8.
36 Ibid.
38 Defence related European technology initiatives will be discussed in Chapter 5.
security. The structure of production, the structure of finance and credit, and knowledge affect the DIB. *Ceteris paribus*, collectively they would influence much of how defence industries are structured and operate. Until recently, at least, the national exemptions for defence industries have limited these effects.

Dividing the world into different dimensions may be helpful for analysis, but there is only one world. Japan’s lingering recession has reduced its economic stature. Combined with its military limitations, it cannot be considered a pole. The political and military disunity of the European Union also extends to the economic sector. European states are able to collaborate to defend their economic interests, but those interests are only occasionally easily defined. Even the hard rules that underpin the common currency have come into question as major states have experienced difficulty in making their national budgets conform. Moreover, large parts of the European economy remain outside the Eurozone, most importantly the financial markets of London. Therefore, the EU is not a pole. The system has one superpower, plus a few major powers. Most of the major powers are tied to the superpower by alliances. Those alliances, NATO and the U.S.-Japan Treaty, have shown remarkable durability in historical terms. The United States is strongly tied both to Europe and to Japan by common liberal democratic values. As Owen observes, “the lack of a balance of international power is caused in part by the widespread penetration of most potential challenger states by liberalism.”39 Despite whatever economic issues may come between the “triad,” the United States is the clear leader on security issues. Since security takes ultimate priority, the United States is the predominant member of the triad.

The United States has the luxury of being a continent apart, all but unassailable by conventional means. All of the possible challengers are in and around Eurasia. Any rising states are likely to face opposition from their neighbours first, facing the balance of power on a regional level. The U.S. would have the opportunity to reinforce regional opposition and so delay or prevent balance to itself. The U.S. itself has no such concerns, for within the Americas there is no potential challenger in the near term. This might seem to give the international system a hierarchic flavour. The U.S. uses its offshore power to intervene with impunity around the world. In doing so, it undertakes tasks to support the international system, tasks that are not allocated to, or taken up by, any other state. These tasks are in the interest of the U.S., However, the U.S. is undertaking tasks in its own interests in the international system. The option is in principle open to other states, but their capacity to do so is limited. Those international stability tasks are what distinguishes the U.S. as being not only the unipolar power, but the hegemonic power.

**Hegemony, or, from Superpower to Hyperpower**

In structural realist and liberal international approaches, the terms hegemony, leadership, and hegemonic leadership are used to refer to a state role and a kind of international order. Often, generally favourable normative valuations follow from the order and stability attributed to properly functioning hegemonic systems. It is acknowledged that the positive aspects of the hegemonic role are a variable feature and are subject to decay and/or abuse.40

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The condition of anarchy in the international system allows war to take place. Anarchy is not the cause of war, it is simply the lack of a restraining authority. Instances of war cannot be understood only by reference to anarchy. The propensity for war in the international system may be understood through a study of the balance of power.\textsuperscript{41} Some distributions of power have a greater propensity for stability than others. Bipolarity is widely regarded as a fairly stable system. There are only two major powers which study each other’s activities and capabilities intensely. There is little prospect for a major shift in the balance, for the defection of smaller powers would not be enough to tilt the scales. Uncertainty is reduced by the focus each power has on the other. Proxy wars may be common as the major powers jostle for position, but they are unlikely to face each other directly. There is some dissent—the Cold War example of bipolarity is complicated by its nuclear character. Deterrence may have been the stabiliser, rather than bipolarity itself. Unipolarity is typically regarded as being unstable. Other states should seek to balance against the polar state, so the system is unstable. In a hegemonic system, the hegemon itself provides stability. Thus the distinction between unipolarity and hegemony is important.

Wilkinson offers a scheme of seven possible power configurations in the international system.\textsuperscript{42} Of particular interest is the differentiation between hegemonic and non-hegemonic unipolarity. Wilkinson understands hegemony to be “a unipolar configuration of politico-military capability with a structure of influence that matches

\begin{quote}
\textsuperscript{41} Mearsheimer, \textit{The Tragedy of Great Power Politics}, 334-5.
\end{quote}

\begin{quote}
\end{quote}
capability”. Under hegemony, other states derive their legitimacy from the hegemon. The hegemon acts like an international government, taking payment, handing out favours, settling disputes, installing governments and dominating the legitimate use of force. This means that the United States currently enjoys the position of the solitary pole in a unipolar, but not hegemonic system. The crucial test is U.S. authority with respect to other major powers in the system. Tested against such states as Japan, Germany, the U.K., France and China, the U.S. is not hegemonic according to Wilkinson. Perhaps the Soviet Union would have enjoyed a regional hegemony in its “near abroad” in the post-War era. This interpretation of hegemony represents a hierarchical system, and is as such incompatible with the presumed Westphalian starting point. Indeed, a liberal international system would not be possible under this condition. A definition that allows hegemony within anarchy is needed instead.

Another particularly strict definition is from Mearsheimer: “A potential hegemon is more than just the most powerful state in the system. It is a great power with so much actual military capability and so much potential power that it stands a good chance of dominating and controlling all of the other great powers in its region of the world.” He goes on to observe that any potential hegemon ought to be able to defeat individual rivals and to have a good chance of defeating two at a time. He concludes that it is only possible for a nuclear monopolist with great conventional power to become a global hegemon. Regional hegemony is at least viable, but the United States is the only state to

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43 Ibid., 143-4.


45 Ibid.
have achieved it. The United States does actually fit the military part of the description quite well once the definition is extrapolated to the global level. The few nuclear-armed rivals in the world could damage the United States in a war, but the U.S. should still prevail, even over any two rival states. Should the U.S. be the first to act, only Russia could plausibly claim to have a nuclear second-strike capability. While the U.S. does fit the capability requirements, there are no other states that could be expected to offer a challenge. The “dominating and controlling” aspect is more difficult to apply. As with Wilkinson’s definition, this seems to imply a hierarchic system. It also does not appear to be viable. The U.S. has manifestly failed to dominate and control Cuba, a conspicuously troublesome, but weak neighbour. Mearsheimer’s definition is too strict to be useful.

Keohane and Nye define hegemony as a condition in the international system in which “one state is powerful enough to maintain the essential rules governing interstate relations, and willing to do so.” Ikenberry offers a description of how this system works. He describes the current order as a “liberal hegemony” under the United States. The system dates back to the 1940s. The Soviet Union organised a counter-hegemonic bloc, but it did not succeed in upsetting the larger order. Containment was a separate and secondary project to the formation of a liberal international order. The end of the Cold War only expanded the system to include the former rival bloc. “I argue that American unipolarity is an expansive and highly durable political order. It is not a transitional

46 Ibid., 40.
phase in international relations but a political formation with its own character and logic.”

Ikenberry believes there is an underlying hierarchy in the international system: the U.S. is the “central hub through which the world’s important military, political, economic, scientific, and cultural connections pass”. The world order is founded by the U.S. on the basis of U.S. power. He believes that this is “an expansive and highly durable political order” because of several factors.

Power is manifest in American security protection, market dominance, and the international role of the dollar. A second dimension is found in the special circumstances of American geography and historical staging. American power is offshore—geographically isolated from the other major powers—making that power less threatening and more useful in stabilizing regional relations...A third major dimension of American unipolarity is the distinctive way in which democracy and international institutions have provided the United States with mechanism to make itself less threatening to the rest of the world. The liberal character of American hegemony confers the United States with unusual capacities to make commitments and restrain power. Finally the deep forces of modernization and the distinctive principles of the American polity—civic nationalism and multi-cultural identity—also give the United States unusual influence and political congruence with world political development.

One foundation of this order was a set of liberal institutions, in particular, those associated with the Bretton Woods agreement, such as the World Bank and the International Monetary Fund. Although those institutions have undergone change, they continue to shape and safeguard the liberal international order. Traditionally, the open liberal order of trade has not extended into the realm of defence industrial goods. Political and security motivations have over-ridden economic motives, at least for major

49 Ibid., 192.
50 Ibid., 193.
states. Instead, trade in weapons is carefully managed by the United States. In this respect, many other states tend to be more liberal than the United States, being more willing to sell arms and defence technologies. Another foundation was a set of formal alliances, of which NATO is the most important. The U.S. retains a large relative power advantage over every other state in the system, a differential that has increased as a result of the disintegration of the Soviet Union: the United States remains hegemonic.

Ikenberry argues that it “has been the ability of the United States to exercise “strategic restraint”—to reduce the political implications of hegemon—that has made the political order so stable despite unprecedented power differentials”. This self-restricting behaviour helps sustain the system. “In effect, institutions create constraints on state action that serve to reduce the returns to power; that is, they reduce the long-term implications of asymmetries of power.” That restraint may be slipping, or perhaps it was actually the constraint of an opposing superpower. The United States is prepared to act against the wishes of the majority of the other powers of the system, if not actually acting against them. According to the National Security Strategy of 2002: “[w]hile the United States will constantly strive to enlist the support of the international community, we will not hesitate to act alone, if necessary, to exercise our right of self-defense…”

While Ikenberry’s “central hub” characterisation has merit, there are reasons to imagine that the U.S. is waning on some of these dimensions. The U.S. has a large and dynamic internal market, but it is smaller than the combined EU market. U.S. military

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52 Ibid., 27.

security protection is powerful against state actors, but it is weaker against unconventional threats. The dollar is still the international medium of exchange, but the euro is a viable contender. American geography is obviously unchanged, but offshore balancing remains a military concept. Other states may perceive the U.S. as a security threat in economic or cultural terms, where geography is less significant. Institutions may also be perceived as a threat. NATO, for instance, is reassuring to its members, but less so to some of its neighbours. For a non-military example, the International Monetary Fund and World Bank have been perceived as instruments of U.S. domination. The congruence between U.S. principles and modernisation allows for modernisation and Americanisation to be conflated, thus making modernisation a more threatening process for some states, even developed states.\footnote{Josef Joffe, \textit{Überpower: The Imperial Temptation of America}, New York: W. W. Norton & Company, 2006, 111-120.}

Hegemons require specific military capabilities. Simple measures of magnitude may not express this adequately. Lacking the fungibility of economic resources, military capabilities possess different characteristics, which are not readily interchangeable. Global interdiction capabilities are clearly important for a hegemon.\footnote{David Rapkin, \textit{World Leadership and Hegemony}, Boulder, Col: L. Rienner, 1990, 6.} Large armies with limited mobility are of limited value. Some military measures, such as the size of the armed forces (in which states such as China and formerly Iraq score highly) are not as important as others, such as the number of aircraft carriers (in which the United States scores highly). Among the more important military measures can be included some non-combative measures, such as global lift capabilities. An independent DIB confers the
ability to retain a force in the field with a domestic, and therefore secure, support system. Operations in support of the hegemon’s position can be conducted without the active cooperation of other states.

**Public Goods: the Provision of “Stability”**

Hegemonic Stability Theory (HST) was developed to explain the instability between the world wars, in contrast to the stability of the 19th Century and the post-war periods. This instability was primarily economic in nature, and the Great Depression was the result. However, the instability led to, and ended in, war. The theory holds that international systems are established by very powerful (“hegemonic”) states to advance particular political and economic interests. Change in the system occurs when the system no longer reflects the interests of the stronger states in the international distribution of power. Kindleberger is usually credited with having introduced the theory in his work *The World in Depression*, which examined the causes of the Great Depression. He concludes that “the main lesson of the inter-war years [is] that for the world economy to be stabilized, there has to be a stabilizer, one stabilizer.”

This one stabiliser can only be the hegemon.

This is where Keohane and Nye’s definition of hegemony (“one state is powerful enough to maintain the essential rules governing interstate relations, and willing to do so”) is applicable. Political, economic and military power are all needed. Political strength is necessary to use military and economic powers to effect—the willingness to

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which Keohane and Nye refer, as well as to induce other states to act without recourse to force. Economic power is needed for the hegemon to be able to set rules for the working of the international economy, in particular for an open international economy. “[T]he danger we face is not too much power in the international economy, but too little, not an excess of domination, but a superfluity of would-be free riders, unwilling to mind the store, and waiting for a storekeeper to appear.”

A large internal market can be used as an inducement, and serves as a stabiliser in the economic system. Military power is needed to protect the international economic system, for revisionist states may seek to forcibly impose an alternative system in place of the hegemonic system.

As originally conceived, the public good is the stabilising of the international economic system. “The hegemon provides stability in international security affairs by acting as balancer of last resort, and promotes stability in international monetary and trade regimes by acting as lender and market of last resort.”

The size of the hegemon’s economy allows such stabilising activities to be possible, and its extensive international interests makes such activity worthwhile. However, it is not necessarily the role of the hegemon to enforce open economic trading arrangements. Instead, by supplying and paying for the stability needed for open economic trading arrangements to function, it


becomes more attractive for states to join the system. “Hegemons do not impose openness, they bear its costs”: hegemony only makes openness possible.60

Public goods are those that are both non-rival and not excludable. Kennedy defines “nonexcludable” to mean “available to all once the good is provided,” and “nonrival” to mean that “a unit of the good can be consumed by one individual (agent) without detracting, in the slightest, from the consumption opportunities still available for others from that same unit.”61 Defence is a public good within a state. Citizens, at least those who stay within the state’s borders, cannot be denied the benefits of the state individually, and an increase in population will not dilute the benefits of defence to the prior beneficiaries.62

In contrast to Wilkinson, Mandelbaum asserts that the U.S. does act like a global government. The U.S. does so, not on the basis of settling disputes, installing governments, taking payments and so on, but by providing public goods in the international system in the way that a national government provides public goods domestically. The most essential of public goods is public safety, upon which all other public goods are based.63 Ordinarily, defence is not a public good internationally, but approximations are possible. During the Cold War, the United States provided the public


61 Gavin Kennedy, Defence Economics, London: Duckworth, 1983, 4. Italics in the original text. See Kennedy for a more detailed discussion of international public goods. Sandler and Hartley (4-5) also provide a useful discussion of the subject.

62 Deterrence is the public good facility of defence. In actual warfare, deterrence has evidently failed. Armed forces must be distributed, so actual protection is rival: a given defence capacity becomes diluted if distributed over a greater area.

good of defence to the West, especially Western Europe where U.S. troops were stationed. Nuclear deterrence fits the public good model quite well: it is a non-rival “good” and its credibility is tied up with non-excludability. International stability is the post-Cold War extension of the defence of the West. It is non-rival, for one more nation can enjoy it without reducing the benefits to those already enjoying it. Excludability is only possible beyond the protected region. States that are “behind the lines” cannot be barred from defence benefits.

While many states have an interest in a stable international system, the costs are so great that only the hegemon’s economy is able to bear the burden. The hegemon is also the only state willing to bear the burden: it is the only state to be able to benefit sufficiently to make the burden worthwhile. Collective action problems typically impede the provision of public goods by a large number of states. The temptation for each state is to free-ride. The non-exclusionary aspect of public goods makes it impossible to prevent a defector from enjoying the good without paying. If enough members defect, or fail to join the effort, the gains will not be worth the cost for those still willing to provide the public good. The situation is different when a hegemonic power is involved. For the hegemon, the gains for the provision of some public goods may be worthwhile even given a large number of defectors, owing to the absolute size of the stake the hegemon has in the international system. That stake must be very large: relative gains computations would rule out paying for smaller gains where other states gain more. The


costs may be defrayed if the hegemon is also able to use its influence to wring some form of payment from other states in the system.

This puts a different twist on former secretary of state Madeleine Albright’s frequently voiced phrase that the United States is ‘the indispensable nation’. We do not get a free ride. To play a leading role in producing public goods, the United States will need to invest in both hard power resources and the soft power resources of setting a good example.66

Europe was a provider of defence during the Cold War, but also was clearly a consumer of U.S.-provided defence. Free-riding was possible to some extent. In a crisis, it would have been difficult for European states to have ignored a threat from the East and passed it on to other states. In peacetime, free-riding was possible: by allocating fewer resources to defence so that other states, typically the U.S., would have to pay the bulk of the costs. This arrangement was devised by the U.S. as much as by Europe. The U.S. sought to remove European states from responsibilities in the wider world, associating them with European imperial interests which were in conflict with U.S. material interests.67 Western Europe’s role was that of a bulwark against the Soviet Union and communism. In spite of that, Europe has long grappled with the development of greater autonomous military capabilities, but such efforts have amounted to little. Nevertheless, owing more to the disintegration of the Soviet Union than to the building of capabilities, it may be that Europe is no longer a net consumer of defence, but a provider. So far at least, this somewhat limited European provision appears to be broadly compatible with the security efforts of the U.S.

Hegemonic stability theorists typically compare the current *Pax Americana* to the *Pax Britannica* in the 19th century. The United Kingdom was a provider of some public goods: aiding international stability by ensuring a balance of power was maintained amongst the major states of Europe; fostering an open economic trading order; and suppressing piracy. The U.S. has similar opportunities. Maintaining the balance of power does not, on the face of it, seem to be a hegemonic activity: why not impose solutions? However, it is a more cost-effective way of maintaining international order. As the U.K. once sought to keep a balance of power on the continent, U.S. alliances and forces keep regional balances in East Asia and the Middle East. The open international trading system is, as it was under British hegemony, more of an ideal than a reality. Even this requires maintenance through institutions and agreements. International regimes in other fields, such as the International Law of the Sea, may be appropriate successors as well, equally needful of U.S. support. Terrorism can be understood as the modern equivalent to piracy. The motivations and methods are different, but both are disruptive and expensive. Suppressing terrorism is clearly a U.S. priority.

In the post-Cold War unipolar world, the U.S. still provides some measure of international security. It is no longer associated strongly with nuclear deterrence, but rather with conventional power. While the nuclear guarantee might still be extended to allies, it is unlikely to be extended to the world at large. Instead, the sanction of conventional military response is used to help stabilise the international system. Rivalry is an issue. The extent to which such sanctions are credible depends on how much spare

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68 Ibid., 241-2.

69 Ibid., 242.
capability U.S. forces have at any given time. U.S. defence capacity has become extended by its commitments to Iraq and Afghanistan, in combination with standing commitments to Europe and Asia. Conventional military power is more excludable, especially for intervention or peacemaking missions, which have been more characteristic of Western military operations after the Cold War. The U.S. can choose where to act and whom to defend. From a systemic standpoint, the U.S. is still supporting the international system, acting to discourage and suppress proscribed behaviour. In the post-Cold War world, the public good character of this stabilising effort is reduced.

Uneven Development: the Mechanism for Change

Uneven development is the mechanism by which new great powers appear, and also that by which hegemons decline—at least relatively. It is, of course, relative power that is isolated by realists, including hegemonic theorists, as the key differentiating and ordering principle of states. In the attainment of its status, a hegemon in the international system will have advantages in production and technology. The natural tendency for the hegemon is to seek to maintain these advantages as long as possible. However, ultimately those advantages will wane as techniques, skills and technologies permeate throughout the system. It is easier to replicate a technology known to exist than to innovate to find it first. Other centres will be established that will challenge the hegemon’s superiority in production and technology.

The relative decline of the hegemonic power will reduce both the ability and the desire of the hegemon to continue to support the system as it stands. Other states are proportionately gaining while paying little.\(^{71}\) Whilst the hegemon is likely to seek assistance from other states with an interest in the status quo, it is unlikely to succeed greatly. Other states will prefer to “free-ride” in the knowledge that the hegemon will find it desirable to undertake the task anyway. “[…]n an effort to maintain its dominant position, the hegemon inevitably overpays for public goods; and differential rates of economic growth, combined with the diffusion of military and economic technologies, ensure that challengers will arise.”\(^{72}\) A declining hegemon will then attempt to defray the costs of dominion by exacting tribute from clients, by reducing its share of the cost of public goods, by changing the rules of the game to its advantage, or by resorting to preventive war.\(^{73}\)

Hegemonic Stability Theory is extended by Gilpin into a theory with assumptions and propositions. He lays out five main assumptions for HST:

1. An international system is stable (i.e., in a state of equilibrium) if no state believes it profitable to attempt to change the system.

2. A state will attempt to change the international system if the expected benefits exceed the expected costs (i.e., if there is an expected net gain).


\(^{72}\) Sheetz and Mastanduno, “Correspondence,” 168.

\(^{73}\) Ibid.
3. A state will seek to change the international system through territorial, political, and economic expansion until the marginal costs of further change are equal to or greater than the marginal benefits.

4. Once an equilibrium between the costs and benefits of further change and expansion is reached, the tendency is for the economic costs of maintaining the status quo to rise faster than the economic capacity to support the status quo.

5. If the disequilibrium in the international system is not resolved, then the system will be changed, and a new equilibrium reflecting the redistribution of power will be established.74

Gilpin defines hegemonic war as “a war that determines which state or states will be dominant and will govern the system”75, and believes this to be the primary means by which states challenge the equilibrium in the international system. Hegemonic war may result in conditions that allow for the establishment of a new international order in the event that the challenger emerges victorious. The victory of the hegemonic power is most likely to result in the consolidation of the existing order, although a weakened hegemon may no longer be able to face new challenges. Wohlforth suggests that conflict “occurs only if the leader and the challenger disagree about their relative power.”76 The EU and the U.S. are probably not in disagreement about their relative power: the U.S. is recognised as the superior military power. European states are reasonably comfortable with the liberal democratic vision of the world favoured by hegemonic America, reducing the possible gains from change,77 and making free-riding an attractive alternative. Unlike

75 Ibid., 15.
previous hegemonic periods, most of the major states in the system are formal allies of the hegemon. Whilst this was the result of a prior power competition, these alliances remain intact.\textsuperscript{78} The generally acknowledged shift from British to American hegemony did involve war, but not of Britain against America. The German bid for hegemonic did involve war, and the Soviet challenge at least presented the risk of war. While the advent of nuclear weapons may not prevent war, it must reduce the chance of change in the system arising due to direct conflict between the challenger and the hegemonic state. A war would reduce both states to a condition in which promulgating their own hegemony would be impossible. It is sensible to assume that hegemonic contests do not necessarily involve military conflict.

**Transition: From One Challenge to the Next**

Prior to the consideration of current change, there has been another hegemonic conflict, of which account must first be taken. The East-West confrontation was the defining feature of the international system, dominated by the Warsaw Pact and NATO, for most of the post-war period. The legacy of that conflict remains in the security structure of the West. It is still apparent in the legacy forces and the defence industrial bases. That is not to say that little has changed. Rather, much has changed, but the current defence and defence industrial condition is the result of a process from the end of the Cold War until now. The post-Cold War period was marked by trends relating to the termination of a hegemonic struggle. Those trends must be clarified to distinguish them from the anticipated trends of a possible new hegemonic encounter.

With the end of the Cold War came the end of a hegemonic struggle. It did not end in a hegemonic war, unless the Cold War itself be construed as such. A hegemonic war is characterised by three features. First, it is a battle between the dominant state and a rising challenger or challengers. Second, the very nature of the international system is at stake. The winner will determine how the international system will be structured. Third, the means use to prosecute the war and scope of the war will be virtually unlimited.\textsuperscript{79} The first two of these conditions were fulfilled, but the third was not. The Cold War involved the development and deployment of nuclear weapons, but the two major protagonists barely met directly even with conventional power.

Gilpin suggests that in the face of a challenge to the international system, a hegemonic power will seek to maintain the status quo. There are two ways to do this. The hegemon can seek to stay ahead of the challenger or to keep the challenger in place.\textsuperscript{80} Staying ahead of the challenger requires the hegemon to streamline its efforts to maintain the system so that its national vitality can be greater than that of the challenger. The alternative is to reinvigorate its efforts to maintain the system. Such a renewed effort to maintain the system requires additional resources. It is more difficult to undertake system maintenance when a state, or group of states, seeks to disrupt it. The resources can be externally found through demands on allies. Internally, resources must come at the expense of the citizen, either through taxes or by printing money, effectively a tax as it increases state resources at the expense of civil wealth. Increased economic efficiency is another way to increase resources. This tends to be difficult. There is always an

\textsuperscript{79} Gilpin, \textit{War and Change}, 199-200.

\textsuperscript{80} Ibid., 187-8.
incentive for economic efficiency. This may be less intense for individual firms than the state with a security agenda, but in a strongly competitive market, firms may have a similar impetus. Nevertheless, some policies may improve innovation.\(^81\)

Pressing allies for greater contributions tends to be difficult as allies have the incentive to free-ride. The long-running burden-sharing debate in NATO during the Cold War is reflective of U.S. efforts in this area. The budget deficit generated by the military build-up under the Ronald Reagan administration suggests that the U.S. sought to increase resources at the expense of future resources in lieu of tax or inflationary policies that would apply the costs in the present and near-future. Interestingly, this policy combines both internal and external dimensions. Budgetary deficits have an inflationary effect, as the U.S. consumed more than it produced. As the U.S. dollar also serves as the international medium of exchange and as a reserve currency, other states also bear the cost of that inflation—extending some of the burden to most of the trading world.

On the other hand, a state may seek to reduce the costs of maintaining the international system. A “spend to save” approach is a preventive war. By eliminating the challenger while the hegemon is still stronger, the status quo can be reinforced.\(^82\) That was an unappealing option with nuclear weapons on both sides. Those nuclear weapons are another method of reducing costs—nuclear deterrence is less expensive than conventional deterrence. The continuing existence of nuclear weapons suggests that hegemonic challenges may in the future be more like the Cold War than a world war.

\(^{81}\) Ibid., 188. Gilpin also discusses social reasons which make it difficult for a declining hegemon to achieve marked improvements in efficiency.

\(^{82}\) Ibid., 191.
Another option is to reduce the “running costs”. The hegemon can limit its expense by expanding and/or withdrawing to a more easily defended frontier.  

This was evident throughout the Cold War. The withdrawal from Vietnam accompanied an acknowledgement that this was a frontier, the sustainability of which was less than its strategic value. The U.S. made many attempts to consolidate the Americas, but did not succeed in expanding to include Cuba in its reach. Alliances can also reduce the cost of system maintenance. The most important U.S. alliances were established quite early in response to the Soviet challenge, reflective less of U.S. concerns with cost than with the prospect of easy gains on the part of the challenger. War-shattered European and Pacific states were potentially powerful but temporarily weak.

Finally, the hegemon can seek to appease the challenger. In the period before the Cold War, when Russia was staking its claims in Eastern and Central Europe, U.S. and British actions may have been appeasement. Although the Soviet Union may have been perceived as a challenger of some sort, this was before the Cold War was underway. The offer to include the Soviet Union and states under Soviet occupation in the Marshall plan was rejected, but might be considered an appeasement offer. Détente may also be related to appeasement. Overtures of friendship may reduce tensions and thus the level of alertness and military preparation.

In the latter half of the 1980s, the U.S.S.R. abandoned its hegemonic challenge to the U.S. and the West. Hegemonic theory does not cover this eventuality in great detail.

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83 Ibid., 191-2. Gilpin considers expansion one activity, and withdrawal a mode of retrenchment.

84 Ibid. He also characterises this as “retrenchment.”

85 Ibid., 193-4. Gilpin considers this to be a mode of retrenchment.
detail—perhaps because an abandoned challenge returns the system to its pre-challenge condition, so the pre-challenge analysis applies. Nevertheless, following the abandonment of the arms race, the Soviet Union faltered economically and politically, and soon dissolved altogether. Russia, as the major successor state, was no longer a superpower, and the long period of bipolarity was thus brought to an end. In the competition for hegemony, it proved to be the Soviet Union that lacked the necessary resources to compete. The typical challenger envisioned by Gilpin is “coming from behind,” and is able to innovate faster and increase its internal resources at a greater rate. In this case, it was the Soviet Union that started at a very high level of resource expenditure on its challenge as it began its “coming-from-behind” path. It proved to be unable to continue to devote that level of effort. Rather than the United States needing to pause to rejuvenate itself to meet the challenge, the Soviet Union needed to rejuvenate itself to continue the challenge. Soviet leaders perceived the inability of the Soviet economy to continue the challenge without rejuvenating the state. However, during the regenerative period, it would be weakened. As Clark observes “[e]ssentially, the U.S.S.R. had other choices but decided not to exercise them and, in that very important sense, agreed to the end of the Cold War. It was thus negotiated and not imposed.”

The post-challenge settlement was thus agreed during the challenge phase. The Soviet Union was allowed to stand down, abandoning its challenge, and attempt restructuring.

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without the fear of its destruction at the hands of the hegemon. Whether it could survive
the rejuvenation process was another matter.\textsuperscript{87}

It is worthwhile to note that the change in the condition of the U.S.S.R.’s defence
industries, reflected the change in international standing of the U.S.S.R. and its successor
states. The rejuvenation process was a very difficult transition for the Russian defence
industry. The primary domestic “market” contracted both sharply and markedly. Export
markets also became suddenly more difficult, particularly after their poor performance in
the Persian Gulf War. Many traditional markets for Soviet defence equipment were
nearly captive in “satellite” states. These buyers gained access to competing Western
systems, and often a preference for Western markets with an eye to future cooperation
with and, indeed, membership in NATO. Nevertheless, a few Russian industries have
succeeded in carving out an international niche through the quality and price of their
products.

In the closing stages of the Cold War, the United States drew more on its internal
resources: defence expenditure rose at the expense of the federal deficit. This could also
be interpreted as increasing current resources at the expense of future capabilities:
“mortgaging” the future. After the end of the Cold War, effects opposite to those that
might be undertaken in response to a hegemonic challenge should have been observable.
Responses to the challenge are no longer needed and a return to normal affairs can be
expected. Indeed, throughout the West, the desire to redirect resources previously
applied to defence has been clearly observable, although with different timing and levels

\textsuperscript{87} Ikenberry, \textit{American Power}, 2001, pp. 219-221.
of intensity from state to state. It is in the context of post-Cold War relaxation from what might be termed “hegemonic alert” that the next change may occur.

With end of a hegemonic challenge, the international system should not have required the same level of resources dedicated to its maintenance. In the post-challenge period, the U.S. should have reduced the application of internal resources to system maintenance, weakened ties with allies and expanded the frontier with less regard to its sustainability.\(^{88}\) Most of the priorities for defending against a challenge become less important. The level of internal resources applied to system maintenance should have fallen quickly. The general move towards cutting defence spending after the Cold War suggests that internal resources devoted to maintenance were indeed reduced. The defence industry in the United States was reduced by consolidation as well as by the reduction in defence contracts. There has not been a discernible relaxation in the drive for economic efficiency. This is seen as essential for mere economic rivalry with allied and non-allied states. Some effort was made to convert the defence industry to commercial pursuits, with limited success.

Détente was superseded by a rather more harmonious relationship with the former challenging superpower. Elsewhere, appeasement is not in evidence. The United States is showing little patience for states that it believes are abusing the rules of international trade to its detriment. The frontier of Pax Americana have expanded, now encompassing most of the world. It incorporates most of the former challenger’s sphere of influence. A few states with autarkic inclinations or with strong anti-Western or anti-American stances remain somewhat apart. Pre-invasion Iraq was one such state. Iraq remains troublesome

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\(^{88}\) Appeasement may have taken place, but in the post-challenge period, there are none to appease.
through U.S. and coalition occupation, for Iraq has become a state that attracts armed opposition to the U.S.

In the West, reliance on nuclear weapons for inexpensive deterrence has declined. The allied debate over deterrence faded without a perceived major national nuclear threat to Western Europe. Most major nuclear powers have reduced their arsenals, albeit without the willingness to dispense with them altogether. Without a hegemonic challenger, there does not appear to be a target “worthy” of a strategic nuclear response. Instead, the effort has shifted back to conventional weapons. These are more appropriate for defending the more nebulous frontier. This brings preventive war back on the agenda. It was not a viable cost-saving measure during the Cold War, but now is conceivable as a device to eliminate non-nuclear threats. United States and coalition operations in Afghanistan and Iraq have been in part to secure these territories so that threats may not emerge from them. The rationale was to take the war to the enemy, where the enemy is not necessarily the state itself, but anti-U.S. organisations that may be supported by these states or seek safe haven there. For those states dissatisfied with the rules of the international system, such as Iran and the Democratic People’s Republic of Korea, nuclear weapons are an attractive deterrent. Preventive war against such a state challenger would have to take place prior to the challenger gaining nuclear weapons. The U.S. has sought to limit the spread of nuclear weapons technology as well as missile

89 Small tactical nuclear weapons may be more useable. The U.S. is considering the deployment of low-yield (in the order of one kiloton) nuclear weapons for battlefield roles. Low radiation bombs could be used for ground penetration, and higher radiation to combat chemical and biological weapons. Paul Reynolds, “Mini-nukes on the U.S. Agenda,” BBC News. <http://news.bbc.co.uk/2/hi/americas/3126141.stm> July 17, 2007.
technology for delivery systems. Delaying the acquisition of nuclear capabilities by potential challengers keeps preventive war “on the table” as a viable option.\textsuperscript{90}

The questions over the future of NATO may suggest that the importance of allies has declined. NATO endured and continued to find roles, while two major inter-alliance Cold War debates have also endured, and indeed have been reinvigorated.\textsuperscript{91} The burden-sharing issue and the size of NATO’s operational area remain contentious, but they are now intertwined. The previous U.S. admonitions over the inadequate European contributions to defence have turned into concerns about the European Security and Defence Policy and European forces. The U.S. is concerned that Europe might undertake missions that do not meet with U.S. approval, all but impossible under NATO. A Europe taking independent responsibility for the maintenance of the international system is not at all what the U.S. now seeks. In the longer term, it could form the foundation of a “Fortress Europe,” in which U.S. influence in sharply reduced.\textsuperscript{92} Fortress Europe, in turn, raises the prospect of a European challenge to the U.S. hegemony in the international system. Even without intentionally challenging the U.S., united and expanded European power could upset the international balance by creating a security dilemma problem between the EU and the U.S. 

There are reasons to believe that the United States is gearing up for the next challenge in its capacity as hegemon. The European Union is not the target, but the

\textsuperscript{90} There are new nuclear powers, which have not been subject to preventive war, only other forms of pressure. The United States evidently does not consider preventive war to be a favoured means of preventing nuclear proliferation.


future possibilities of China and Russia need to be hedged against, and the immediate problems of international terrorism require attention. Given the choice between streamlining costs and reinvigorating maintenance, the U.S. has chosen the latter. Indeed, the first option makes little sense against a non-state challenger. The U.S. defence budget has risen dramatically, with special attention given to so-called homeland security aspects of defence. Operations account for another rise in spending. The U.S. has chosen to war against Afghanistan and Iraq, because of terrorist bases of operation in the former, and concerns about the intentions and weapons of mass destruction in the latter. These actions can be seen as preventive and deterring, seeking to impede further terrorism, and in the case of Afghanistan at least, punishing as well. The U.S. hopes to defray threats to its homeland by meeting the threats abroad and extinguishing them. This also means that the U.S. has chosen to expand its frontier to meet the new threat. There has been little apparent accommodation to the new costs. Allies have been pressed for contributions. For Afghanistan, the significant contributions were made. As of June 2007, 36 other NATO and non-NATO states collectively provide more personnel than the U.S. for continuing operations.

Allies generally supported the U.S. invasion of Iraq as well, with notable exceptions in France, Germany, and Canada. Italy, Spain, the U.K were amongst the many offering support, as did most of the Eastern European states. Regardless of the national position, popular opinion was strongly against the invasion. Russia and China, significant powers not strongly aligned with the U.S., were opposed. Iraq was less convincing as an appropriate expansion of the frontier. Some have styled the U.S. as a
rogue superpower;\textsuperscript{93} its power destabilising rather than stabilising. U.S. ideals are cast as morally deficient, and culturally and socially retrograde.\textsuperscript{94} In part, this is because of the occasional willingness of the U.S. to directly apply military power on its own recognisance.\textsuperscript{95}

European collaboration on security can be seen as a response to the perceived misuse or unreliability of U.S. power. The direction of U.S. attention away from Europe leaves a security gap for the EU or European national actors to fill. Elsewhere, U.S. intervention is perceived with greater alarm. Opinions are mixed on the development of China’s military power, but the military budget is a growing share of a rapidly growing economy. Even if balancing is impossible for the time being, U.S. power may be provoking responses. These responses are not the workings of a security dilemma; however, efforts to intervene in the system may generate more instability in the system. Hegemonic international system maintenance is a thankless task.

**Levels of Change**

As mentioned previously, three types of change are possible. The highest order of change is that of systems change, in which the very nature of the units comprising the

\begin{itemize}
  \item \textsuperscript{93} The term was coined by Samuel Huntington in “The Lonely Superpower,” describing how some the U.S. can appear to some states.
  \item \textsuperscript{94} Joffe, Überpower, 80-94. “Morally deficient”, “culturally retrograde” and “socially retrograde” are Joffe’s choice of words.
  \item \textsuperscript{95} Joseph Nye, “Soft Power and Smart Power: The United States has forgotten how to use soft power,” *Internationale Politik* Transatlantic Edition 7, no. 3 (Summer 2006): 10-11. One might also observe that liberal capitalism looked particularly attractive when the apparent alternative was communism.
\end{itemize}
international system changes, thereby restructuring the system. Systemic changes, the intermediate level, alter the hierarchy of prestige amongst states within the system, and the rights that are conferred upon them, as well as the rules that govern interactions. The smallest change is at the level of interaction, wherein the interaction practices between states are altered (within the systemic rules) to delay or to bring on higher order changes. When relative state capabilities change, then so will expectations about how these states will interact in the system. Systemic change can be delayed by manipulating rules of transaction. Favouring a rising state may placate its ambitions, and reduce the gains from a successful challenge, but will provide it with additional resources. Penalising a rising state may make it more difficult for a rising state to amass the necessary resources to mount a challenge, but will increase the relative reward for a successful challenge. In general, systemic change is not a viable device for delaying or hastening systems change. Whereas the major units of the system are the major actors in systemic and transaction change, systems change may bring new units in and take existing units out. Moreover, the source for systems change may be found outside the major units of the system, in forces acting on states rather than forces employed by states.

**Systems Change**

The model of Westphalian sovereignty underpins the current system. Under this

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97 Ibid., 42.

98 Ibid., 43.

system, all states are equal in principle, but major powers have much more influence, even to the extent of organising the rules of trade. It is possible to avoid those rules, for the system is anarchical, but typically will come at the cost of lost economic benefits. Institutions and regimes may be organised by the major powers and other actors to help smooth the running of the international system, but those same major powers may overrule or subvert them. Other non-state actors are involved in international activity, but “[w]hen the crunch comes, states remake the rules by which other actors operate.”\textsuperscript{100} For a systems change to occur, the very character of the units that make up the system must change. That is, either the nature of the nation-state must undergo a fundamental change of character, or nation-states must cease to be the major actors in the international system, or at least, the only major actors.

The state has been dismissed as a fading entity, even if only in a partial sense. Kindleberger remarked in 1969 that the “nation-state is just about through as an economic unit.”\textsuperscript{101} Since then the state has persisted, but if there comes a time that the state is unable to continue to accomplish those functions that it needs to survive in the international system, then the existing system must change. The system is composed precisely of the interactions of mostly fully functional states. If states become dysfunctional in the political, economic or military spheres, then a new system should emerge. This applies equally to the political, military and economic realms: incapacity in any field would render change inevitable.\textsuperscript{102}

\textsuperscript{100} Ibid., 94.
\textsuperscript{101} Kindleberger, \textit{Dominance and Leadership}, 207.
\textsuperscript{102} Waltz, \textit{Theory of International Politics}, 94.
Europe could be the forerunner of a new post-Westphalian system. In the European Union, states co-exist with the European “super-state,” to which at least some sovereignty has been relinquished. So far, most of the security aspects of sovereignty remain in the control of the constituent states. However, should Europe coalesce into a single state, it would not be a change in the system: the appearance and disappearance of states does not constitute systems change. It might, however, herald a systemic change. Should the European Union’s system of overlapping sovereignties spread, that could give rise to systems change. This would mean that the state as the sole repository of sovereignty would be replaced by a sovereignty divided and overlapping between different levels of government. The defence industry would be at least be torn between the level of government responsible for defence and the level responsible for industry. The extent to which the defence industry is domestic is therefore ambiguous. The European pattern could spread either by the continuous extension of the European model, or by the adoption of that model in other regions. Neither seems particularly likely. While the borders of Europe are not well defined, the EU is not keen to extend beyond them.\textsuperscript{103} Cooperation in no other region has developed to the same extent. Finally, the European project has taken place under the shelter of U.S. protection, including a nuclear guarantee, and the presence of U.S. forces, which reassured European states about the peaceful intentions of each other. The EU is a pocket of peaceful integration which owes

\textsuperscript{103} Morocco has been denied consideration for EU membership on the basis that it is not in Europe. Timothy Garton Ash, \textit{Free World: America, Europe and the Surprising Future of the West}, New York: Random House, 2004, 192-3. Turkey may be brought into the EU, which would extend the EU into Asia Minor. However, at least part of Turkey, that which extends west of the Bosporus, is geographically part of Europe.
its existence to the military might of balance of power politics. It would seem impossible to secure the whole world in this way to generate projects analogous to the EU on a global scale.

Europe’s vision of the ideal international system aligns fairly well with that of the United States. Neither Europe, nor any potential state challenger, seems to offer a grand ideological challenge in the way that communism did during the Cold War, or fascism did before and during the Second World War. Radical Islam may be such a grand ideological challenge. There are some states that adhere to radical Islamic principles, such as Afghanistan under the former Taliban regime, or perhaps Iran. None of the radical states can reasonably aspire to great power status, and to use this ideology to help motivate a challenge. Even collectively their systemic power is very limited. Proponents of radical Islam have shown a willingness to use terrorism to oppose the existing international order. Such means may or may not actually disrupt the order. The 9/11 terrorist attacks helped propel the United States into a stronger position in the West, and gave early legitimacy to U.S. leadership and military interventions. State-led challenges are not feasible. Association with terrorism can be costly for regimes, even terminal as in the case of Afghanistan. While the threat of terrorism is not a traditional hegemonic challenge, the U.S. response suggests that it is being interpreted as such. These responses have also had the effect of expanding the defensive perimeter. Allies have been employed to some extent in both conflicts, but the initial phases of the operations have been largely American. The “war on terror” has caused the U.S. to substantially increase spending on defence and other facets of national security. Other Western states have not

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followed suit to the same extent. The gap between U.S. defence spending and that of other states has widened. The U.S. budgetary deficit has again expanded to meet these expenses, as a way of increasing internal resources in the present. These are eventualities consistent with the recognition and response to a hegemonic challenge.

A more likely source for systems change is an entrenched globalisation of the international economic system. “Globalization,” Held and McGrew tell us, “can be conceived as having two interrelated dimensions: scope (or “stretching”) and intensity (or “deepening”).” Most figures on globalisation are reflective of scope: quantity of trade, financial movements and the like. If globalisation extends to the defence industry, it would be a matter of intensity: a deep penetration of the state. Norman Angell asserted in 1910 that since conquest had become unprofitable and economies had become interdependent, then war could be averted. The idea was discredited in a few years by the onset of the Great War. It would be hasty to interpret globalisation of the defence industry as even a possible “antidote” to war between states. However, where economic interdependence makes war more costly, globalisation of the defence industry may make major wars more difficult to wage.

While smaller states may have never experienced self-sufficiency in military production (at least in the modern era), they could have done so. Small states do not have the resources to develop a complete modern defence industrial base, but autarky is in principle possible. It would imply managing without more advanced weapons, and some


107 Especially from an opportunity cost perspective.
categories of weapons, and would thereby bring about a net reduction in real security. For the major powers of the system to lose such self-sufficiency is a different matter, for it implies that self-sufficiency in defence production may be altogether impossible. Should this happen, the self-help principle of anarchy will become unsustainable: states will be unable to rely on their own resources. That would be a change from the current international order to a new system.

Systemic Change

Maintaining U.S. hegemony is an expensive task. “Strategic overextension” has been thought to be the downfall of empires in the past. This may be the fate of U.S. hegemony, especially if a strategy of preponderance remains in favour. A strategy of preponderance is based on the extended deterrence capacity of the hegemon as the guarantor of international order. This in turn requires the U.S. to intervene abroad on an extensive basis. Failure to do so would put the credibility of deterrence at risk and encourage further challengers and challenges. Challenges are likely to persist. Without the zero-sum game of bipolarity, few international events will seem to endanger vital U.S. interests, so that testing the U.S. can be tempting. U.S. interventions in Afghanistan and Iraq suggests that the few vital U.S. interests have been found and tested, and the U.S. has responded. Thus preponderance is expensive in its military


109 Ibid., 261.

110 Ibid., 265.
investment, both in maintaining force levels and in operations. This expense exacerbates the uneven development problem, as investment is distributed inefficiently.\footnote{Ibid., 268-9.}

Most structural realists regard unipolarity as an inherently unstable structure.\footnote{On the other hand, under Wohlfforth’s definition above (“a structure in which one state’s capabilities are too great to be counterbalanced.”) unipolarity should be expected to be very durable.} An “unbalanced” state, regardless of its intentions or actions, will come to be regarded as a possible threat. It is a threat by virtue of capability. A powerful state may be friendly now, but a change of regime or of international conditions may make it an opponent in the future. Balance of power is the key mechanism in structural realism. The international system may not be in balance at any given time, but the system tends towards balance. States will thus seek to balance against the United States, when it is both viable and seemingly desirable. In doing so, some state, or group of states must challenge the position of the hegemon in the international system. Are states such as France, Germany, the United Kingdom, Russia, Japan and China candidates for such a challenge? There is little immediate desire evident for even these states to challenge the United States, especially on a military level. They do not have the resources to make a challenge viable. If they are reclassified as major powers, but not great powers, the formation of the European Union may be a way to escape this problem. Three or four major powers and a number of smaller powers are agglomerating their strength. The Union’s foreign policy and military power would need to be brought up to match its
economic strength. Another route would be form a counter-hegemonic coalition going beyond Europe to include Russia. That would be a traditional balancing act.\textsuperscript{113}

For some analysts, the European Union is the leading candidate to play the role of challenger in the short term, even if the U.S. is not reacting to it. Huntington observes that “Japan, the United States, and the Soviet Union have specialised respectively in investment, consumption and arms. Europe balances all three,”\textsuperscript{114} suggesting that striking such a balance may be effective for growth. Collectively, Europe scores well on the various measures of power. It has the world’s largest market, being somewhat greater than the U.S. Two states possess nuclear weapons, and perhaps even a second-strike capability with ballistic missile submarines. European military forces are large and advanced, but not integrated and better oriented to defence in comparison to the United States with its unrivalled expeditionary capabilities.

Three possible futures are found by Jervis for future U.S.-European relations. One is that other major states decide that the costs of collective action are too high and therefore accept the status quo. The hegemony of the United States would be seen as being relatively benign. The second possibility is that the European states, having united, would align with other powers to balance against the United States, but without military competition. The third is that the U.S. withdraws from Europe amidst the usual burden-sharing and out-of-area issues, leading to a U.S./European split. In this scenario, there is the possibility that Europe would succumb to internal balance of power politics, but again

\textsuperscript{113} David G. Haglund, “Has France Finally Said \textit{auf Wiedersehen} to Its German ‘Problem’?” \textit{Orbis} 48, no. 3 (Summer 2004): 394. Haglund, assessing the French point of view, notes a third option for France: waiting for U.S. decline (and presumably hoping that French power does not decline prior to or in tandem with U.S. power.)

\textsuperscript{114} Huntington, “Decline or Renewal,” 93-4.
without the likelihood of force being involved. Kindleberger expressed six possibilities for the world in which Europe gains economically relative to the United States. The first three are stable. The continuation of the U.S. as a strong leader would result in the continuation of the existing international system, so at most interaction-level change could occur. Also stable, but constituting systemic change, is the replacement of the U.S. by Europe as a strong leader of the international order. Thirdly, although Kindleberger believes it unlikely, stable systems change could arise through effective international institutions replacing the leadership of the U.S. There are also three unstable possible futures, all of which are characterised by a lack of clear leadership: Europe and the U.S. could compete for leadership; or one finds itself able to lead but is unwilling, whereas the other is willing but proves unable; or a two part unit-veto system arises in which each can nullify acts of economic leadership of the other and tends to do so in its own interests. These unstable possibilities seem to be cases of the ineffective or incomplete transitions of power is HST: instability born of the lack of hegemony.

The development of the European Union has a major effect on the distribution of power in the international system in all schemes for the measures of power. “To bring an end to unipolarity,” Wohlforth writes, “it is not enough for regional powers to co-ordinate policies in traditional alliances. They must translate their aggregate economic potential into the concrete capabilities necessary to be a pole: a defense industry and power...
projection capabilities that can play in the same league as those of the United States.\textsuperscript{117} The European Union may do just that. The defence industry is considered one of the two elements unto itself by Wohlforth, and is an important part of the other. However, power projection capability is primarily a matter of political will, which may rest on the success of the European Security and Defence Policy.

Another possible view of the capabilities of the European Union is that, as a large intergovernmental organisation, it will never be able to draw upon its power resources in the same way as an integrated state can.\textsuperscript{118} However, its economic and military power are considerable. Kindleberger observed that France in between the wars was unable to act as a system stabiliser, but it was large enough to be a “destabilizer”.\textsuperscript{119} Perhaps the EU is in such a spoiler position today and will continue to be in the future. It has a large economy with a common (but not to all) currency, which is slowly joining the U.S. dollar as an international currency. Its foreign policy and defence resources are considerable, but are rarely coordinated in a unified purpose. Therefore, the EU seems more like a possible economic spoiler than a security spoiler. A systemic change requires that a great power mounts a hegemonic challenge.

The European Union Rapid Reaction Force as proposed would be a way of carrying out EU foreign policy more effectively, rather than a beginning to a counter-balancing force. While there may be a desire in France to make this fully independent

\textsuperscript{116} Kindleberger, \textit{Dominance and Leadership}, 308. Kindleberger was writing in 1981, a period of renewed superpower rivalry, and U.S. hegemony was being challenged.


\textsuperscript{118} Observing Waltz’s distinction between integrated and interdependent, Waltz, 104.

\textsuperscript{119} Kindleberger, \textit{Dominance and Leadership}, 303.
from NATO, this desire is not prevalent amongst the other major European states. Owen argues that French objections are based on a strong streak of national independence and attachment to the *mission civilisatrice*, something that is not particularly compatible with another state’s predominance. Importantly, it is not based upon security fears. 

Whilst realism generally favours state actors, a Franco-German condominium or the European Union is sometimes offered as a substitute. While the France/Germany combination might be strong enough, neither the German public nor political establishment has any interest in expanding their military strength or reach enough for the pair to mount such a challenge. This suggests that the EU is a better candidate: it is more unwieldy, but adds the power of other important states to the mix, especially Italy and the U.K. Wohlforth observes that “if the EU were a state, the world would be bipolar”. The EU might be able to bypass problems of building up to become a challenger as well as those of regional opposition. However the EU has the problem of converting and aggregating the power elements of its individual states into a cohesive force. This involves unifying the militaries and defence industries, as well as creating single-minded direction.

121 Ibid., 142-3.
124 Ibid., 29.
At the other end of the Eurasian continent, Southeast Asian states may or may not follow the European example. Franco-German accommodation was essential for European cooperation and integration to proceed. If there is to be an East Asian equivalent, it would have to be Japan and China, who have made no such accommodation. Ten or fifteen years ago, Japan was regarded as a potential future hegemon. Its strength was primarily economic. The economy was strongly configured towards exports to the United States and Europe. The size of the Japanese economy allowed the country to maintain considerable military forces with a relatively low defence spending. While its military “Self Defence Forces” are advanced and capable, constitutional restrictions seek to keep the forces optimised towards defence and therefore non-threatening. Japan’s political strength was undermined by regional lingering hostility by its neighbours, a legacy of the Japanese empire before and during the Second World War. After a decade of economic malaise, Japan’s prospects for hegemonic challenge are limited.

Instead, China has emerged as the next prospect to mount a hegemonic challenge. Sustained economic growth rate has brought China up to regional power status, and continues unabated. The growth of its influence is impeded by its geographic situation. Russia and India are likely to resist domination. In other directions, China finds outposts of the United States, in Japan and South Korea, and in the waters near


Taiwan. U.S.-China rivalry is evident, but has so far been manageable. On the economic side, China has been brought into the World Trade Organization, but trade disputes remain. China has a great surplus in its trade with the United States. Washington charges China with maintaining an artificially low yuan pegged to the U.S. dollar. In July 2005, the yuan was pegged to a basket of currencies, still at a low level, but relieving some of the pressure on China. On the security side, China and U.S. are in potential opposition over Taiwan. The U.S. Pacific Fleet is one of the primary forces helping Taiwan to remain autonomous. There is Chinese interest in countering particular U.S. strengths. One such strength is in space. In late 2006, a Chinese laser targeted a U.S. satellite in an apparent test. Following that, a redundant Chinese satellite was destroyed in an anti-satellite missile test.

China’s defence industry, like much of China’s industry, is rapidly advancing from a low starting point. Traditionally dependent on old Soviet designs, China has become more ambitious. New designs, based on Russian and Western licenses, are in production. Indigenous design is being supported, but appears to be well behind what can be licensed. The DIB in China is not integrating with the major defence industries of the West. It is not independent, having not developed a sufficiently high level of design capability. Nevertheless, the political goal for the Chinese DIB could well be autarky. This deliberate non-integration permits a more confrontational position than an interdependent DIB. It is a DIB supportive of a challenger.


128 Even while the term “independence” is avoided by most parties. The U.S. does not guarantee Taiwanese independence, but clearly has an interest in it. See Nancy Bernkopf Tucker, “China-Taiwan: US Debates and Policy Choices,” Survival 40 no. 4 (Winter 1998-99): 150-167, for a discussion of this complex issue.
Transaction Change

In 1991, Krauthammer developed the idea of “the unipolar moment” in an article of the same name. The United States is the only “pole” of power in the post-Cold War world. Conflicts in the Persian Gulf and the Balkans have helped clarify this world structure. The United States leads the West, especially in matters of security. Without U.S. participation, other states are unwilling and probably unable to assert themselves in matters of international security. In theory, the new goal for the United States is to prepare for the inevitable next hegemonic challenge. One way to do that is to seek to prevent another state from reaching any position from which a challenge could be mounted. This is the policy of primacy or predominance.

Mearsheimer argues that anarchy still exists and that states still think rationally, and that intentions are still ultimately unknowable—continuity marks the system. In transaction level change, the international system will continue to be composed primarily of state actors, and will continue to be unipolar. Although significant transaction level changes suggest a higher order change may be impending, the term will be used here to refer to lower levels, in which the status quo is broadly retained. Some change seems inevitable, and will be presumed, in line with the principle of uneven development.


130 Mearsheimer cites an “important Pentagon planning document” in 1992 as reading “Our first objective is to prevent the reemergence [sic] of a new rival…that poses a threat on the order of that posed formerly by the Soviet Union…Our strategy must now refocus on precluding the emergence of any potential future competitor.” “The Future of the American Pacifier.” *Foreign Affairs* 80, no. 5 (September/October 2001): 46.

such change is the continuing rise in the cost of defence products. Such long-term trends must be noted and must be discounted from developments—they may be causes, but are not effects. The question which requires judgement is whether changes are suggestive of system or systemic level change, or whether transaction level change in support of the status quo prevails.

Waltz’s argument that certainty is relatively high in a bipolar system compared to a multipolar system is extended by Wohlforth to unipolar systems having a still higher level of certainty. The clarity offered by unipolarity can be put to use, and improved upon through a transparent approach to defence. Ikenberry believes that the United States has used international institutions to bind most of the West to it and to each other. Through these institutions, the United States has made a trade-off: transparency and strategic restraint for the perpetuation of power. Other states, notably the European powers, have followed along because they limit the consequences of both loss and gain in international transactions. This follows presumably from the risk-averse nature of states, seeking survival first and foremost. This offers a mechanism by which unipolarity could be made more durable. When the U.S. acts forcefully and unilaterally, it threatens the sense of strategic restraint and undermines the international institutions. This weakens the bonds and decreases the sense of security for other states in those institutions.

133 Ikenberry, “America’s Liberal Hegemony,” 26-27.
It has been said that “Europe remains the indispensable partner without which American global leadership becomes unilateral”\textsuperscript{134} If the United States is to have a major partner, Europe is the best prospect. It has an advanced industrial economy and the resources associated with that. Its population is large enough, and is well educated and skilled. The European states individually have diplomatic experience and connections throughout the world.\textsuperscript{135} Europe has not approached its military potential, but does offer some expeditionary capacity and modern weapons. If Europe were able to act independently in the world and deploy real capabilities at distances abroad, it would be a helpful partner to the United States, as long as it remained democratic and peaceful. Only Europe has the potential to serve as such a partner for the United States.\textsuperscript{136}

Similarly, Daalder and Goldgeier also argue for the United States to “put Europe first,” over other possible regions or institutions for focus, such as NATO or Russia, although they do play a role. Russia, they argue, should be encouraged to become as European as possible, and NATO is the main institution linking the U.S. to Europe.\textsuperscript{137} Russia’s status is strongly dependent on its military power, and its remaining nuclear stockpile in particular. Economic transition proved difficult, reducing Russia’s economic power. Most of Russia’s key “allies” in Europe have defected to seek entry into NATO

\textsuperscript{134} William Wallace, “Europe, the Necessary Partner,” \textit{Foreign Affairs} 80, no. 3 (May/June, 2001): 16. This is presumably intended to invoke Albright’s above description of the U.S. as the “indispensable nation.”

\textsuperscript{135} Ivo H. Daalder and James M. Goldgeier, “Putting Europe First,” \textit{Survival} 43, no. 1 (Spring 2001): 73.

\textsuperscript{136} Ibid., 77-8.

\textsuperscript{137} Ibid., 76-7. Putting Europe first differs from putting NATO first in that it is broader in its understanding of Europe: it includes non-NATO states. It is more encouraging towards the European Union, as well as more encouraging about the development of autonomous European military capabilities.
and the European Union. The United States has demonstrated a willingness to override Russia’s concerns, by extending NATO to the East, and by military action in the Balkans. Russia’s more recent economic growth has been aided by improvements in natural resource exploitation, especially in the energy field. The recovery is not sufficient for Russia to be able to afford a hegemonic challenge on its own. Russia is using these resources to become more politically assertive, seeking to improve its position in the international system.

Steps towards international co-operation may be impelled by the desire for cost-effective defence. European states in particular would be seeking to overcome the problem of small national markets. They would also seek to make their industries more competitive in international markets, in particular with respect to their U.S. counterparts. The U.S. defence industries, in turn, would aim to ensure their dominance in international markets, in particular with respect to their strongest competitors—European manufacturers. Sacrificing specification for efficiency may be a way of accomplishing this. All would be seeking to ensure their security with respect to the supply of advanced as well as basic defence equipment. In this scenario, defence industrial reorganisation helps sustain the U.S.-led Western security apparatus, with some European autonomy, in the face of increasing costs and reduced defence expenditure. It may also seek to cope with the rising U.S. defence budget.

Realism concentrates on relative gains. The question is “relative to whom?” It is reasonable to imagine that states may co-operate with states from which they perceive little threat if they gain absolutely, but not relatively, provided this state gains relative to a third state that they perceive to be a threat. Medium-sized states may attach themselves
to each other, in a reciprocal arrangement of mutual dependence. This selective internationalisation may be mistaken for globalisation. Moreover, selective internationalisation in the defence industrial sector could be a device for security dependence rather than interdependence. Smaller states may be affixed to the larger defence industrial base of a major state, as the Canadian defence industry has become an adjunct to the U.S. DIB. This makes it difficult for the smaller state to extricate itself from the tie, whilst the larger state may be able to cut itself off with only acceptable adjustments.

The West may be said to be a community of states. The liberal international order is of advantage to the United States, European states and Canada, amongst others. Various institutions, most notably NATO, provide a structure for the community by reducing the transaction costs of diplomacy. There is an order of prestige within this community, and the United States stands at the fore. The U.S. shoulders most of the burden, and claims most of the credit for the maintenance of this community. 138 In the post-war period, the U.S. was the only state with the necessary resources to do so. Krauthammer observes that, while economic strength is a condition of great power status, it is not, however, sufficient. Japan and Germany or Europe have not ascended to a level comparable to the United States. 139 Owen argues that states with similar ideologies tend towards solidarity. Gains for that ideology are in some ways common gains. 140 Western European states have a similar liberal outlook as the United States, so they do not regard


the U.S. as a threat. Therefore, there is no need for Western European states to seek to balance the U.S.\textsuperscript{141} They may prefer other configurations to unipolarity under U.S. hegemony, but the desire is not one driven by security needs, and may not be worth acting upon.\textsuperscript{142}

The increase in defence spending of the United States is primarily in the interests of contesting the “war on terror,” both abroad (esp. Iraq and Afghanistan) and at home (“homeland defence”). This may be interpreted as the U.S. responding to a challenge to its hegemony. Unlike traditional challenges, this is not the hegemon responding to the rise of another state. It may have the effect of helping maintain U.S. primacy in the international system. The U.S. is becoming more of a presence in the international system. Other large states in the system are uninterested in keeping abreast of U.S. defence spending. As this defence spending is not directed to maintaining the U.S. lead over national challengers, however, it may have the effect of diminishing U.S. primacy. The costs of conducting the “war on terror” are costs to the U.S. economy without increasing the power differential to other states in the system.

**Conclusion**

This chapter has established the starting point, a force and a mechanism for change, and a motivation for change. The international system is a Westphalian state system with a unipolar distribution of power and a hegemonic character. Uneven development is the principle by which the status quo drifts out of balance. That changing

\textsuperscript{141} Ibid., 129.

\textsuperscript{142} Ibid., 131-2.
distribution of power gives rising states the desire to gain privileges and benefits befitting their new station. This chapter has also offered three different kinds of change that might occur. The lowest level of change, transaction change, is important for the states involved, but does not alter the character of the system. Such changes are frequent, as states jockey for position. It is useful to keep these in mind, for not all signs of change will lead to something profound. The middle level of change, systemic change, is a profound change in the distribution of power. It is a change in the number of poles of power in the system. Such changes are infrequent, generations or lifetimes apart. A unified European Union is the only immediate prospect to challenge the United States, however unlikely that may be. Future challengers can be expected, and China is the foremost prospect. The highest order of change, systems change, alters the character of the units of the system themselves, along with the system as a whole. Expectations of theorists are mixed; each outcome has its proponents. The task is to use an examination of the defence industries to make that prediction.
The Post-Post-Cold War Strategic Environment

A new security environment is coming into being with a push and pull. The “push” is the emergence of new kinds of threat, which are transnational and asymmetric. The international security environment has changed markedly over the last two decades. After the relative stability of the Cold War security situation, the post-Cold War era was much more ambiguous and changing. The Persian Gulf War was undertaken and concluded in satisfactory fashion by U.S. and coalition forces, but was not the progenitor of a series of mechanised wars. It was not until the 11 September 2001 terrorist attacks on the World Trade Center, Pentagon and one other target (narrowly averted) that the new threats were shown in sharp relief. A firm direction for (U.S., at least) security efforts was established. It remains to be seen whether it is the most fruitful direction to improving American and international security.

There are still perceived to be a few dangerous states: the United States would offer the remaining two elements in the so-called “axis of evil,” Iran and North Korea, as examples.¹ Much of the danger to state security is now from non-state actors. Indeed, traditional inter-state military rivalry is no longer the major kind of threat to international

¹ And *vice versa*, no doubt.
security. The danger of war between competing industrialised states with mechanised military force has lessened. So-called “rogue” states, possessing or seeking weapons of mass destruction and their delivery systems are of greater concern.\(^2\) Sometimes it is the failure of some states to continue as viable governing entities that causes international instability in some regions. Civil war, genocide and large scale migrations can be affronts to Western values as well as long-term dangers to the international system. Transnational criminal organisations, such as drug traffickers, seek to circumvent the national security apparatus and constitute a threat to the national well-being. Transnational terrorist groups likewise seek to infiltrate, but with more deliberate aims to destroy national infrastructure. As with some dangerous states, asymmetry is a key idea—they have the capability to do great damage, out of proportion to their size.\(^3\) Many new threats, or newly perceived threats, are not related to military activity or weapons. Environmental degradation, transnational refugee movements and international organised crime are not traditional international threats. Military resources are unlikely to be useful in solving such problems. Defence industries are therefore unlikely to be involved, and so such threats fall outside the scope of this paper. Other threats that have moved to the fore are of interest, such as international terrorism, ethnic cleansing operations, and the proliferation of weapons of mass destruction.\(^4\) These may not involve states as lead


actors, but states and national resources are involved at some stage. Configuring armed forces to deal with such threats will involve calling on defence industries. Meanwhile defence industries are adding another arrow to the military quiver.

The “pull” derives from the development of new technologies and technological synergies loosely described as the Revolution in Military Affairs (RMA), claimed to constitute a fundamental change in the way of waging war. The impetus comes from computing and communications, and new information technologies in particular. These technologies are already in the arsenals of large corporations, co-ordinating far-flung holdings and complex production structures. To maximise their potential, a long reach is needed: forces should be rapidly deployable over great distances. There must be the capacity to maintain them in theatre. Accuracy and lethality are vital—targets will no longer be large and interchangeable, but instead small and difficult to distinguish from proximate civilian personnel and infrastructure.5

The United States and the RMA

In security terms, the world is still dominated by the United States, whose armed forces have a global reach and formidable capabilities. This qualities are vital for the current U.S. strategy of fighting the “long war”. The long war is the war on terrorist networks, wherever they may be found.6 However, the previous strategy of being


prepared to fight two major regional contingencies in a staggered fashion, is the legacy organisation of the U.S. armed forces. Most of the other great powers are members of the European Union, and are also formally allied with the U.S. through NATO. Japan is also formally allied with the U.S. The United States spends more on defence than any other state by far. Indeed, in 2005, the United States spent over $507 billion (U.S.), nearly twice the $269 billion spent by the rest of NATO combined. Other major spenders outside NATO include: Russia, which spent about $29 billion, (less than 6 percent of the U.S. total); China, about $44 billion (less than 9 percent); and Japan, also a U.S. ally, $45.3 billion (nearly 9 percent).  

So while there are few immediate concerns about great power states, the U.S. does have some concerns about “rogue” states. Rogue states are smaller states that do not accept the terms of the international system, decry the U.S. dominance, and seek to defy it. While these states possess only a fraction of U.S. might, there is concern that they may acquire a few weapons of mass destruction and the means to deliver them. So armed, rogue states may be able to dominate their neighbours and blackmail the U.S. They may also be able to deter the United States from intervening on their territory and in their region. While European states share some U.S. concerns about rogue states (although they would be unlikely to use that term), they generally prefer an attitude of engagement to one of confrontation.

Part of the U.S. Cold War planning was the “offset strategy,” in which the numerical superiority of the Warsaw Pact forces would be offset by the technological

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superiority of NATO forces. While the U.S. armed forces are clearly the most powerful in the world, the Pentagon does not wish to rest on their laurels. It is planning for the next generation of warfare, hoping to leap ahead of all possible rivals. A revolution in military affairs (RMA) is a fundamental change in the way that military forces are organised, structured and equipped, accompanied by appropriate changes in strategy, tactics, and doctrine. An RMA does not exist in isolation. The United States is the sponsor for the current RMA. The U.S. seeks to increase the capability of its armed forces by an order of magnitude by harnessing the power of information technology. The current RMA is characterised by the systematic introduction of information and communication technology into all aspects of military forces.

The original impetus is from outside the military establishment. The information technology involved is primarily civil: civil technology in this field has outstripped defence-specific developments. A “network of networks” will be formed in which all elements of the U.S. armed forces will be able to gain access to the necessary information and intelligence to be able to employ their firepower to maximum effect. At the sharp end, U.S. forces are to be lighter, faster, more deployable, and more lethal. The lethal aspect will be provided by precision weaponry. There is likely to be quantitatively less firepower available, but it will be expended to much greater effect.

Terrorist attacks have been of concern to Western states for a long time. However, the September 11th attacks on the U.S. changed the concern in two ways. The U.S. mainland was subjected to a foreign attack, underscoring U.S. vulnerability. Other major allied states, such as Spain and the United Kingdom, have long been acutely concerned.

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8 As called by Defense Secretary William Perry. Ashton B. Carter, “Keeping America’s Military Edge,”
familiar with the problem of domestic terrorism. The world’s greatest security actor was involved at home. Also, the magnitude of that attack made the prospect of catastrophic terrorist attacks more pressing. While the international security situation did not change much, the American view of it did. The U.S. was galvanized into action. It sharply increased in the aftermath of the September 11th terrorist attacks, and the defence budget continued to rise. Those funds were directed to the armed forces for force improvements. A separate fund of over $20 billion was established to counter terrorism.9 Military expeditions were soon to follow.

U.S. operations in Afghanistan and post-war Iraq would not likely be made much easier by the use of more information technology. Instead of this unconventional warfare environment being one of “cyberwar,” the opponents mostly emerged as a lower-technology opponent. In many ways it is the information itself that is lacking—soldiers on the ground are needed to distinguish between enemy and non-combatant. The U.S. reverted to its standard strategy of aerial attacks on high value targets to begin the campaign. Additional precision is always welcome, but clear targets are needed before precision ordnance can be of much value. Attempts by the U.S. to assassinate members of the Iraqi regime and Al-Qaeda met with mixed success for lack of timely intelligence. More rapidly assimilated information combined with stand-off weapons or already patrolling armed UAVs (unmanned aerial vehicles) may have been quick enough to improve success rates for elusive targets. Current information handling and manned aircraft often proved to be too slow. The more extensive use of special forces integrated

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into information networks is much more like the kind of transformational warfare that the U.S. proclaims to be the future.

NATO has put much effort into fostering cooperation between the allies, both in terms of equipment compatibility and practically through joint exercises. The development of network-centric forces by the U.S. poses a problem that the heritage of cooperation may not be able to overcome alone. Allies and coalition partners fielding legacy-type forces would most likely be incompatible with, and irrelevant to, post-RMA U.S. operations. In order to continue to operate alongside U.S. forces, allied states would need at least a minimal ability to “plug into” the U.S. networks. For the U.S. to work with allies, it may become necessary to help spread the RMA to them, by a deliberate policy of technology transfer. This runs against the established U.S. preference to minimise the sale of technology. Waiting for European states to develop it may be a poor option, for they are less convinced about the value of the RMA.

European states are no longer under the shadow of mechanised war. After spectacular successes in the Persian Gulf with legacy forces, it is unlikely that future foes will seek to engage the U.S., and any coalition it may assemble, in that way. Instead, non-traditional asymmetric techniques are likely to be employed. The high costs of transformation are also an influential factor: an unavailable option is unappealing. The RMA is perceived by some European states as driven more by internal military-industrial complex pressure rather than an assessment of the strategic threats faced by the U.S. and

increase was 14 percent or $48 billion—over three times the entire Canadian defence budget. Supplementals for operations have since pushed the U.S. defence budget to over $500 billion (U.S.)

Legacy forces are those designed for the Cold War, designed to repulse a Soviet invasion of Europe, and the allies of the United States in East Asia, and to destroy Soviet nuclear capabilities. Ant-armour and anti-submarine weapons feature strongly.
the need to keep international order. Curiously, the events of 9/11 have not altered the course of U.S. thinking in this regard. Instead of reconsidering the kinds of equipment, sensors and platforms they might require to deal with the new threat, the opposite has occurred. The new security environment has been used as justification for the continuation, and indeed, the hastening of the intended direction. Increased defence spending has given new life to slowly advancing programmes.

To some extent, the RMA is going to proceed because, or perhaps as much as, the U.S. is committed to it. As the U.S. is uniquely in possession of the means to undertake major operations at a distance, other states will need to be compatible with the U.S. in order to join. The cost of implementation will be great, and beyond the means of any other state. Whilst U.S. forces are now clearly much more capable than those of any other state, post-RMA forces would be in a class of their own. But to what end? The two wars in the Middle East against Iraq have shown the U.S. to be already very capable in traditional, high-intensity mechanised warfare. The RMA appears mainly to enhance the ability of the U.S. to engage in this kind of warfare. It will produce military forces that are more easily deployed and more capable in the field. Demonstrated so clearly in Desert Storm, the U.S. has incomparable capabilities with which to fight such a war: it is unlikely to need to do so again soon. The difference it would make in various non-traditional warfare conditions is less clear. The war in Iraq served as an unintentional


12 Despite the transformative intentions, the 2001 QDR was a fairly conservative documents, with few new ideas for programmes or changes in the structure of the armed forces. See O’Hanlon, *How To Be a Cheap Hawk*, 105, for a further discussion.

demonstration, showing not the extent of U.S. firepower, but its limitations in asymmetric conflicts.\footnote{Nathan Gardel, “The Rise and Fall of America’s Soft Power,” \textit{New Perspectives Quarterly} 22, no. 1 (January 2005): 17.}

**The ESDP: Europe in the New Security Environment**

The idea of Europe developing a common security policy to be backed by a common European military is not new. However, national defence is the guarantor of national sovereignty; relinquishing control of defence and defence policy would be tantamount to relinquishing sovereignty altogether. Unsurprisingly, this is one aspect of European integration that has traditionally met with little success. “European defence, for those not involved in its daily intricacies can sometimes resemble the incomprehensible in pursuit of the inexplicable.”\footnote{Julian Lindley-French, “Boosting Europe’s Military Muscle—the Build-up and Future Role of the EU Rapid Reaction Force,” Paris: Cicero Foundation, 9-10 March 2000. <http://cicerofoundation.org/p4lindleyfrench.html>}

The variety of nations involved works against the idea of a unified European Security and Defence Policy (ESDP). The European Union has states with overseas interests and an active approach to international security such as France and the U.K. At the other end of the spectrum are those that are traditionally neutral, such as Sweden and Ireland. This makes it difficult to determine what the common part of a common security policy is. The reach of the EU, be it regional or global, is one issue at stake. The type of missions for which EU capabilities should be optimised is another.\footnote{Anand Menon, “Why Proposals for an Autonomous European Defence Are a Costly Mistake,” Paris: Cicero Foundation, 30 March 2001. <http://cicerofoundation.org/p4menon.html>}

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France has been a strong proponent of a European Security and Defence Policy independent of NATO. Although a member of NATO, France is not part of the NATO integrated headquarters. France would like Europe to develop into a traditional great power, a power with global reach, which is on par with the United States. In the interim, the French would prefer that Europe retain a greater degree of autonomy from the U.S. than their major partners.\textsuperscript{17} Indeed, the French push for the independence of European forces has alienated some other states with a preference for ensuring the continuation of the prominence of the United States in European defence. The largest land power in Europe, Germany, has taken a moderate position—an interest in European independent power, but not at the expense of losing the U.S. influence in Europe. As ever, Germany is concerned about appearing threatening to its neighbours, and the active presence of the U.S. can be reassuring. The United Kingdom has traditionally taken much the opposite line to France, favouring defence institutions in which the U.S. plays a key role. However, the U.K. has warmed to the idea of European security initiatives. Prime Minister Tony Blair was appalled by Europe’s minimal capability to intervene in Kosovo without the help of the United States, and became determined to change that.\textsuperscript{18} The first important sign of the change was glimpsed at a joint Franco-British declaration from a summit held at Saint-Malo, in late 1998: “the Union must have the capacity for

\textsuperscript{17} Ibid.

autonomous action backed up by credible military forces, the means to decide to use them and a readiness to do so, in order to respond to international crises.”

The Western European Union (WEU) was the basis for post-war European security co-operation (without the U.S.) The WEU’s crisis management functions were integrated into the EU in 2000, to give the latter body a role in security. It had been intended to integrate the WEU into the EU as a whole, but a small part of the WEU remained distinct. With the ESDP, the EU grants itself the authority to undertake only the so-called Petersberg missions. These had been previously outlined by the WEU, and include most of those military missions that fall short of a major war and collective defence (the latter clearly is the responsibility of NATO). Humanitarian aid missions, suppression of regional conflicts, peacekeeping and peacemaking, European security, aid to civil authorities and other missions in support of European interests are envisioned. Even undeployed, the existence of the force is expected to be of value in support of European diplomacy. A year after the St. Malo declaration, the European Union issued a declaration that committed the EU to forming a European Rapid Reaction Force (ERRF) with a “headline goal” of 60,000 troops. This was qualified by the statement


20 Gordon, “Their Own Army,” 12.


22 Lindley-French, “Boosting Europe’s Military Muscle.”

23 Gordon, “Their Own Army,” 12.
that “this process does not imply the creation of a European army,” but specifically noted that it “might lead to a common defense.”

Throughout the Cold War, European states configured their forces for the defence of the continent from the threat from the East. This was a task best met with forces that were heavier in terms of armour and firepower, at the cost of mobility. Conscription-based armies helped ensure that sufficient manpower was available in time of need. After the disintegration of the Soviet Union, threats to home seemed better met further afield. Such heavy, immobile forces were not well suited to expeditionary operations, but defence was not a budgetary priority at the time, so most had to make do. The two major exceptions were France and the United Kingdom. Both had armed forces that were already oriented more towards expeditionary warfare. France sought to protect its overseas colonies, and to maintain its ability to act in Africa. Former African colonies are perceived to be a French area of influence. The U.K. had improved its expeditionary capacity, having learned lessons from the Falkland Islands campaign. It was out of this material that the Europeans sought to form their ERRF. Originally the Headline Goal was to have been achieved by 2003, but arrangements were incomplete at that time. The timeline was instead stretched to 2010. Despite that, as pointed out by Giegerich and Wallace, the Europeans collectively achieved that goal in practice. EU states, not as a group, but individually had deployed and were sustaining over 55,000 troops in over 20 states outside the EU. In 2005, the EU was providing the bulk of the forces in the

24 Ibid.
former Yugoslavia, but those operations were winding down: most EU troops abroad were farther afield than “Europe’s backyard”. Another promising sign for ESDP proponents is the fact that Germany and the four neutral states of the EU all have deployed troops. Since then, several former Eastern European states have been added to the EU, increasing the European deployed forces numbers. The difference is that these operations are taken as nations joining coalitions, not as EU organised operations. That is a further difficult step. Capabilities in some fields are still lacking, of which airlift seems to be the most pressing, but also in sealift, command and control, and intelligence.27

The U.S. has been able to support European defence integration in the past. The fairly certain knowledge that it would come to little made such political support a costless act of goodwill. Additional support for U.S. causes and operations was naturally welcome, but the EU as an independent actor is not something that the U.S. is necessarily keen to support.28 The U.S. is concerned that a European caucus may develop in NATO, offsetting and excluding U.S. influence.29 The EU-NATO relationship thus must be clarified and settled satisfactorily. Furthermore, the U.S. is keen that European states actually improve their capabilities. Further, more precise, concerns have been labelled the “three D’s”: decoupling, duplication and discrimination.30

27 Ibid., 174.
28 Gordon, “Their Own Army,” 15.
29 Menon, “Why Proposals.”
The danger of decoupling the continents is the first of the three D’s. U.S. leadership allowed European states to cooperate in spite of a history of rivalry. The development of a European expeditionary capability independent of NATO implies that the U.S. is no longer the necessary leader of Western military operations. The U.S. is absolved of its binding role. The headline goal was an ambitious one for Europe. “Europe is in danger of raising expectations to an unreasonable level.”31 This will make relations with the United States difficult, as the U.S. supporters will expect Europe to be able to deliver. Prior experience would suggest that it would be prudent for the U.S. to wait until EU military force appears, and appears to be capable, before it considers Europe to be a proper security actor.32 Of course, the headline goal was met, but mainly by allocating standing forces to the new role. In the event of the successful formation of a European force that genuinely adds to European capabilities, the EU-U.S. relationship will have to change. Europe will take some of the responsibility for international security with the machinery to undertake the task. In time, Europe will be unlikely to find satisfaction as a regional player. The U.S. may need to work with Europe as a partner.33 Without the necessary capabilities, decoupling is less likely, but a dangerous prospect for Europe. With the capabilities, decoupling may be less dangerous for Europe, but it still increases the risk of a conflict with the United States.

The possibility for duplication resides in the need to produce new structures to operate European forces. Mindful of the limited resources available for defence, the U.S. does not wish to see these resources wasted on projects that duplicate existing NATO

31 Menon, “Why Proposals.”

32 Lindley-French, “Boosting Europe’s Military Muscle.”
structures. If Europe wishes to be able to operate independently of the United States, there are gaps that Europe needs to close. These cannot be found in NATO itself, for it is the United States that provides so much of NATO’s capability. Precision weapons and strategic lift, for instance, can be supplied by the U.S., but not by NATO. There are institutional shortcomings as well. Military forces cannot be controlled by committee. Instead, a clear and unified command structure is needed to integrate international forces. The proposed rapid reaction force, with forces committed in advance, may be part of a solution. The EU may be better equipped to handle institutional difficulties, the EU itself being a great exercise in institution building. The temptation towards duplication is strong. If Europe chooses to develop these independent capabilities, it will also generate jurisdiction problems: in the event of a contingency or crisis, is NATO or the EU the first choice?

The “discrimination” problem inheres in the differences between NATO and EU membership. With the addition of the ten new EU members, the non-NATO EU states will be the traditionally neutral Austria, Sweden, Ireland, and Finland, plus Cyprus and Malta. Non-EU NATO European states are Norway and Iceland, plus Turkey, which is only partly in Europe. Norway and Iceland remain outside the EU by choice, of course. If they seek to join the EU and consequently the ESDP, there would be few obstacles, a fact that may mitigate their concerns, especially if instituted discussions on EU military

33 Ibid.

34 Gordon, “Their Own Army,” 16.

35 Ibid.

activities prove workable. Turkey is much more sensitive—a controversial, but actual, candidate for EU membership, Turkey’s sensibilities are easily upset, and the U.S. is also concerned about Turkey. While the whole of Cyprus is technically in the EU, the Turkish-recognised Republic of Northern Cyprus is effectively outside the EU jurisdiction. While the Cyprus issue may make Greece less happy with a Turkish role in Europe, Turkey would prefer to use the Cyprus issue as a bargaining chip on its accession to the EU. Turkey is keen to be involved in any European security organisation, and has backed this up with the offer of a substantial contribution to the EU Rapid Reaction Force, including five battalions, eight ships and two fighter squadrons. The other non-NATO European states are the four neutrals and Malta. Adding their capabilities is not a problem, and while having neutral states presents the EU with some difficulties, they do not pertain to the NATO relationship as such.

The United States would prefer to operate cooperatively, but is willing and able to be unilateral. The U.S. has made some strides in joint operations, but finds combined operations more difficult. The U.S. has little military need to cooperate with other states, and finds it legally difficult to take any role other than leader, but cooperative operations do give it international respectability or legitimacy. It does not need NATO cooperation. Most legitimacy would come from United Nations assent. The latter tends

37 Menon, “Why Proposals.”


39 Ozen, “Consequences.”

40 Combined operations are those involving more than one state’s armed forces, where joint operations are those conducted by different branches of the armed forces.
to be difficult to obtain. The United States is unlikely to depend on gaining support from other members of NATO, the U.N. or any other international organisation. It is able and willing to undertake operations that are in its perceived security interests alone.

Conversely, European states have developed an aptitude for joint and combined operations. It is an aptitude born of necessity. NATO standards have helped considerably. Most European states employ a set of equipment that is distinctly different from those their allies. Standardisation principles improve the compatibility of different types of equipment. The actual variety of equipment has been a concern, particularly during the Cold War. Against current asymmetric threats, the logistics of different equipment becomes more tolerable. Instead, the practices of cooperation are more important. The usual structure for European combined operations is to have a British or French “hub,” to which other states can be attached as “spokes”. That way, the structures are already in place for integrated planning and command. It has been said that there are three possible outcomes for the ERRF project. The best case is that it could strengthen NATO, by adding capabilities and allowing for a more balanced transatlantic relationship. The status quo result would be that it comes to nothing, as many previous European pronouncements of intent on defence matters have in the past. The worst case is that it rives Europe from the U.S., and leaves Europe with international security responsibilities for which it is unprepared.41

The EU does have credentials as a security actor, if not actually as a military actor, and that is where its aspirations lie.42 The structure of the EU, a collection of many

41 Gordon, “Their Own Army,” 17.

42 Lindley-French, “Boosting Europe’s Military Muscle.”
states, may give it an additional element of legitimacy. As an intergovernmental organisation, it cannot, by definition, work unilaterally. The EU is a “one-stop shop” for security—a capability enjoyed by no other organisation because of its unrivalled ability to harness economic, security, diplomacy and political legitimacy.”

The seriousness with which the U.K. now regards European common security is an important factor, without which Europe would be very unlikely to assemble real capabilities for projecting power. Lindley-French believes that Europe “is on the road to becoming a security actor with global interests (and I use that term advisedly) with a military capability of the core.” Building up European forces is a move towards common defence. The European dependence on U.S. supplied equipment and support was made very clear in Kosovo. The prospect of the U.S. staying out of Kosovo was real; the inability of Europe to stabilise its own borders was apparent. Here was an operation within Europe itself, but for all of the collective mass of Europe’s standing armies, it proved necessary to enlist U.S. support. Yet, while the understanding of the gap is there, the willingness to narrow the gap is lacking, most clearly on the financial front. The European flair for institutional reorganisation will not be enough. While the U.K. predictably remains strongly attached to Atlanticism, Germany too prefers U.S. engagement. Germany has

43 Ibid.
44 Gordon, “Their Own Army,” 12.
45 Lindley-French, “Boosting Europe’s Military Muscle.”
46 Ibid.
47 Gordon, “Their Own Army,” 12.
48 Ibid., 14-5.
49 Ibid. 16.
the largest economy in Europe and the largest population (not including Russia), and perhaps most importantly, is perceived as one half of the Franco-German core *directoire* of the EU. The German preference for Atlantic solutions may impair the ability of Europe to develop independence in the security field.\(^{50}\)

**NATO and U.S.-EU Relations**

Sharing common values, and an expectation of non-violence, the United States and the states of Western Europe remain collectively a pluralistic security community.\(^{51}\) The community is weak at the far edges: Turkey and Greece are evidently not in this security community, and recent arrivals in the East are unproven. For the Western European states, allied or not, the community holds. Most interests are still aligned, but some of those common values have come under stress and there appears to be increasing separation between the two sides of the Atlantic. Wallace offers five reasons for this growing rift between the U.S. and Europe: “emphasis on security-v-economics (respectively); divergent values; increasingly convoluted policy-making structures, with the failings of the other more apparent than of their own; and politicians playing to suspicious domestic audiences.”\(^{52}\) Institutional focus is variable. The European institutional commitment is to the various bodies of the EU. The United States typically favours bilateralism and NATO, the primary institutional means of U.S.-European integration.

\(^{50}\) See David G. Haglund, “Has France Finally Said *auf Wiedersehen* to Its German ‘Problem’?” *Orbis* 48, no. 3 (Summer 2004): 381-395.


\(^{52}\) Wallace, “Europe, the Necessary Partner,” 17-8.
Divorce is the most radical and therefore the least likely option. The ties between the United States and Europe may be frayed, but they still bind. After more than 50 years of interaction, relations between the two sides of the Atlantic are deeply institutionalized, at all levels and on nearly every issue.53

It is unlikely that the U.S. and Europe will divide and go their separate ways. This would mean the U.S. and the states of Europe, either collectively or individually, treating one another without special regard. Rivalry is possible, but outright hostility still almost unthinkable. Ash believes that the differences between the U.S. and Europe can be put to use in developing a stronger relationship. The military strength of the U.S. can be “soft balanced” by the “economic, diplomatic, and cultural power of Europe”. Here, the balance is not unlike the internal “check and balance” conception of the U.S. polity: similar aims, but different means and perspectives, to produce better outcomes.54

Without an enemy to define its purpose, NATO’s future seemed in doubt in the early 1990s. Some observers expected a return to balance of power activity in Europe following a withdrawal by the United States.55 The future of the organisation now seems more secure. Not only is NATO not dissolving, but instead has expanded to include former adversaries. At the very least, it is a desirable “club” to which to belong. If its very existence is not at stake, NATO’s relevance may be. Interesting questions surrounding NATO concentrate on NATO’s roles, reach and size. While European states have different ideas about how the EU, in its military capacity, should be related to

53 Daalder, “Are the United States and Europe Heading for Divorce?” 563.


NATO, most of them seek to ensure that NATO is not disrupted by independent European security endeavours. The future, and indeed current, role of NATO remains a more active question. It is possible that some of the traditional NATO functions will remain the most important. While NATO is clearly a collective defence organisation rather than a collective security organisation,\(^{56}\) it does strengthen European interstate security. Collective security planning and co-ordination, transparent defence-making decisions, personnel exchanges and the mandated civilian leadership help assure members about the goals and motivations of their fellow neighbouring members. This reduces the opportunities and rewards for maverick behaviour.

NATO’s Strategic Concept acknowledges that a direct military attack on any alliance member from an outside state is unlikely. It adds a number of new threats to the security of the Euro-Atlantic region. Possibilities for regional crises include: “…serious economic, social and political difficulties [e]thnic and religious rivalries, territorial disputes, inadequate or failed efforts at reform, the abuse of human rights, and the dissolution of states”.\(^{57}\) The proliferation of weapons of mass destruction and associated delivery systems is another concern. This includes the acquisition and sale of nuclear, chemical and biological weapons by states and by non-state actors. Proliferation of high technology weapons is perceived also as a threat. There is a concern for the prospect of asymmetrical attacks on information technology-based infrastructure of the defence system of NATO states. The strategic concept also retains the more realist concerns with

\(^{56}\) One need look no further than Greco-Turkish rivalry to see this—NATO does not offer security guarantees to states against fellow members.

the capabilities of unallied nuclear powers. It reaffirms Article 4 and 5 commitments between member states. The more contentious issues in NATO relate to its role in countering new threats. There is clearly a security-related need for international co-operation in unconventional security threats such as terrorism, countering the spread of weapons of mass destruction, and cyberspace and critical infrastructure protection. There are other possible organisations through which co-operation on these matters could be organised, but NATO is probably the leading contender. The ability to co-operate so closely on a matter so sensitive as national defence is a good basis for co-operating in other national security matters.

Although it may appear to be a heavy bureaucracy, NATO has proved able to respond to crisis situations. The strong U.S. participation in NATO helps the decision-making process work effectively, despite the formal requirement of unanimity. NATO also helps smooth the functioning of co-operation. It is far easier for NATO members to collaborate on operations than it is for most states because of all the work that NATO does in peacetime. The continual joint training exercises are of considerable value when operations arise, as cultural differences are already understood, and standardised practices reduce misunderstanding.

As a collective defence organisation, the provision for its deterrence function is Article 5 of the Washington Treaty: the defence of one or more of its members. The other trigger for action is Article 4: consultation amongst allies in response to the security concerns of a member state. The surprising invocation of Article 5 by the NATO

58 Ibid., 114-5.
59 Menon, “Why Proposals.”
member states in the aftermath of the September 11 terrorist attacks suggests its continued relevance. Article 4 clearly retains value also. Nevertheless, NATO’s future value could depend on the ability of the alliance to organise collective efforts further afield. Such operations are explicitly the domain of the United Nations Security Council under Chapter 7. NATO went to war in Kosovo without Security Council approval. Such actions do not necessarily need to include all members, at least not all of the time. It may be sufficient to serve as a vehicle by which to organise coalitions of the willing (and able). The reach of NATO is another issue of great importance. NATO has a self-defined region in the North Atlantic area. That particular problem evidently may be finessed. The operations of ISAF (the International Stabilization Assistance Force) in Afghanistan are administered by NATO, but can by no stretch be understood as being in the Euro-Atlantic region.

One route to European independent action is the “Combined Joint Task Forces” concept. The purpose is to allow European states to act without NATO or the United States. To avoid unnecessary duplication, “separable but not separate” NATO infrastructure can be used. This gives the first right of refusal on missions to NATO. Of course, most NATO states are in Europe. Canada, Turkey, Norway, Iceland, and the United States are outside of the European Union but in NATO. The European states are not looking for the kind of resources that those first four have—such capabilities are already within the EU’s grasp. Many of the resources that Europe needs are American.


U.S. strategic lift, intelligence and other such combat support facilities are vital to make European missions successful.

While the desire for European states to take on additional security tasks is a common one amongst large European states, their purposes are different. Germany and the U.K. seek to alleviate the U.S. security burden to mollify U.S. policy elites and to prevent disengagement. France, on the other hand, seeks a Europe undertaking security roles, aspiring to partnership or parity with the U.S. Despite this divergence, European states find common ground in seeking a greater role in NATO decision-making to match any increase in security effort. The U.S. is ambivalent about European security aspirations. It would clearly be desirable for Europe to relieve the U.S. of some of its international security burden. The U.S. ideal would be a Europe handling its own security, while unquestioningly acting in a supporting role elsewhere. Europeans interfering with U.S. freedom of action would be utterly unacceptable in Washington.

Having long criticised European states about their defence spending, the U.S. is bound to approve of an increased defence effort. Coupled with an increase in defence effort is likely to come a desire to participate in international security decision-making. That may not be to Washington’s liking.

Balkans

Violence in the former Yugoslavia presented an opportunity for Europe. The conflicts raged within the boundaries of Europe, and in a place of historical significance.

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62 Ibid., 11.
63 Ibid.
The region was the site of the fuse that set off the First World War, the assassination of Archduke Franz Ferdinand. Europe could demonstrate its ability to contain the fallout, and in doing so, show that it had learned from the past. The United States saw the conflict as being in Europe’s “backyard,” and showed little interest. Despite collectively (and in some cases individually) having military resources that ought to have dwarfed those of the Yugoslav army, the most powerful single actor already embroiled in the conflict, Europe proved unable to impose its will upon the situation. While some parts of the Yugoslav Federation succeeded in seceding, the conflict in Bosnia-Herzegovina, with its mixed ethnicity, proved to be intractable. The United States was convinced to become involved, and the EU and WEU gave way to NATO as the principal institutional actor. Moens observes that “Bosnia is NATO’s de facto reform. Bosnia had an unintended zero-sum effect: in everything, it showed EU and WEU weakness despite political effort to the contrary, while at the same time propelling NATO to the fore despite its ambivalence to being pulled into a civil war.”64 NATO would take over the lead from the UN, with the replacement of the United Nations Protection Force (UNPROFOR) with the NATO Implementation Force (IFOR) and, subsequently, NATO Stabilization Force (SFOR). NATO did not have any particular basis of legitimacy for undertaking such a campaign. As a military alliance, its founding principles are those of collective defence. Operations on the sovereign territory of non-member states, without any of the member states being at war, are not easily reconciled with such principles. Yet, the shift from UN to NATO, in the interests of gaining sufficient firepower to undertake the mission, was accomplished without too much difficulty. For the later operations over Serbia and

Kosovo, the UN situation proved more difficult. The NATO bombing campaign against
Serbia and Serbian forces in Kosovo was conducted without reference to the UN Security
Council, in the certainty that such an operation would be vetoed therein by Russia and
possibly China.

With the limited success of European intervention, the necessity for U.S. intervention became apparent. Worries about U.S. domination and unilateralism shifted, temporarily at least, to the concern that the U.S. might fall back into a more isolationist pattern. From the U.S. point of view, the Balkans were in the European backyard, if not actually part of Europe. Perhaps the region’s legacy as the trigger of the First World War is not as resonant in the U.S. as in Europe. Moreover, the region was not perceived as an American vital interest. Nevertheless, the U.S. was drawn in. During Operation Allied Force in Serbia-Montenegro, the greater part of the ground forces deployed by NATO to the former Yugoslavia were European. For the aerial campaign, the greater part of the forces were American, and the disparity between U.S. and European capabilities was apparent.

Moreover, this disparity was acutely unsettling for European leaders. The prospects for independent European intervention capabilities were severely reduced. It did serve as motivation to act upon the presented opportunities. In the face of initial and continuing Greek opposition, the EU, including the neutral states, supported the combative intervention of NATO in the Balkans, now being interpreted as an integral part

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65 Daalder, “Are the United States and Europe Heading for Divorce?” 563.

66 Borawski and Young, NATO After 2000, 7.
of Europe rather than Eastern lands somehow separating Greece from the rest of Europe. Turkey was also made a candidate for EU membership, further extending the possible understanding of Europe into Asia Minor. The European Union was given military responsibilities, by incorporating the Western European Union (WEU) into the EU, despite its smaller membership. Javier Solana, former Secretary-General of NATO, was appointed to two EU positions: Secretary-General of the WEU and High Representative for the Common Foreign and Security Policy. A joint meeting of EU foreign and defence ministers was held for the first time. Finally, and perhaps most ambitiously, the EU intends to form the aforementioned European Rapid Reaction Force (ERRF), with a “headline goal” of 60,000 troops, to be able to mobilise within two months for a two-year deployment.67

War on Terror

The lessons that the U.S. learned from the Balkans include a reduced appreciation for multilateral coalition solutions, particularly where U.S. vital interests are at stake. From the U.S. point of view, the Europeans appeared unable to handle the situation on their own and were apt to interfere with the U.S. actually getting on with the job at hand. Thus the unilateral application of force has gained appeal relative to the “cooperative” alternative.68 In particular, if coalition partners expect influence at the command level, then the appeal of making use of their forces declines markedly. Contributions from


other states are more likely to be helpful if in the form of local operating bases than in the supply of combat forces, helping with logistics and operational costs.\textsuperscript{69}

European states quickly responded to the “9/11” terrorist attacks on the World Trade Center and the Pentagon, by offering their support to the United States. At first, European nations approached the U.S. individually, but soon a collective response came in the form of the invocation of Article 5 of the Washington Treaty.\textsuperscript{70} It was entirely unexpected that this historic first application of common defence should see European states coming to the aid of the United States, for the principal purpose was to ensure precisely the opposite. Nor was the EU a principal respondent to the crisis.

‘9/11’ revealed Europe’s weaknesses. The real division of the EU began on 12 September 2001. We found that the European nations acted according to their old national reflexes. The EU was evidently not yet built to handle this strategic dimension of war and peace at the time. After the terrorist attack on America, everyone in Europe immediately sensed the same thing: this will change the world. But did the Europeans immediately get together after the attack on their most important partner and draw up a strategic analysis of the situation? No, this did not happen. We were not capable of dialogue where we should have been when the conflicts erupted—which was definitely the case during the Iraq crisis. Our own lack of strategic awareness resulted in an inability to pursue a strategic dialogue with our partner America.\textsuperscript{71}

In another ironic turn, the solidarity expressed was quickly dismissed. The political support was doubtless appreciated, but NATO would not immediately become the basis for Western counter-terrorism operations. Instead, the U.S. sought only specific

\textsuperscript{69} Ibid.


\textsuperscript{71} “Interview with the German Foreign Minister Joschka Fischer on ‘Europe, America, and the Common Strategic Challenges’ Published in the Frankfurter Allgemeine Zeitung, 6 March 2004: The Reconstruction of the West,” \textit{Internationale Politik} Transatlantic Edition 5, no. 2 (Summer 2004): 103.
capabilities from some of its allies, and instead chose to prosecute the “war on terror” mostly on its own. The diversion of NATO E-3 Sentry AWACS aircraft to North America to free U.S. aircraft was one of the few instances of actual NATO participation.\(^72\) Perhaps as a result of the American disinclination to use NATO as the vanguard against terrorism, solidarity quickly gave way to the reappearance of a transatlantic rift. European concerns about U.S. unilateralism were quite naturally reinvigorated. The characterisation of an “axis of evil” demonstrated the differences between U.S. and European views about the nature of what the U.S. would call “rogue” states. It also suggested differences in American and European understanding about the nature of the terrorist threat and how best to deal with it.\(^73\) The U.S. viewed Europe as having “inclinations to appease rogue states while passing the buck to Washington.”\(^74\) Public opinion outside of the United States did not prove durable in the face of U.S. activity. The detention of suspected Al-Qaeda prisoners and other enemy combatants at Guantanamo Bay made the U.S. the target of allegations of abuse.\(^75\) Come the time of the invasion of Iraq, some allied governments were critical of the U.S. as well.

Previous operations in the Balkans had shown that European armed forces were being left behind technologically by U.S. forces. Early operations in Afghanistan served to confirm that impression. It is becoming difficult for European forces to work in conjunction with the United States forces. A division of labour has been considered in


\(^{73}\) Ibid., 31.

\(^{74}\) Ibid.

\(^{75}\) Ibid., 29.
which the U.S. would typically undertake the first phase of any military operation, using its prowess in high-intensity warfare over long distances. European forces would move in afterwards for the “clean-up”: peacekeeping, rebuilding of national institutions, policing and such. Van Staden foresees “[a] situation of military apartheid is looming where the U.S. is the chef who decides on the menu and cooks all the great meals, while the NATO allies are the busboys who stay around and clean up the mess and keep the peace indefinitely.” 76 With such a gap between the U.S. and its allies it may seem inevitable that such a split will take place.

This is quite attractive for the U.S., for its military machine would be occasionally exercised at its prerogative, its mechanised contribution would likely suffer minimal casualties, and there would be clean finish with a speedy exit. For the Europeans, this would clearly be unacceptable. It would likely spell the end of NATO, or at least the end of NATO as an effective organisation. By supplying the bulk of the personnel, the European forces would suffer more casualties. Post-conflict situations tend to be messy, drawn-out affairs. Clean departures tend to be rare, and the cost of construction tends to be very high. Such a division of labour could break the alliance. The alternative to the division of labour is that the U.S. would undertake the whole task. Limited capabilities may limit European forces from undertaking ambitious combat missions, greater capabilities do not prevent the United States from undertaking more mundane missions. Few European states have shown interest in helping to stabilise occupied Iraq, and even the limited interest quickly waned. The U.K. had largely taken responsibility for the less troublesome Shiite areas, although a change in national leadership put the continuation

76 Ibid., 31.
commitment in doubt. A few other European states have provided some support. It is the
U.S. that is doing the bulk of the work patrolling and pacifying the more difficult Sunni
regions.

Defence Capabilities and the Future of NATO

Europe and the United States have become preoccupied with different regions. The successful resolution of European security issues, both from within and without, has lowered the security priority of Europe. Europe’s focus remains on Europe, on expansion and restructuring. The United States looks abroad to Asia and the Middle East for economic and strategic reasons, as well as its own “backyard” in Latin America. The U.S. does have some isolationist tendencies and adherents. These were undercut by the September 11 terrorist attacks, which drew U.S. attention to Central Asia and the Middle East, and generated a new security agenda for North America. These signs suggest that “the era in which comity in transatlantic relations was assumed—an era which Washington could presume that if it led Europe would invariably follow—may be coming to an end.”

The U.S. and Europe are also divided in terms of issues. The U.S. remains focussed on traditional security concerns, albeit recognising the different nature of the threats. Terrorism, weapons of mass destruction, and technology proliferation are the key issues. For Europe, the concerns are based less on threats than on sources of instability. Poverty, environment and other global (or perhaps globalisation) issues head the

77 Daalder, “Are the United States and Europe Heading for Divorce?” 558-9.

78 Ibid., 554-5
agenda. The U.S. relies on power as the *ultima ratio* of international relations. The U.S. employs economic levers forcefully as well as actual military power. The Europeans tend to favour international institutions, norm-generation, and international aid to convince rather than compel. Kagan argues that this is not just a difference of opinion, it is rooted in their positions in the international system. The United States, as a hegemonic power, does not require international institutions and multilateralism to accomplish its goals in the international system. As such, the U.S. regards such institutions warily, for they could unnecessarily constrain U.S. freedom of action. Unilateralism is the politics of the strong. European states, in contrast, view U.S. unilateralism with some concern. Such power unconstrained could be used unwisely, or in ways detrimental to their well-being. The U.S. is but one state, and is not immune from making poor decisions. It is in the European interest to seek to bind that power in webs of institutions and regimes, to seek to retain positions of influence. Institution-building and multilateralism are the politics of the weak.

The defence capabilities gap is not a fundamental technological gap, but rather a series of gaps resulting from the differential in investment in technological aspects of defence technology. The question for Europe with respect to capabilities is whether it is going to be a strategic player alongside the U.S. As General Henry Shelton, the U.S.

79 Ibid., 553.
80 Ibid.
Chairman of the Joint Chiefs of Staff remarked: “[s]uch disparities in capabilities will seriously affect our ability to operate as an effective alliance over the long term”. The defence capabilities debate is one manifestation of a deeper issue: the relationship between the United States and Europe. The European Union is a newcomer to strategic and defence matters. Economics has been the primary occupation of the European project. The size of the European market makes the EU important for the U.S., but the military relationship is more important. For the United States, security trumps economics. NATO is the most important institutional reflection of the U.S.-European relationship, and “for NATO to remain relevant, it has to remain a militarily credible partner for the U.S.”

A division exists due to the asymmetry between U.S. and European defence capabilities; NATO has already become more European. The U.S. is independent of NATO, and is able to operate without the resources of other NATO states. The U.S. sometimes leads NATO, and sometimes supports it. Shelton believes that “the defence capabilities debate…is the expression of a deeper debate. And the deeper debate can be summarised in a very simple question: what is to be the future military relationship between Europe and the United States?” If Europe chooses to become a strategic

83 Gen. Henry Shelton, Chairman of the Joint Chiefs of Staff, quoted in Borawski and Young, NATO After 2000, p. 8
84 Ibid.
85 Economic integration was also motivated by security concerns internal to Europe, in particular, keeping peace between France and Germany. This has been achieved, in part, by transforming political decisions into technical exercises. External security problems are unlikely to be solved by such means.
86 Ibid.
87 Ibid.
partner of the United States that would entail engaging in the military transformation associated with the RMA, with all of its attendant costs. For Europe, this would mean acquiring the resources to engage in long-range high-intensity warfare, and buying into the Revolution in Military Affairs. Europeans may disagree that these are the crucial capabilities, but as far as the United States is concerned, they are. Otherwise Europe will be assumed to have allocated itself the secondary roles: peacekeeping, post-conflict reconstruction, low-intensity fighting. The transatlantic division of labour arrives by default. The U.S. will not feel impelled to consult Europe on strategic matters.

An attempt to redress the imbalance within NATO came in the form of the Defence Capabilities Initiative (DCI) in 1999. This 50-point plan involved NATO members pledging to increase their capabilities in areas of known weakness, concentrating on improving the ability of European NATO members to conduct expeditionary operations. Quick progress was made on many of the minor points, but more progress on the more expensive capabilities is proceeding very slowly. Without a particular set of priorities, the limited means European states have generally been willing to invest in the DCI have been diluted and ineffective.88 Without such progress there is a tacit acceptance of the division of labour idea. Indeed, the Petersberg tasks confine European action to just those lower intensity operations.89


89 Freedman, “The Third World War?” 75. Section II, paragraph 4 of the Petersberg Declaration reads: Apart from contributing to the common defence in accordance with Article 5 of the Washington Treaty and Article V of the modified Brussels Treaty respectively, military units of WEU Member States, acting under the authority of WEU, could be employed for:

- humanitarian and rescue tasks;
- peace-keeping tasks;
- tasks of combat forces in crisis management, including peacemaking.”
The alternative for European states is to concentrate on relatively low technology forces suitable for defence and low-intensity expeditions, such as peacekeeping and post-conflict reconstruction. This civilian power option is the stance that most European states have traditionally favoured. A NATO with a weaker Europe can continue to play a role, serving the United States as a “toolbox” from which the right coalition partners can be drawn. Individual states will certainly retain pockets of capability which the U.S. will find useful. NATO itself may not be able to assemble a coalition, but the United States may be able to assemble the support amongst the allies to follow its lead. Because of its lead in information technology, precision weapons and stealth technology, combined with its global reach, the U.S. is the natural leader for any military coalition in which it is a member. NATO can then serve to organise military equipment, to conduct military planning, and provide other organisational support. Another analogy is that of “some sort of political and military supermarket where it can shop for moral, political, and legal support.” The bigger NATO gets in terms of membership, the possibilities of this increase and the U.S. tendency to perceive NATO this way is likely to increase. Actually deploying as NATO is increasingly difficult, as the unanimity requirement for decision-making in NATO becomes a more stringent test the larger NATO becomes.

Instead of directing operations, NATO could become confined to a political and support role, a “political oversight committee”. In this role, NATO would serve as a

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90 Ibid.

91 Rynning, *NATO Renewed*, 173.

forum for its members to form coalitions and collaborate. It would be the umbrella organisation for sharing security related ideas and for forging common and joint approaches to security problems. NATO might be able to act as a “brake” on United States activities, but it seems unlikely—at tempting such would likely make the alliance a liability to the U.S. and it could become irrelevant. Instead, it would provide the opportunity for European nations and Canada to participate under the American lead.

Even amidst uncertainty, NATO is a popular organisation. It has been enlarged to incorporate former East bloc states, and could be enlarged further. Joining NATO is an expensive process for Eastern European states. Russian military equipment is often adequate in terms of capabilities, but is incompatible electronically with Western systems. More expensive pieces of equipment are usually modified to meet or match Western standards. The shock to the newcomer is financial as well as cultural. The willingness to absorb these shocks suggests the continuing value of NATO membership. Rynning contends that European states possess structural power in their example. Eastern states are flocking to Europe, emulating their Western counterparts’ openness and democracy and aiming for their prosperity. This power is not fungible, but has a significant impact on the international system, drawing former rivals into the fold.

The U.S. has not yet prepared to grant Europe an equal partnership in international security. Europe can play such a role economically, for its economic

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93 Ibid.

94 The costs involved can convince new NATO members to collaborate to meet requirements, as is the case of Poland, Hungary, the Czech Republic and Slovakia working together to upgrade their Mi-24 helicopters to meet NATO standards.

95 Rynning, *NATO Renewed*, 177-8.
strength is obvious, and the EU is prepared to challenge the U.S. on economic matters. So the U.S. is in the awkward position. It is acknowledging European economic strengths and interests and shares economic responsibilities. On the other hand the U.S. promotes European defence capabilities but seeks to retain unto itself the world leadership role in security.96 Ideally, from the U.S. perspective, NATO could be transformed into a global security organisation through the development of NATO expeditionary capabilities. This would give NATO primacy, and leave European independent efforts in a subordinate role. European states can offer legitimacy. Europe is the largest block of liberal democratic nations in the world, and their support lends credence to U.S. efforts. If such like-minded states cannot be brought into agreement, then U.S. interventions will look like actions based on narrow self-interest.97

Some states in Europe, such as France and Belgium, would prefer to hand greater responsibilities to the ESDP, in direct opposition to the NATO-first position.98 However, Europe is finding that expeditionary capabilities are expensive: few are willing to make the investment. The U.S. is finding that wars can be won, but reorganising states is expensive. Most likely, the in-between position will continue: U.S.-led coalitions with variable European support, with some lower-level European operations.99

96 Wallace, “Europe, the Necessary Partner,” 20.

97 Kagan, Of Paradise and Power, 105-158.


99 Rynning, NATO Renewed, 175.
Mandelbaum observes, the United States employs the stick, where the EU is well-positioned to offer the carrots.  

**Conclusion**

There are clear signs of change in the international system, and even within the West. The relationships between the United States and the European powers have been freed from the Cold War pattern, a pattern held by strategic need. In the more fluid post-post-Cold War security environment, more divergent perceptions of threat and interest obtain. The primacy and purpose of NATO is questioned, European institutions are becoming more assertive in security matters. These trans-Atlantic differences go beyond perceptions of the world and institution-building. U.S.-European relations are strongly affected by defence capabilities. This brings us back to defence industrial capabilities. The next chapter will discuss changes in the environment for defence firms, and what pressures they face. It will then proceed to indicators of change in the defence industries, linking them to changes in the international system.

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100 Mandelbaum, *The Case for Goliath*, 163.
CHAPTER FOUR
DRIVING CHANGE

Uneven development and the Defence Industrial Base

Uneven development in defence technology is an important part of uneven development overall. It is defence technology, both of design and production, that is taken to be the key driving force for change in the defence industry. Technological innovation is often a decisive factor in military superiority. Traditionally, military technology in leading states has been at the cutting edge of technology. But, as with the defence industry as a whole, defence technology is not a distinct category; it is strongly and increasingly associated with commercial technology. Defence research and development has often led to advances in commercial technology, a process called “spin-off”. The advancement in commercial technology could improve the economic competitiveness of the national industries and thereby help leading states to pay for their military forces and their research and development programmes. Expenditure on defence technology has been justified not only in terms of military advantage, but also (with dubious merit) in terms of these spin-offs. This relationship has in many cases now been reversed. “Spin-ons” refer to commercial technologies adapted for military use. Many advanced defence products contain civil/military dual-use technologies and components.

In the defence industry, technology transfer is one means by which the weak make gains relative to the strong. Duplication is easier than innovation. Once a
technology has been devised and employed, other states and firms can see that it is viable, and make some inferences about how it is done. Other than the hard way, developing technologies from scratch, states may gain access to these technologies by various legitimate means. Technology moves with or without state policy. One of the major involuntary ways of transferring technology is through the movement of personnel. States can lure scientists, engineers and technicians on the international market with offers of good pay. This may be the primary way that technologies are diffused.¹ Technologies may be bought, typically along with products that contain them. Reverse engineering is another method of involuntary diffusion, although knowing how an item works does not necessarily confer the ability to build it. They may also be brought in by units of globalised defence firms, looking for cheaper sources of production or markets. Finally, there are illegitimate methods too: theft and industrial espionage.

Uneven development can work to the advantage of the relatively strong also. Technology may advance due to synergy and convergence. The “Silicon Valley” effect of concentrating skills and talent can spur innovation beyond what they might achieve independently. Government policies encourage development through such measures as the imposition of common standards, as well as through direct assistance.² The United States gains much more military effectiveness for its money than Europe does, because of the unity of the former and the fragmentation of the latter. The same effect applies to technological development, in that the United States gains a greater technological edge


relative to its research and development spending than does Europe. Relatively wealthy states can often afford to devote more of their military expenditures to research and development than poorer states, further concentrating development.

A third track of uneven development is outside of the defence sector. Not all military innovations derive directly from efforts to develop new defence technologies. Increasingly, civil technology is the inspiration for military technology. This distributes the development erratically. Civil firms are not necessarily motivated by national security, especially more multi-national firms. Advanced products may be made available to all who can afford them. However, most advanced multi-national firms are headquartered in advanced industrial states. Advanced industrial states are also more likely to have the resources to buy and maintain their products. Nevertheless, less developed states with a reliable source of income (oil, for instance) may also, and less wealthy states may make sacrifices to do so.

Technological innovation is often a decisive factor in military superiority. Traditionally, military technology in leading states has been at the leading edge of technology. The advancement in civil technology could improve the economic competitiveness of the national defence industries and thereby help leading states to pay for their military forces and their research and development programmes. Indeed, civil technology has become a security issue on its own. Technology is believed to be essential to prosperity. High technology industries are matters of national prestige on
their own, and are often supported and encouraged by national governments. Competition in such sectors can be intense. Moodie writes:

we need to beware of adopting a position of technological determinism. It is all too easy to be seduced by the notion that technology ‘causes’ a specific set of changes, makes particular structures and arrangements ‘inevitable’ or that the path of technological change is linear and sequential. Technology in, and of, itself does not cause particular kinds of change. In one sense, then, technology is an enabling or facilitating agent: it makes possible new structures, new organizational and geographical arrangements of economic activities, new products and new processes, while not making particular outcomes inevitable. But in certain circumstances technology may, indeed, be more of an imperative.

This is quite understandable as a comment on the position of a state in the anarchical international system. The quotation actually refers to a different anarchical system: the firm in an open market. Dicken goes on to observe that once one firm begins to use a new technology, other firms may need to in order to continue to survive. For many defence firms, this survival imperative is muted. Given the peculiar security role of defence industries, their survival is dependent upon the state. State involvement may reach the logical limit in the direct ownership and control of national defence industries. Even those states with a relatively laissez-faire view of the DIB will decide on matters of exports. Arms sales are a matter of foreign policy. For larger states, arms sales reward and penalise other states through access and denial: this is a powerful tool of foreign policy. Smaller states are more likely to seek sales keenly. For all, arms exports are a

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5 Ibid., 146.
matter of national pride and prestige. Overall, a defence industry’s condition is reflective of the state’s reaction to its overall security position combined with the actual competitiveness of the firms.

**Defence Inflation**

An important long-term secular trend is the increasing expense of military systems. Defence inflation is distinct from general inflation, often being measured beyond the standard rate of inflation. Defence products tend to rise at about 5 per cent above the inflation rate for commercial products. This defence inflation is quite natural and rational (at least for individual actors), especially for types of equipment where technological advance is rapid. It is particularly marked in the research, development and design phases. However, production costs are also higher. Of course, the rate is different for different types of equipment. The difference is strongly related to the amount of cutting-edge systems involved. The electronic and sensor systems are subject to high inflation rates for all military equipment in which they are installed. Platform costs vary: a ship’s hull becomes more expensive as labour rates rise, though materials might fall in price. A fighter aircraft’s wing will suffer from much higher inflation, as the physical demands on a wing require greater engineering effort as well as more expensive materials. This is because:


the primary cause of rising unit costs is the rapid growth in research and development and capital requirements, and the limited ability to spread these up-front expenses over long production runs. This process has been expressed in ‘Augustine’s Law’ – after former industry executive Norman Augustine. Augustine, his tongue only partly in cheek, projected that the continued rise in unit costs combined with limited budgets would mean that by the middle of the new century, the entire U.S. defence budget would go to purchase a single weapons system.9

Unlike most types of civil and commercial equipment, the effectiveness of military equipment is not determined mainly by its specification or performance in the field. The effectiveness of military equipment must be measured relative to the performance of the types of military equipment against which it is likely to be deployed.10 This generates pressure, intense pressure in times of insecurity, to develop and deploy the latest weapon systems faster than rivals can. There is also pressure to develop counter-measures for new systems presented by rivals and to emulate their advances. As such, advantages in military systems are likely to be fleeting. The average price of fighter aircraft increased about a hundred-fold between 1945 and 1985, and continues to rise at about 10 per cent per year.11 The specification of defence equipment must be sufficiently high to be effective against possible enemy equipment, yet not so high that production volumes become too low: one “silver bullet” will not be enough.12

Even in computers and electronics the costs continue to rise. This is in sharp contrast to the civil market, where electronic items tend to fall in price as the technology

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9 David Gold, “Defense Spending and the US Economy,” *Survival* 43 no. 3 (Autumn 2001): 169. Augustine was the Chairman and Chief Executive Officer of Lockheed Martin.


12 Ibid.
matures. In defence products, maturing technology is a sign of obsolescence. Defence items are produced in small numbers compared to civil items, so the same economies of scale cannot be achieved. Incorporating civil technology into defence items is possible, but defence product take longer to develop, and it can be difficult to keep abreast of the civil developments.13

The rapid rate of technological advance, in making new defence products more expensive, makes the replacement of old equipment less likely. Defence products are expected to have a long service life. For electronic equipment, that may mean that the original systems fit becomes obsolete. In the meantime, contractors and subcontractors will have terminated production lines, or perhaps gone out of business. For instance, Raytheon, having been contracted to maintain the radar of the Boeing F-15, found that they had to incorporate newer design components to do so—the original parts were no longer available. The result was an uncontracted upgrade. Foreseeing this kind of problem, the capacity for upgrading equipment is often engineered into new defence products. Looking at defence products from a “life-cycle” point of view appeals to firms. They seek contracts over a much longer term, because including maintenance and mid-life upgrades allows firms to predict their future income flows more accurately. It provides the same benefit for states.14

For the U.S., the defence budget has been driven higher by two specific goals, the RMA and Ballistic Missile Defense15, as well as the high cost of operations underway.

13 Ibid., 516.
14 This section was based on confidential interviews conducted by the author.
The RMA is intended to drive the U.S. forces to a higher level of capability, a technological leap inaccessible to other powers. The cost derives from the need to incorporate information technology and network systems into every element of the armed forces, including individual personnel. BMD is particularly costly because of the presumed urgency.\(^\text{16}\) It is a race to devise a suitable anti-missile system before possibly threatening powers can produce ballistic missiles capable of reaching the United States. Whereas the alleged threats are trying to re-create a mature technology, the U.S. is trying to innovate a new technology on the same timescale.

The personnel side is somewhat better, but no reprieve. The defence establishment generally has to offer better rates than the civil sector, to compensate for the risks and generally more difficult conditions of employment.\(^\text{17}\) The changing balance of military requirements also has the effect of raising personnel costs. The increase in high technology systems in military service requires skilled technicians and operators, who expect higher rates of pay. Demand in the civil sector from adjacent fields can and does draw those skilled personnel away from the armed forces if that demand pushes the civil salaries higher. Relief for defence budgets cannot be found in personnel.

Exports can offer some relief, but rarely do they account for a great deal of a production run, perhaps reducing unit cost to the domestic procurement state by up to 10 per cent.\(^\text{18}\) For some U.S. products, export orders can be “gravy”. Research and

\(^{16}\) Ibid., 167. The deterrence of the U.S. nuclear arsenal should protect the U.S. from most state actors—it is difficult to cast any state other than possibly North Korea in the aggressor role. The ability to ward off a few ballistic missiles could extend the U.S. ability to project its influence, by limiting the ability of newer nuclear powers to deter the U.S.


development costs are covered under contract to the Pentagon. Tooling costs are paid for during the domestic production run. At similar prices for export products, profit margins for exports can be much wider. Elsewhere, export markets are typically a vital source of income, both from the perspective of the firm and the state. Any hopes that post-Cold War reductions in defence spending might be offset by exports to the former Eastern Bloc came to little. Undertaking a costly conversion to a capitalist economy, such new markets proved small, and the states involved have also sought to sustain their own struggling defence industries. Defence products as purely commercial ventures are rare. It is difficult to export products not sold nationally. Foreign buyers are likely to prefer that the domestic government first shows confidence in the products of its own firms. Therefore, domestic procurement can be a strategic move in an economic sense. Exports also present a dilemma of specification. Actual military requirements will vary from state to state. The domestic buyer might want the defence industry to devise products attractive for export, but that will generally involve some compromise on specification. Likewise, a defence product bought “off-the-shelf” from another state is also unlikely to be ideal. There will be a compromise for importer or exporter or both. The importance of that compromise is variable. In the current “war on terror,” few pieces of military equipment appear to be ideal as is: the compromise is probably acceptable.

**Globalisation for the Defence Industrial Base**

“[G]lobalisation” Berger remarks, “is inexorable, its benefits are not”\(^{19}\) The

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processes of globalisation are a major element in uneven development. If globalisation can be understood to be divisible, then it is the economic aspect of globalisation that is the key here. Militarily, globalisation has certainly decreased from its peak. During the Cold War, virtually the entire world was understood to be relevant to the national security of the superpowers and their allies. Now, much of the world is peripheral to the interests of the United States and Europe. There remain some areas of particular strategic interest, such as the Middle East. In addition, some rather selective interventions have been undertaken in the periphery such as in Somalia, but those are not understood to be strategic as such. The previous high level of military globalisation was not particularly conducive to defence industrial globalisation—high defence spending allowed for continuing national defence industrial bases in larger states.

Many of the changes seen in the international economy are described as “globalisation”. Dicken observes the following difference between “internationalisation” and “globalisation”:

- **Internationalization processes** involve the simple extension of economic activities across national boundaries. It is, essentially, a *quantitative* process which leads to a more extensive geographical pattern of activity.

- **Globalization processes** are *qualitatively* different from internationalization processes. They involve not merely the geographical extension of economic activity but also—and more importantly—the *functional integration* of such internationally dispersed activities.21

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21 Dicken, *Global Shift*, 5. Italics in the original text.
In an industrial sense, globalisation is about the efficient use of capital, knowledge, skills and labour crossing international boundaries. Telecommunications plays a key role, as the networks that manage the geographically separated parts of the production process, must do so in so-called “real time” for maximum efficiency. This applies equally to the design and development stage. Major components may be developed at different locations, so that changes made in one place by one team must be immediately understood by the other development teams in other places.  

Locations are chosen for maximum efficiency, and the whole then must be tied together to work as well as if the far-flung units were operating under one roof. “Reliable data for intra-firm trade exist only in the United States, but in 1994 this off-market trade accounted for approximately 40 per cent of total U.S. trade. Governments continue to register these internal transfers not because they are traded, but because they cross borders.”

Complicating the process is the need to co-operate with other firms. The various parts of the design, development and production processes are not necessarily undertaken by the same firm. “Complementing this trend is a dramatic increase in corporate alliances; by one count, more than 20,000 such partnerships formed in the last several years alone.” Long-term strategic alliances as well as shorter term expedient arrangements must be integrated to

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work at maximum efficiency. It has been claimed that “about 70 percent of world trade is intra-industry or intra-firm”\textsuperscript{25} “[T]he resulting spread of global production linkages is creating a more profound form of interdependence than was ever created by trade or portfolio investment.”\textsuperscript{26} This may be the organisation that defence industries are compelled to adopt. Firms that adopt it first could have a decisive business advantage, and perhaps more importantly, a decisive design and production advantage.

Firms may be categorised by the extent to which they have adopted and adapted to internationalisation and globalisation patterns. One such categorisation, distinguishing four types is:

1. the ‘national’ firm with overwhelmingly home-based operations, having foreign activity of little significance;
2. the ‘multinational’ firm with ‘local-for-local’ production in a number of countries, in which strategies are managed autonomously on a country-specific basis with little central headquarters management coordination;
3. the ‘global’ firm with integrated cross-border production, catering for global market strategies managed in ‘centralized’ fashion by HQ; and
4. the ‘transnational’ firm with dispersed international production, catering for both global strategies and those tailored to specific national and regional differences…The ‘transnational’ phenomenon, necessitating highly complex combinations of centralization and decentralization within the MNE management organization, is increasingly to be found in technology-intensive global industries…\textsuperscript{27}

While “technology-intensive global industry” might seem like a good description of a major defence firm, defence industries have traditionally occupied the other end of the scale. However, even without the limitations of national security, few large firms achieve

\textsuperscript{25} Reinicke, “Global Public Policy,” 128.

\textsuperscript{26} Ikenberry, \textit{Don't Panic}, 149.

\textsuperscript{27} Michael Porter scheme as described in Razeen Sally, “Multinational Enterprises, Political Economy and Institutional Theory: Domestic Embeddedness in the Context of Internationalization,” \textit{Review of International Political Economy} 1, no. 1 (Spring 1994): 165.
a transnational character. Most multi-national firms are products of their national business culture, finding their core markets at home, and keeping their headquarters and decision-making centre there too.

Defence industries have traditionally been organised at the national level and have been strongly tied to states, being regarded as strategic assets.28 Reasons for the development of a domestic defence industry include autonomy in security matters and the development of high technology industries.29 Different states have different ideas about and views towards their defence industries. Only the United States, France, the United Kingdom, Germany and Russia largely supply the bulk of their own high-technology defence equipment independently, and they are the predominant producers and sellers of defence products in the world market.30 The United States has a very strong defence industrial base, whose purported political power has led to the use of the term military industrial complex. The U.S. is certainly the closest to possessing a “complete” defence industrial base in the world, capable of providing for almost all of the U.S. defence needs. France has traditionally maintained the next most complete DIB in the West, but is now viewing its defence industrial enterprises as potential cores for larger European groupings. The United Kingdom has adopted a relatively commercial view of the DIB, although procurement is still strongly biased towards domestic industries. Germany has a substantial defence industrial base, but prefers it to keep a very low profile. The old


Soviet Union might have been described as a defence industry with a country around it. Post-Soviet Russia is struggling to maintain the viability of its overbuilt legacy.

Now, the defence market is no longer a national scale phenomenon, but it is at least transnational. Only the buyers remain national, but there are multiple national buyers. Major defence contractors tend to be large, multinational firms, and they transact with the world at the firm level, so they experience globalisation effects as do other commercial firms. Sally suggests that one should “consider the MNE as the nodal point of and interface between two realms: that of internationalization in global structures, and that of embeddedness in the domestic structures of national/regional political economies.”31 Owing to their unique connection to the state as a corporate element of security, major defence contractors have traditionally experienced the domestic embeddedness more strongly. Now they experience globalisation pressures indirectly through the pressures that states face, and the internationalisation as felt by other multinational firms. In this respect, globalisation pushes the defence industry in two directions. One is away from the national level of organisation to an international level. The other is towards civil industry. Both are in the interests of greater productive efficiency.

Defence contractors look to global production structures and global markets to gain technical proficiency and manufacturing efficiency. This drive often derives at least in part from pressure from above, for states look to reduce their costs. More orders, longer production runs, better economies of scale and, perhaps most importantly, wider

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margins are strong incentives. The requirements are the same as for other high-technology industries. This entails developing international networks to supply components and subassemblies. By the mid-1990s, U.S. and European firms had begun to assimilate the transnational structures for both production and marketing of defence equipment, in the manner already established in the civil sector.\textsuperscript{32}

Another benefit of global supply networks from an efficiency standpoint is the “centre of excellence”. This is the other side of the uneven development process. Some markets are not big enough to sensibly hold many firms. One or a few firms will gain the lead, and others will be forced out of the market. One example is in air-to-air refuelling equipment. U.K.-based Cobham Group, formerly Flight Refuelling, hold a near monopoly in the West, as they own their major rival, U.S.-based Sergent Fletcher. The latter continues to operate, but there is technical and technological sharing. The only other Western firm, a small company based in France, repackages Sergent Fletcher equipment. Regionally, the effect can be seen in the German proficiency in diesel-electric submarines and in armoured vehicles. Indeed, the German state is keen for Germany to become the acknowledged European centre for armoured vehicle design, development and production—but the sector has been slow to develop globalised characteristics.

On the other hand, new markets have to be opened and exploited. Exporting is one way to reach a new market, but competition is fierce.\textsuperscript{33} Sometimes the supply and


\textsuperscript{33} Keller, \textit{Arm in Arm}, 9-10.
market can be achieved jointly by buying into a local firm. The government may look favourably on a domestic firm, even if it is foreign-owned, thus giving access to the market. That firm may have its own particular proficiencies of which the parent can make use. The trend is even apparent in the United States: “[b]y the mid-1990s, arms industry representatives and Pentagon officials placed a high priority on achieving the efficiency of procurement by drawing on the global arms industrial and military technology base.” There are, of course, obstacles. As previously mentioned, technology transfer is a sensitive issue, especially for the United States. Other states and firms are keen to retain control over expensive technologies too. Then there is the matter of specification. Each state envisions different requirements. Typically, a firm cannot expect to pitch a piece of equipment with the same specification to many national procurement projects. Individual tailoring is needed.

Civil-Military Convergence

In very general terms, there are distinct differences between defence and civil requirements. Defence equipment must be durable, with the expectation that support will be limited at times and that lives depend on the dependability of equipment. Civil equipment tends to be less crucial, and support is more available and itself less crucial. Defence equipment tends to remain in service for a long time. Commercial equipment is often used to its maximum potential, shortening its working life and leading to rapid replacement. Competitive pressures also lead to more frequent equipment turnaround.

34 Schmitt, From Cooperation to Integration, 14.

35 Keller, Arm in Arm, 29.
There is an impetus to increase the commercial character of military equipment. The most pressing reason for such a convergence is costs, which can be better contained with commercial content. Economies of scale are achievable in the civil sector. Investment in the civil sector is far greater than is possible in the defence sector; the former has a larger market which offers the prospect of a greater return on that investment. To alleviate cost pressures and take advantage of developments in commercial technology, defence contractors are increasingly employing commercial components in defence products. Commercial technologies may be used “Commercial-Off-The-Shelf” (COTS), or may be modified for defence purposes. In the U.S., for instance, the waiver that was once required for Pentagon programme managers to use non-military specification has been replaced by a waiver for a programme to require military specification.

The second motivation is to gain access to commercial technologies. Commercial technologies have, in some fields, surpassed military technologies. This is particularly noticeable in computers and electronics. The vast size of the civil market compared to the defence market gives manufacturers the incentive to invest much more in research and development. There is a greater payoff to such investment. Indeed, the competitiveness of the market necessitates innovation.

An extension of the COTS idea is dual-use technologies. These are technologies that find both military and civil applications. In general, the weight is on the civil side. Military equipment typically uses proportionately more commercial, rather than strictly military-use, components than it did a few decades ago. This applies to both the research

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36 Ashton B. Carter, “Keeping America’s Military Edge,” *Foreign Affairs* 80, no. 1 (January/February
and development phase and the production phase. Dual-use technologies make the most of what is available, combining resources that would otherwise be separate.\footnote{Keller, Arm in Arm, 31.} The appeal is both economic and security related: domestic industry gains a competitive edge, and military services find their equipment more affordable.

In some cases, there is little need to develop specifically military equipment. Instead, commercial equipment can be bought to meet the specifications: “[i]n the late twentieth century, the distinction between military and civil technology is itself, breaking down; the leading edge of many technologies now resides in the commercial sectors of the economy.”\footnote{Ibid.} Neither science nor technology can be divided easily between military and non-military; the distinction is blurred.\footnote{Moodie, The Dreadful Fury, 13-4.} The breakdown of the civil-military technology distinction is a reflection of a larger trend in which technologies are interconnected. For instance, without access to powerful computers, it is difficult to be at the head of other realms of technology.\footnote{Kenneth Waltz, Theory of International Politics, Reading, Mass: Addison Wesley, 1979, 179.} Military computers were once built to “gold-plated” specifications. Indeed, the requirements of the defence and aerospace industries drove advances in computer technology. Building computers to a purely military specification now would be a recipe for obsolescence. Over the last fifteen years, developments in commercial systems have outstripped developments in military specific systems. Commercial processors have been increasingly featured in military computer systems. Along with the processors come commercial software applications: the
knowledge base of commercial software firms cannot be matched by defence departments, and the cost of licencing can be considerable.

A few defence technologies still find applications in the civil sector. The traditional spin-off effect is still valid. High speed data transfer mechanisms with powerful encryption are invaluable for military communications. Corporations find a similar need—communicating with their divisions abroad, secured against business rivals. It may be possible for defence departments to help pay for expensive communications satellites by allowing commercial firms to lease their excess capacity.

The cost-benefit ratio for a dual-use strategy for any given state depends on the extent to which technology is a factor in national security. Its propagation followed such a pattern. The trend towards the convergence of civil and military technologies began in Asia, spreading to Europe and then the United States. Asian states, not at the forefront of military technology, had little to lose by such integration. Greater affluence in Europe allowed the division to persist longer there, but, consisting as it does of smaller states with fragmented defence research and development budgets, European civil technology caught up to defence technology earlier than it did in the United States. The U.S. was unusual for the extent of the separation between the defence sector and the commercial sector. The U.S. is now also following the pattern, as the Pentagon seeks to break down the walls which it originally erected to separate military from commercial. For all states, there is a national security risk to reliance on dual-use technologies. The same

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42 Ibid.
technologies found in military equipment can be bought by rivals on the open commercial market.

Information technology, computers, and communications are the most conspicuous areas where civil technology has overtaken military technology. The subcontracting base of the defence industry is largely civil-oriented, producing some products for defence purposes amongst civil counterparts. In many cases, the parts may be interchangeable. It is hardly possible for a defence department to ensure the health of these firms, regardless of how important they may be to the defence production system. Nevertheless, it has been suggested that “the nation’s entire industry becomes critical as innovation based on commercial products assumes the norm.”43 Certainly many states have focussed on maintaining the strength of their civil industry in the face of international competition, but with mixed results. The defence industry may not be as impressed with the merits of civil-military convergence. Large defence prime contractors are concentrating more on defence—becoming further detached from the civil sector. If the prime contractors are not bridging the gap to the civil sector, other measures may need to be taken to ensure that defence products contain the best available technology.44 Alternatively, that role may reside with the subcontractors.

Converting to a more commercialised defence industry has its costs. The rapid rate of commercial computer advance tends to make military systems obsolete very quickly. To some extent, the use of commercial components makes upgrades easier, if done quickly enough. Otherwise, terminated production runs make upgrades more

43 Ibid., 17.
44 Battilega et al., Transformations in Global Defense Markets and Industries.
difficult.\textsuperscript{45} In spite of this, commercial technologies, particularly in information systems, are too valuable to ignore, and are increasingly fitted into military systems.\textsuperscript{46} Specification is also at risk. Firms in international civil markets may find the defence market to be rather small. It is imperative from their point of view to optimise their products for the international market for the firm’s well-being. Military specification is unlikely to be that optimum. Decisions by dual-purpose firms will be made on such bases as revenue, market share, and shareholder value, not national security.\textsuperscript{47}

**Significance of Changes in the Defence Industrial Market**

*Structural Disarmament*

Western states have produced fewer major procurement items with each generation to cope with the increasing costs.\textsuperscript{48} At the same time production volumes become all the more desirable, often necessary for the viability of a given project. However, if equipment is not replaced one-for-one, it becomes much more difficult to produce enough to achieve useful economies. The greater cost of defence equipment, coupled with the generally lower level of post-Cold War spending, puts downward pressure on production volumes. Lower production volumes limit the possibilities for economies of scale. Thus, unit costs become even more expensive. Improvements in technology and specification of equipment means that one-for-one replacement may not

\textsuperscript{45} Computer advances are not only in power, but in size, so that each generation can be smaller than its predecessor. This allows room, quite literally, for other upgrades to military equipment.

\textsuperscript{46} Keller, *Arm in Arm*, 31.

\textsuperscript{47} Battilega et al. *Transformations in Global Defense Markets and Industries*.

\textsuperscript{48} Kirkpatrick, “The Affordability of Defence Equipment,” 60.
be necessary for successive generations. However, the technological improvement is unlikely to fully offset the reduction in numbers. Succeeding generations are more capable, a particular function may be handled by less units. However, they must also cope with more capable systems in the hands of potential rivals—matching the absolute capabilities of a preceding generation is not sufficient, for it will be a relative decline in capabilities. This “structural disarmament” affects many states to such a degree that they are unable to maintain general purpose armed forces.49 While Augustine’s Law seems an unlikely outcome, the decline in numbers of platforms is a pattern likely to persist for some time yet.

Ideally, armed forces should be general-purpose, to be able to respond to different contingencies. A corollary of the reduction in platform numbers is that, for many states, it is too expensive to maintain general-purpose capabilities. Instead, states settle for multi-purpose armed forces, to maximise the prospects for being able to meet the contingencies that may arise. Similarly, defence equipment is made to specifications which are multi-purpose: having different assets for different events is simply too expensive.50 Defence equipment will be expected to be useable under a variety of field conditions, from classical peacekeeping, through hybrid peace enforcement operations to full-scale warfare. Interoperability with a variety of allies, as might be assembled in a “coalition of the willing,” is also vital. This allows states to agglomerate resources and fill in gaps in capabilities.

49 This term was coined by Thomas A. Callaghan Jr. in his work Pooling Allied and American Resources to Produce a Credible Collective Conventional Deterrent.

50 Moodie, Dreadful Fury, 41.
The most modern equipment will remain affordable for the United States for some time after smaller states cease being able to purchase it.\textsuperscript{51} For these latter, it is no longer feasible. They have stopped producing some categories of equipment altogether, instead purchasing them from abroad.\textsuperscript{52} The defence market is now such that states can import high-technology weapons in the absence of a developed industrial base.\textsuperscript{53} One possibility is for states to maintain a full range of capabilities, but at the cost of obsolescence in some areas. This category would include large emerging states, such as China and India. Other states choose to abandon specific capabilities to keep others intact. Most European states have taken this route. Even France, Germany and the U.K., where commercial economies of scale are viable, can no longer afford to equip themselves with the full range of defence equipment.\textsuperscript{54} Each state following the same reasoning is likely to decide that the same capabilities are the most dispensable. As such, Europe collectively also falls short in certain capabilities (airborne early warning, for instance).

The battleship was the first major modern implement of war to establish a great-power-only threshold. Last century, only the great powers were able to afford to build and maintain a modern navy. Armies and early air forces could be sustained by small and great powers alike; the forces of the former were simply smaller. After the Second World War, the nuclear threshold divided great powers from other states. Proliferation, and the decisions of some larger powers to avoid nuclear weapons, no longer make the


\textsuperscript{52} Ibid., 60.


\textsuperscript{54} Waltz, Theory of International Politics, 183.
nuclear distinction viable. Now, simply the cost of conventional equipment is dividing the world into levels of power. This applies to land, sea, air and space elements of the armed forces.\textsuperscript{55}

\textit{Technology Proliferation}

Globalised defence firms may be able to produce yet better defence equipment than national defence industries taking advantage of commercial technologies. By taking the best technologies from different places, combined with the productive advantages of different places, cheaper and better products can emerge. Conversely, purely national defence industries, in needing protection from international competition, may become relatively inefficient. By not finding better components abroad, their products can become inferior. Such a DIB can be a strategic liability, diverting resources away from the actual activity of defence.\textsuperscript{56} Efficiency is derived from directing the various parts of research, development and production to the most efficient provider. Specialisation and dependency are the direct result. Without specialisation, research and development funding has to be spread across the full spectrum of technologies needed to fight a modern war. It becomes impossible to be at the forefront of all the necessary technologies.

The problem of technology transfer associated with globalisation means that more states and firms will be able to produce modern defence equipment. During the Cold War, technology transfer allowed allies of the superpowers to better defend

\textsuperscript{55} Ibid.

\textsuperscript{56} Hirst, “The Global Economy,” 419.
themselves, thus strengthening the blocs. This diffusion of military technology was
global in scope.\textsuperscript{57} Licensing, joint ventures and longer term strategic alliances all
contribute to the proliferation of military industrial technologies. Buying governments
were able to exert considerable leverage, particularly in the post-Cold War period, where
“procurement holidays” made firms desperate for sales. Technology transfer can be an
explicit requirement in a bid for a procurement contract. For many states, buying abroad
is part of a plan to import industrial capabilities. It is a move towards defence industrial
self-sufficiency.\textsuperscript{58} Where the sale of armaments creates a dependence relationship
between buyer and seller, the transfer of skills and technology is a one way flow. Once
skills and technologies are released, they cannot be taken back.\textsuperscript{59} The combination of
the internationalisation of production and the transfer of technology has shifted functions
away from the state and towards the defence industrial firms. Varied sources of
components and technology allow firms to bypass particular states. Firms now have
greater control of the distribution of defence products.\textsuperscript{60}

For the United States, this poses a distinct problem: the maintenance of the
“offset strategy” is no longer viable on the basis of access to technology alone.\textsuperscript{61} With
distinct blocs arrayed against one another, the transfer of weapons technology across the
“iron curtain” could be greatly restricted by sound security measures. With advanced

\textsuperscript{57} Keller, \textit{Arm in Arm}, 27-9.

\textsuperscript{58} Ibid.

\textsuperscript{59} Richard A. Bitzinger, “The Globalization of the Arms Industry: The Next Proliferation Challenge,”

\textsuperscript{60} Keller, \textit{Arm in Arm}, 27-9.

\textsuperscript{61} Carter, “Keeping America’s Military Edge,” 100.
technologies held by globally organised firms, it is more difficult for the United States to maintain a technological gap. Key technologies may be developed elsewhere and sold for commercial profit, and previous clients may have a different view of their post-Cold War security needs. Another consequence of commercialisation is the availability of security-related technologies to non-state actors. Computer and information technology related skills may be acquired by individuals on the open market, and applied to asymmetric warfare purposes. Indeed, the only specialised skill needed by the terrorists involved in the 9/11 attacks was flight training, easily available at the time across the United States and elsewhere.

Security of Supply

The defence industrial base is a physical manifestation of the need for security of supply. A state’s most basic goal is survival. The most serious threat to the survival of a state is the ability of another state to eliminate it or subjugate it through war. Preparation for war involves having both people to wage the war and equipment for them to do so. According to a Pentagon report “[i]ncreased dependencies…will increase actual or perceived insecurities”62 The possession of a domestic defence industrial base is way of ensuring that the equipment will be available.

If civil-military convergence necessitates the protection of the broader industrial and technological base of the state, then the protection of such is surely beyond the means of defence departments. To manage that problem, beyond the mere purchase of defence equipment, transnationalising the design and production processes is actively the goal of

62 Battilega et al., *Transformations in Global Defense Markets and Industries.*
many states. It is perceived as way of preserving defence industrial and technological capability. It is the only way in which the continuation of a domestic defence industry can be made affordable, so that the domestic industry can provide for national defence requirements. The costs of dependence are overwhelmed by the gains in self-sufficiency. A few states try to achieve specific niches of capability, where providing a general purpose defence industrial and technological capability is out of reach. This approach gives the state a useful bargaining chip in the international defence industrial marketplace, making it a desirable partner for international programmes. Comparative advantage in some defence products may not be enough. Unless defence trading arrangements are specifically made, leadership is more likely to be applicable—states may not have comparative advantage in any defence product.

If the civil-military partition of industry is maintained, then the increasingly commercial character of defence equipment increases the security of supply. There are more sources available for defence equipment, and many firms eager to supply it. Even if no particular source is considered reliable, the number of possible sources increases the probability of at least one source being available. Security of supply is provided through redundancy. Many buyer states try to seek to improve both the buying power of their defence budget and their security of supply through diversification. Multiple small dependencies are less of a strategic liability than a few major dependencies. For some types of equipment, diversification is not a viable strategy. The decisive lead the U.S. has in many technologies means that alternatives may be decidedly less capable.


64 Battilega et al., Transformations in Global Defense Markets and Industries.
Impressive U.S. arms sales suggest that states are willing to accept dependencies for the additional security offered by better systems.

On the other hand, industrial consolidation represents a problem because it may undermine security of supply. The state will have less control over domestic arms production. With fewer firms in the market, there are fewer sources for any particular type of equipment. If none of those sources is domestic, there may be a security risk. Some considerable assurance may be needed that foreign sources of supply are reliable in order to accept that risk. If the risk is intolerable, it may be necessary to open a domestic factory under domestic control, even if the costs are high. Where commercial contractors providing defence equipment are domestic, another issue arises. Many dual-use technologies are concentrated in computer systems, information technology and sensors. These are core military competencies, particularly for the Western ways of warfare. The competitiveness of the domestic civil industrial base is a matter of national security. It is also a matter that is largely beyond the means of the defence establishments to determine. On the other hand, the state may take advantage of the market nature of the industry by quickly acquiring “grey” market arms, as well as COTS and ordinary equipment purchases in times of crisis. In order to prepare for crisis conditions, stockpiling of critical components may be necessary. Bitzinger concludes that

the emergence of a more transnational defense industry means that arms production can no longer be viewed in strictly national terms. Internationalized armaments development and manufacture, coupled with formalized and integrative interfirm linkages, blurs the concept of ‘indigenous’ weapon systems. Just as important, the global arms trade cannot be defined simply as the export of finished weapon systems.

65 Ibid.

66 Battilega et al., Transformations in Global Defense Markets and Industries.
Instead, greater attention must be paid to the international commerce in military technology, production know-how, and joint manufacture and marketing.\textsuperscript{67}

Reliance on the civil sector puts defence technologies and firms at the mercy of market forces. Commercial markets have their own cycles, and downturns will affect related aspects of defence. For instance, the telecommunications market took a sharp downturn in the early part of the new millennium. The prior expansion of telecommunications had benefited the space sector, as firms sought to build constellations of satellites. The U.S. space industry enjoyed the rise, but suffered once as the constellations were completed, the few telecommunications firms that still wanted satellites were ill-able to afford them. This loss directly applies to rocket production, launch services and satellite construction.\textsuperscript{68} The Ballistic Missile Defense programme has given new purpose to the defence-space sector, none too soon for the U.S. space industry.

**Indicators**

Indicators must be found to link the defence industry with the level of change in the international system. Suitable indicators must be found to use Hegemonic Stability Theory to test the level of change in the international system. These will be found within the defence industry for reasons laid out above. The two main political actors are the United States as possible hegemon and the European Union as a possible challenger. The


\textsuperscript{68} Chun, \textit{On the Cusp of Transformation}, 5.
status of the former is presumed. The status of the latter is thus the main question, but on two fronts: as an actor unto itself, and as an agglomeration of state actors.

Hegemony facilitates co-operation, and in particular facilitates the creation and maintenance of international institutions by which co-operation is managed. Maintenance is said to be an easier task than creation.\(^6^9\) The maintenance of institutions is encouraged by the reduction in transactions costs and uncertainty, and by the setting of expectations about the actions and reactions of other states.\(^7^0\) This is not to say that hegemonic decline will not affect international co-operation; the hegemon’s leadership is far from inconsequential. Thus the decline of U.S. power will strain the capacity of institutions, but not necessarily derail them.\(^7^1\) It is possible that the absence of hegemony might enhance co-operation. Keohane suggests that states act with “strategic rationality”: they pursue self-interest with a longer rather than a simple short-term perspective.\(^7^2\) This observation suggests that change may not be immediately obvious, but would instead be disguised by the momentum of international institutions. Hawes determines that

\[\text{[d]elegitimisation begins when members of the existing order no longer accept the hegemon’s leadership and the prevailing regimes without question. The tendency, however, is to remain publicly committed to the existing order for some (indeterminate) period of time…for our purposes,}\]

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\(^7^0\) Ibid., 184.

\(^7^1\) Ibid., 182-3.

it is the *breakdown* of consensus that indicates the beginning of hegemonic decline.\(^73\)

Such a breakdown should be perceptible in the defence industry. The defence industry is a core element of sovereignty for a major state. Personnel can be extracted from joint operations fairly easily. Industrial interdependence is not so easily undone. Once industries combine across frontiers, if it is allowed, division of labour will take place to maximise efficiency on the principle of comparative advantage. This means surrendering some capacities for manufacture. Re-establishing these capacities is possible, but in general cannot be accomplished quickly. State security has become interdependent at a deeper level than co-operation in military affairs with allies. Political aims for the future of Europe’s defence industry are typically tied to Europe’s ability to amass and project military force. Greater efficiencies through co-operation can enable Europe to spend its military budget more effectively. The defence industry is also tied to alliance and European cohesion.

*Indicators for Systems Change*

Realists often expected that, with the end of the Cold War, traditional *realpolitik* computations would divide the West. Europe in particular would be likely to return to the pre-war balancing, with shifting alliances and more military postures. So far, this has not happened and there is little indication that it will happen. A security community still

exists in the West. For systems change, a change in the character of the units is required. The future of the state here may be represented by the states within the European Union. Sovereignty is both integrated and fragmented: the traditional Westphalian state no longer has a monopoly on sovereignty.

Globalisation is expected to be the root of the change to a post-Westphalian system. The globalisation of production has had the effect of increasing security of supply. States can look to multinational corporations (MNCs) for secure sources of supply: large firms themselves seek such security in order to protect their own production structures. Their ability to find security of supply is facilitated by advances in information technology, communication and transportation. This allows MNCs to coordinate their widespread operations and reduce dependence on particular suppliers. This makes territory less important. It is not necessary to hold the land from which various strategic materials come. In turn, this makes the international system more stable. The national security impetus to control more territory is no longer so pressing.

Clark suggested that globalisation is not a post-Cold War phenomenon: it was one of the factors in the ending of the Cold War. Globalisation has even been

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77 Ibid., 666.

78 Ibid., 668.

understood as having been a kind of peacemaking. The end of the Cold War was a particularly important juncture in the process, which began earlier and continues beyond.\textsuperscript{80} The Soviet method of centralised control prevented the Eastern Bloc powers from taking part in the economic gains from globalisation. At the same time, it made it difficult for the Eastern Bloc to insulate their peoples from seeing the relative affluence of the West. Globalisation again plays a role in offering post-Soviet Russia some guarantee of their continuation. Although the East Bloc state system was to disappear, the triumphant globalised system would accommodate these states, and they could find their place in the new global division of labour. Unlike the ending of a “hot” war, the Cold War would not end with a form of occupation, but a different form of rehabilitation.

The idea of understanding globalisation as part of the post-Cold War peace settlement suggests that globalisation has already been a factor in the evolution of the international system. It also brings globalisation much closer to matters of defence. Globalisation of civil industry is clearly still important, for the economic benefits accrue to those states that play by the globalised set of rules. Economic punishment is meted out to those that do not. However, these incentives and disincentives are applied by the international market. Whilst that market is understood to be associated with Western states, and the United States in particular, punishment and reward are not directly applied by any state. If globalisation is to help keep the peace, one place it might be expected to play a strong role is in the defence industry. Instead, globalisation was late coming to the defence industry. Nationally organised defence industrial firms were typically separate from civil firms; mixed firms typically kept their defence and civil divisions separate.

\textsuperscript{80} Ibid., 162.
Globalisation offers rewards to those states that embrace it. These rewards are in the form of technological progress, productive efficiency and cost-effectiveness. Avoiding globalisation therefore ensures relative loss: the relative quality of realist analysis implies that gains abroad are equivalent to losses at home. Thus when globalisation reaches the defence industry, resistance becomes expensive.

However much American power might have been causally related to, and responsible for the intensification of, the process of globalization, it is a fundamental mistake to think of globalization as being no more than an expression of American power. Whatever the role of the United States in aiding and abetting globalization, it is now something beyond the power of the USA alone to shape or control.81

Most European states have abandoned the effort to maintain a substantially complete defence industrial base. The traditional great powers of France, Germany and the United Kingdom had, at least until recently, sought to maintain a nearly complete DIB. If systems change is underway, then their national DIBs will no longer be viable. Again, if the European Union were to effectively become a state, that would not be systems change. It might make the EU a more substantial test, but one in which the different forces acting on the DIB would have to be separated. So the United States is the critical case.

The United States spends far more on defence, and especially on defence goods, than any European state. If the United States is unable to maintain a national DIB, then the change is fundamental to the system. This could happen in two ways. One, the U.S. DIB would cease to be national. This would imply defence industrial interdependence between the U.S. and other states. This would be marked by the transnational defence

81 Ibid., 151.
industries and other “thick” ties between defence firms. Large defence firms would become transnational, rather than merely multinational, with subsidiaries around the world contributing to the production of defence products.

The second is the ending of the distinction between the defence industrial base and civil industry. This would only happen if commercial technologies were to supersede defence technologies. There would still be some distinction, for commercial technologies and products would have to be altered to be useful for military purposes. There is still room for a defence prime contractor, but those prime contractors would look more like assemblers and modifiers than innovators and builders. This second manifestation could precede, and indeed drive the first. The U.S. government will probably spend the bulk of its defence resources domestically. However, the ability of the government to ensure that commercial technologies are domestic is much weaker. U.S. defence research and development expenditure is about half of that of the world total. This will ensure that the U.S. can lead in almost every type of purely defence technology. On a commercial front, things are much different. The U.S. cannot lead world commercial R&D in the same way. Its ability to ensure leadership in commercial technologies is also impeded by trade agreements.

A systems level change would involve much more transatlantic co-operation. From a defence industrial point of view, the globalisation of the defence industries of the world and the West in particular, is a significant development. With a globalised defence industry, states are no longer able to be self-sufficient in manufacturing for their defence needs. The defence industrial base of the West would be tending towards complete integration. National specialisation in a global division of labour would be expected.
The size of the United States compared to individual European states and its larger defence spending would suggest that the U.S. would have many fields of specialisation.

**Indicators for Systemic Change**

Balance of power theorists expect U.S. hegemony is to be short-lived. The cost of system maintenance is expected to ensure that the hegemon’s growth rate is lower than that of its major competitors. This means that the “challenge to American hegemony will come from societies that are equally advanced. It will also come from entropy, the natural tendency toward the degradation of a hegemon’s energy.” Those competitors are also expected to unite against the overbearing hegemon and the self-benefiting system it supports. Hegemonic theory, by contrast, expects this configuration of international power to be more durable, particularly with the U.S. playing the leading role. The U.S. approach of forming international institutions and using market power is much less expensive than forming an empire.

Some analysts believe that the U.S. should improve its long-term position by ceding hegemony early. One way would be to seek to construct regional hegemonies to look after different parts of the world, and to pay the costs. In this scenario, the regional peripheries would be expected to bandwagon with their regional hegemon, lacking the power to challenge. The U.S. would be the hegemon of hegemons, but operate in a benign and restrained manner. Presumably the regional character is supposed to ensure

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84 Kupchan, “After Pax Americana,” 49.
bandwagoning behaviour rather than the balancing behaviour expected of a more forceful U.S. global hegemony. Restraint may not be a long-term solution. There are costs for the hegemon in not asserting its national interests abroad, even if those interests are not vital. Challenges to hegemonic authority may seem more viable where that authority is not usually exercised. Indeed, restraint may allow such challenges to go unchecked in peripheral areas.85

Indications of a European challenge to U.S. hegemony are those which are applicable to systemic change. The United States has much greater population and land area than the traditional European great powers individually (and collectively, in the case of land). Unification is a major step to achieving power parity with the U.S. There was the realisation that, economically, European states were falling behind in the face of competition from Japan and the United States. However, there are also more ambitious goals about the place of Europe in the world. The European Security and Defence Policy is a particular means to agglomerate the individual European foreign policy voices so that the combined diplomatic weight can be wielded. A European Security Strategy emerged in 2003, defining threats and interests from a European point of view. Posen argues that “[q]uietly, and cautiously, Europeans appear to be balancing U.S. power.”86 Balancing here is not, at least initially, a direct opposition to the U.S. It is instead the idea that “consequential” states will make preparations for the possibility of U.S. indifference, unreliability, and unilateralism in security matters. It is a means to ensure that, in the


absence of the U.S., vital security needs can be attended and that they will have influence in international affairs.87

An alternative to unification is the possibility of a smaller combination leading the rest. The co-operation between Germany and France, which has been so vital to European integration, has been offered as a “pluralistic core”. 88 The rest of Europe would be a periphery of supporting states. This alternative does not seem to be viable now, particularly with the recent expansion of the EU. France and Germany are not powerful enough within the enlarged EU to necessarily drive a challenge in the face of an uninterested periphery. New additions to Europe in the East tend to prefer transatlantic security arrangements to European autonomy. The proliferation of relatively small European states gives them the impetus to challenge the principle of a directoire composed of larger states too. 89 Furthermore, France and Germany may have exhausted the realms of policy where agreement can be readily reached. Germany’s general preference is to keep the U.S. engaged in European security affairs, and engaged multilaterally more generally.90 Finally, the Constitutional Treaty was rejected in France by referendum.91

87 Ibid. 158-9. “Consequential states” is his term.


90 David G. Haglund, “Has France Finally Said auf Wiedersehen to Its German ‘Problem’?” Orbis 48, no. 3 (Summer 2004): 393.

91 Drake, 103. Given that the French policy elites were in favour of the treaty, this may not directly indicate a change in perceived national interests.
However, states have a way of voicing their own foreign policy preference when important issues arise, such as in the build-up to the second intervention in Iraq. The EU is as yet unready to take on major responsibilities for international security. This was demonstrated in Bosnia and Kosovo and by the delays in achieving the modest capabilities of the Headline Goal. Indeed, there must be some convergence between the goals of the major European states. Germany must become more willing to act on matters of international security, and France must scale back its ambitions. The French preference for accumulating and projecting power and the German preference for managing power must be brought together, with the British preference for projection in conjunction with the United States.

Sharing an integrated defence industry would not be the characteristic of a supposed hegemon and hegemonic challenger. The “Europeanisation,” rather than globalisation, of European defence industries is an indicator for systemic change. International programmes will be decidedly more common within the EU, and perhaps involving neighbouring non-EU states, such as Norway. The idea would be to bring the latter into the fold, denying the U.S. possible footholds. The consolidation of defence industries in Europe does suggest that Europe is becoming an amalgamated security community. Without transatlantic consolidation, the United States does not appear to be of the same community:

defense-industrial cooperation remains crucial for NATO’s future. Having the leading defense companies in Europe and the United States work together for their mutual benefit would improve both NATO’s military effectiveness and its political cohesion. Conversely, if defense


93 Ibid., 67-8.
companies on opposite sides of the Atlantic are pitted against each other in a bitter struggle for slices of a progressively smaller pie, the inevitable spillover into the political arena will undermine the alliance.  

However, some care must be taken. If it is the U.S. that is excluding Europe (intentionally or otherwise), rather than Europe excluding the U.S., then the situation is less clear. The U.S. may be protecting itself from a perceived possible challenger, but Europe would not necessarily be transforming into that challenger. On the other hand, the U.S. might not perceive Europe as a challenger, but is keeping a separate DIB in order to protect its military technological superiority. Either way, a simple realist analysis would suggest that it does not matter. If it were occurring, the formation of Europe as a unitary security community distinct from the United States would make it a challenger by virtue of its amassed power.

*Indicators for Transaction Change*

Transaction level change is the default condition. If there are no higher order changes, then there should at least be some transaction level change. Since uneven development is assumed, there will be some change in relative capabilities of states. Small changes will not necessarily upset the hierarchy of states. These are changes of degree. Minor changes in the structure of transactions can accommodate small changes in the power differential between states.  

The formation of the European Union may only result in transaction level changes. Short of complete political union, or at least a common foreign policy, it is

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95 For states that are not key powers in the system, changes in the hierarchy will not result in systemic change, while being very important to the states involved.
difficult for Europe to constitute a challenger in the international system. Foregoing such a challenge does not mean there is nothing to gain. European states may seek to improve the rules of the international system by collaborating to better negotiate those rules. Transaction concessions may also be employed by the United States as a form of appeasement to Europe as a potential challenger.

Huntington observed that the U.K. was never close to having 40 per cent of the world’s economic activity: such a requirement makes U.S. hegemony a fleeting phenomenon. If one fifth to one quarter of the world’s economic activity, and exceeding the next largest economy one over, are sufficient conditions, then U.S. hegemony is not in danger.96 It is virtually inconceivable that, if the hegemon has 40 per cent of the world’s economic activity, a challenger could have a comparable level. At 20 to 25 per cent, it is much more plausible there could be a comparable power. U.S. military power remains strong enough for a hegemon. System dominance is not necessary, only that the hegemon be capable of ensuring access to the strategically vital regions, including those of an economically vital nature.97 Generally military power is not especially useful in economic relations. Most of these relations are with allies. The threat of force or the threat to withdraw protection could break the alliance, which would surely make economic relations more difficult.98

Wohlforth, in observing that the U.S., by spending about 3 per cent of GDP on defence, outspends all other great powers put together, concludes that balancing is not

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98 Ibid.
taking place. For this, two possible explanations are offered: “[o]ne reason may be that democracy and globalization have changed the nature of world politics. Another possibility, however, is that any effort to compete directly with the United States is futile, so no one tries.”99 Since then, U.S. defence spending has risen proportionally to other major states, possibly excepting China. Ikenberry also expects no challenge in the near term. The United States’ preponderance is as great now as any hegemon has achieved for centuries.100 Furthermore, there is no grand ideological alternative around which adherents may feasibly gather to the challenge the existing order.101 Radical Islam is an ideology that offers a challenge. While many individuals and non-governmental organisations (including terrorist organisations) may rally around radical Islam, few states are willing to do so directly.

Although more than 15 years have passed since the end of the Cold War, there has not been a fundamental change in U.S.-Europe-Japan relations. Even though economics are perceived as increasingly important to national security, economic disputes have not been unmanageable.102 The relative economic improvement of the U.S. with respect to its major challengers may account for this. More likely, it is reflection of the continuation of the power positions of the various players. Kagan attributes the foreign policy outlooks of the United States and Europe to the power differential. The U.S. preference for unilateralism is made possible by its superpower status. For Europe,


100 Ikenberry, America’s Liberal Hegemony, 26.

101 Ibid., 28.

102 Ikenberry, Don’t Panic, 148.
multilateralism is preferable, in the hopes that the more powerful U.S. can be constrained by a web of rules and international norms. European states individually, and collectively, lack the capacity to impose their will in the way in which the United States can. Perhaps a greater worry is for the future of Europe itself. The failure of multilateralism outwardly would suggest the success of multilateralism inwardly is an anomaly. This is inauspicious for the very project of Europe itself.\textsuperscript{103}

Following the apparent U.S. decline, those who expected a rise of multipolarity were disappointed in the 1990s. U.S. hegemony apparently increased, mainly the result of a strong U.S. economy and the weakness of the economies of its major rivals, as well as the decline of Russia. The French Foreign Minister observed that the United States at the end of the 1990s was incomparably greater in power and influence than any state had been in modern history.\textsuperscript{104} Europe does not appear able or interested in taking up the challenge to balance the U.S. or seek its own hegemony.\textsuperscript{105}

The U.S. dominates the world market for defence equipment. That domination has become quite apparent since the fall of the Soviet Union. Russia has lost many of its traditional markets. The impressive performance of Western, and in particular, American weapons in the Persian Gulf war contrasted to the poor performance of Russian-built Iraqi equipment. Of course, the comparison is unfair in many ways: little of the Iraqi equipment was top-of-the-line, much was quite old, the coalition established air


\textsuperscript{105} Keohane, \textit{After Hegemony}, 49.
superiority and the largely conscripted Iraqi army was not very well trained or motivated. Nevertheless, prestige fell to the victors, whose goods were effectively showcased.

States should respond to the cost pressures from defence inflation in such a way as to maintain their sovereignty as far as possible. National consolidation is to be expected within the defence industries of the West. Co-operation and joint programmes are not impossible. They will be conducted in such a way as to improve the national DIB, limiting external dependence as much as is feasible. States seeking security of supply may find it necessary to co-operate for the supply of advanced equipment to be feasible. Comparative advantage through specialisation would not be a goal of co-operation, rather states should seek to acquire access to capabilities they do not already possess. Co-operation would be a way of maintaining a national defence industrial base. With only transaction level change, the state remains a key figure. Indeed, the state would be expected to support, influence and even promote co-operation. The state would be leading and promoting change. The state would be expected to reserve the right to nationalise domestically located industry. Export controls of defence goods would be maintained in the interests of national security. However, the opposite action may also be true—the state may promote exports of defence goods in the interests of helping to preserve the competitiveness, or indeed, viability, of its defence industrial base.

States should seek to change transaction rules that reflect their place in the system when their position is underrated. In the post-Cold War world, the U.S. no longer serves so crucially as the defender of last resort. The imbalance in defence trade, which seemed fair whilst the U.S. served as Europe’s protector, no longer seems as appropriate. European non-defence contributions to international security are not highly regarded in
the U.S. It is natural that a less dependent Europe may seek to improve its transaction relationship with the U.S. This would imply less strategically-oriented defence industrial decisions in Europe: instead, Europeans would be seeking competitiveness at home and fairness and balance in their relations with the U.S.

**Expectations**

Neither the U.S. nor the EU is seeking a systems change. Europe has become both peaceful and wealthy in the existing system. It is surely in the European interest for the existing international order to be maintained, especially if the United States is to continue to bear the burden of that maintenance. It is better that the United States remain engaged in the world and undertake that maintenance. The United States is not seeking a systems change either—such could only imperil its position in the world. Systems change, however, may come unbidden. The U.S. may be inadvertently helping bring it on through conceiving future warfare in terms of the RMA—bringing commercially inspired technologies into the centre of defence systems. Dual-use components are more prevalent as commercial technologies have clearly surpassed defence technologies in some defence-related fields. Commercial economies of scale are often well beyond those possible for defence. The idea of a defence industry as a distinct entity is becoming increasingly viable. As commercial industry becomes increasingly globalised, so too must the defence industry. The defence industry as a defensible element of national security is at stake. It may not be, or not yet be, inevitable or irreversible. It may also be possible that some vital elements of the defence industry may be insulated from globalisation.
The European Union does not seem to be making a hegemonic challenge either. There are some aspirations in Europe for an independent, or “autonomous,” military capability, i.e. independent of the U.S.-led NATO. These aspirations are quite modest. It may be adequate for the EU to attain sufficient capability to ensure regional stability without the global reach that the U.S. possesses. At the defence industrial level, European states are seeking to collaborate with the U.S. There is also American interest in collaborating with Europe. On both sides, there are also tendencies to seek to spend procurement funds at home. In Europe, there is little keenness to spend sufficient monies at home to build a defence industrial base capable of matching that of the U.S.

Specifically, if the allies truly feared that their relationship was fraying, they might be expected to engage increasingly in internal arming, as opposed to reliance or ‘dependence’ on one another. That has not occurred, and to the contrary, the transatlantic armament relationship has strengthened since the end of the Cold War.\textsuperscript{106}

On the other hand, China is a candidate for future challenger. It is building a DIB that is not integrated with the defence industries of the West, and finding technological advancement through ties to Russia.

There does appear to be good reason to imagine that European states are seeking some transaction level change. The defence industry has been one aspect of U.S. industry that has continued to dominate the world. This situation was largely acceptable for much of the post-war period. The U.S. role as guarantor of freedom for the West made it palatable for Western states to acquire U.S. equipment even if the U.S. was unwilling to reciprocate. The much larger scale of U.S. investment in defence

development and production often made U.S. equipment better and cheaper than indigenous equipment. Now, nearly two decades after the Cold War, the U.S. no longer needs to serve as the guarantor of Western freedom. Its role as international hegemon is not quite as benevolent—but not necessarily unappreciated. The national security calculus has changed. The United States government has supported arms sales on a domestic economics basis: U.S. manufactured arms are good for American industry and provide American jobs. This has also worked against European producers who may have been able to acquire some contracts the U.S. has denied for security reasons.

Most importantly, the changes in the structure of the European defence industry appear to be partly in response to the changes in the United States defence industry. The U.S. defence industry consolidated on a national basis before significant cross-border European restructuring took place. This additional impetus may have been the critical factor in finally pushing European states to undertake transnational consolidation. The economies to be gained had long been perceived to be desirable, if not vital, but the political will to allow it had been absent. Furthermore, defence industry consolidation has emerged to be an industry-led process. Government had sought to arrange consolidation in an orderly fashion, but it proved difficult. Rather than being a state activity, it was an industry activity made possible by the permissiveness of European states.
A notable post-Cold War trend was the desire to reap the peace dividend. This idea was that, without a superpower confrontation, the West need not spend so much on defence. This reduction, or dividend, could be used for other socially desirable purposes. This cut fell most heavily on development. Defence expenditures can be divided into three types: capital, personnel and operations and maintenance. In the short term, personnel expenditures are difficult to cut. The labour force involved in the defence effort can be reduced, but not very quickly. Those cuts that are made typically involve additional expenses such as severance pay and early retirement packages. Operations and maintenance expenditures are difficult to reduce, even in the long run. As defence equipment becomes more complex, maintenance becomes more expensive. However, older equipment becomes more expensive to maintain over time. Reducing wear on military equipment can be accomplished only at the expense of reduced activity (operations) or effectiveness. Armed forces need to practice with the equipment to retain skills and develop tactics. Operations may be reduced, but have not been: there has been a rise in their tempo in the post-Cold War world. Capital expenditures are more readily reduced. New acquisitions can be cancelled or delayed, development times can be
increased, new research can be abandoned. There tends to be a cost in the long run. However, in the short run, the difference can be all but imperceptible. In the post-post-Cold War period, this trend has largely ended, but most Western states have defence expenditures at a lower level than during the Cold War. This was a political response reflecting international realities rather than an external or causal trend. Nevertheless, it served to exacerbate changes that were outside of political control. In the post-9/11 world, Western defence spending has generally been rising. Much of the new expenditure is absorbed with the need to make up for the prior lack of investment. More recently, international operations, especially for the United States, constitute a significant expense. For most states, these increases will not be enough to cope with defence inflation for very long. Tackling the other end, states have been implementing measures to keep costs down.

There has been an increasing trend on both sides of the Atlantic to try to make the defence market more like commercial markets. The hope is to gain the same efficiencies that can be found in the civil sector. This has manifested itself in efforts to transfer parts of the defence function to the private sector as well as reforms of defence procurement. In the United States, the Defence Reform Initiative included a thorough examination of which civilian positions could be accomplished by private firms. Departments were directed to increase the use of competitions between outside and in-house suppliers for these tasks. The principle of “value for money” was established in the U.K. for procurement, initially without, but later with consideration for the consequences for the

domestic DIB. Yet, as Hayward remarked “the defence sector is unlikely to become a “normal” industry. Superiority in defence technology gives states an important military edge. For some states autonomous access to such technology is a significant security goal, even if defining what comprises national core defence technologies has become more difficult.” On the other hand, the pressure to “normalise” the defence industries is unlikely to be abandoned. Privatisation and commercialisation are attempts to cope with the demands of defence inflation and the march of commercial technologies.

Defence equipment has a life-cycle, not all phases of which need involve both state and firm. Research and development is the first stage in the evolution of defence products. This is usually initiated by the state, but defence firms sometimes start development of a new product as a commercial venture. The next major stage is procurement and production. Here states buy, where industries build and sell. However, states may work together to buy, and industries may work together to build and sell. The third stage is the service life of the product, traditionally the preserve of the state. The final stage is disposal.

While the bulk of defence research and development in the West is done by defence industries, the risk has usually been borne by the state. R&D work has been paid work regardless of whether the technologies have emerged to be useful or useless, and regardless of whether prototypes have transformed into procured equipment. Further commercialisation at this stage has not been especially well-received by industry as states

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have sought to shift the risk to the defence firms. Failed efforts may result in limited or no remuneration. Procurement may take on more novel forms. Specifications may be phrased in terms of capabilities rather than numbers, leaving manufacturers to decide what is the most cost-effective solution. The third stage offers the most scope for privatisation. Industry is already involved in the first two stages, and the last stage is often brief: sale or salvage. For the service life of a defence product, maintenance is the major cost. Here the offered product is more service than good. Spare parts account for some of the cost of maintenance, but it is mainly labour and expertise that are required.

A further extension of commercialisation is the ownership of defence equipment. This may be leased, or simply owned and operated by private firms under contract to the state, or a group of states. For any equipment that would be needed on the front line, its combat use would be pre-arranged. A problem may arise when defence equipment is privately owned and used by a number of states. In an extended emergency, it may be difficult for one state to use those resources beyond the contracted amount. Domestically owned resources could be appropriated and worn out if need be. This applies to personnel as well. If the defence establishment extends across the full panoply of military functions, personnel can be reassigned in times of emergency. Drafting civilian personnel is more difficult, likely impossible if they are located abroad.

Other kinds of defence activities are also contenders for commercialisation. Service providers are becoming prominent. Health care services and information technology firms are a particularly large proportion of them. More defence-related service firms are also joining their ranks, maintaining weapons systems and bases, and conducting research and development. This trend in particular is extending the
boundaries of the defence industrial base. The service sector is also extending into areas that have been previously understood to be reserved for national defence forces. In the West, privatisation is unlikely to extend to the sharp end of military operations. However, many support functions are perceived as viable candidates. Training is increasingly being contracted out to private firms. Flight training is especially popular. The appeal may have much to do with the fact that the contractor can be responsible for providing the equipment. For flight training the equipment is especially expensive, including aircraft and simulators. Privatisation can alleviate a capital budget backlog, although at the expense of current and future running expenses.

Efforts to improve procurement efficiency through public-private partnerships, careful procurement contracts and privatisation of military functions will likely offer significant gains, but it will not be enough to make a great deal of difference in the long-term.\(^4\) The increasing cost of defence equipment should continue to outpace such measures: costs are increasing exponentially, where efficiency gains are arithmetic.\(^5\) Furthermore, productivity improvements have already been accomplished through consolidation, collaboration, and in some cases, export performance. These improvements have already been included in cost-growth trends.\(^6\) Also, security concerns will tend to limit the amount of commercialisation that is possible.

Contracting out traditional roles is appealing to all parties from a budgetary point of view. From the defence department’s point of view, assessing the success of such


\(^5\) This is the Malthusian principle in a different application.

\(^6\) Ibid., 61.
programmes is difficult. While many efforts to outsource tasks have not generated the anticipated savings, most have generated significant savings. A Canadian audit on Alternative Service Delivery (ASD) observed that it was difficult to verify savings, owing to difficulties in assessing programmes increasingly integrated into the ordinary operations of the department. DND reported that actual savings were expected to be about a third of their original target.\(^7\) From the point of defence contractors’ point of view, these programmes have considerable appeal, because of their long-term contracts and guaranteed income flows, characteristics that are unusual in the defence sector.

The negative consequences of contracting out civilian functions are limited from a security point of view. Some new industry roles are closer to the sharp end of action. Such traditional functions as fighter aircraft maintenance are being outsourced to private industry, at least in test projects. For some cases, such as air-to-air refuelling, the service itself is being contracted. A particular level of availability would be required over the course of a long-term contract. This creates a greater level of dependence on the defence industrial base. It becomes impossible to go into action without immediate defence industrial support, because of the lack of “in-house” capability.

If economics become an element of security, then economic considerations can no longer be subordinated to defence considerations. The Cold War impetus is no longer applicable. National security was sufficient reason to use defence funding to develop technologies for defence purposes.\(^8\) China is not yet perceived as a threat in the same

\(^7\) Department of the Auditor General, *National Defence: Alternate Service Delivery*, 1999. <http://www.oag-bvg.gc.ca/domino/reports.nsf/html/9927ce.html>. Sections 27.16, 27.18, and 27.24. It should be noted that the original savings target was 25 percent, which may have been too ambitious

vein. It is the economic potential of China that gives the perception of a possible future threat. For Western states, economic growth is needed to stay ahead. Sacrificing economic growth to support a large and inefficient defence industrial sector is not a viable long-term approach to security.9

**Fortress America**

As noted previously, the defence industry of the United States stands apart from those of other states. It is by far the largest defence industry in the world. It is capable of producing the full range of defence goods. The domestic market is easily the world’s largest, and is protected by the Buy American Act. The U.S. spends about as much on defence research and development as the rest of the world put together. Also as noted previously, overall defence spending is about half the rest of the world put together. U.S. defence firms offer products for sale on the international market at good prices, often with the development paid off, and economies of scale already achieved in the home market. It sets a strong standard for competition.

For most of the post-1945 period, the United States has sought to create a defence industrial base that is not only complete, but that has duplication. This ensured additional capacity upon which the Pentagon could draw in times of need.10 It also ensured that there was competition between defence contractors. Competition in the defence sector is valuable in the same way as it is in the commercial realm. It improves the prospects for

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9 Ibid.

efficiency and innovation. It also offers safeguards. A competition for a defence product helps ensure that the final product is adequate, and there is a back-up design if the first one should fail. The defence industrial base was also made separate from civil industry. Many firms operated in both markets, but usually whole divisions were dedicated to either military or civil ends. Though incomplete, the extent of the division was unusual in the West.

Duplication within the U.S. DIB provided competition without reference to foreign suppliers. U.S. firms were able to export weapons to allies without the need to offer the intrinsic technology or a share of the work involved. At the same time, the U.S. defence industry was protected from foreign competition through Buy American Acts and a Congress filled with Representatives seeking to keep work in their home constituencies. This tendency was covered by the explanation that U.S. technology and weapons were better than their European rivals.11 Frequently this was true, though perhaps not as frequently as European options were omitted from consideration.

The U.S. emerged from the Cold War with a particularly large defence industry. The Reagan Administration had overseen a large military build-up, and the defence industry had responded with expansion. After the Cold War, there was some anticipation that defence spending could be reduced in an apparently more secure international environment. The Pentagon could take a “holiday” from spending: the lessened need for equipment allowed the armed forces to spread their service hours over the existing equipment. Attrition replacements could be found within existing stocks. Existing

platforms could be retrofitted with advanced technology so that they could retain their effectiveness. For industry, consolidation was clearly needed to manage the downturn in the defence market. The downturn was magnified by the presence of a large number of systems in service.\textsuperscript{12}

\textit{Consolidation}

Procurement levels began to fall in 1987.\textsuperscript{13} Efficiencies of scale were being lost due to the lower production rates of defence equipment. Production was being cut because of higher cost and lower perceived threat. To recover efficiency, consolidation in the industry was designed to reduce duplication and minimise fragmentation. At the so-called “last supper” meeting with the principals of major defence contractors in 1993, Deputy Secretary of Defense William Perry observed that their number was expected to fall as the defence budget itself was reduced. This invitation to consolidate came with a facilitator and a sweetener. The facilitator was the selective withholding of competition and anti-trust considerations. The sweetener was a financial incentive for those firms that could show that a merger would reduce the costs to the Pentagon for future contracts—that is, show an improvement in efficiency. These firms would be allowed to apply the costs of post-merger restructuring to Pentagon contracts. That legislation was soon put to use with the merger of Lockheed and Martin Marietta.\textsuperscript{14} In the next four years, about


\textsuperscript{13} Ibid., 18.

\textsuperscript{14} Ibid., 22.
half of the consolidation restructuring costs, $1.5 billion, was paid by the Pentagon over seven mergers.\textsuperscript{15}

One little “hiccup” was the proposed merger between Olin Corporation and Alliant TechSystems\textsuperscript{16}, both fire-arms manufacturers. This was blocked by the Justice Department in 1993 over competition concerns. It did not bring the wave of consolidation to a halt. The DOD has been willing to forego competition in favour of efficiency, as there is not enough room in many defence markets for multiple players. Reacting to this unfavourable turn of events, the DOD formed a task force the following year to advocate the position of the department in matters of defence industry consolidation.\textsuperscript{17} While the Olin/Alliant episode was not a turning point, it was a foreshadowing. Lockheed Martin and Northrop Grumman announced their intention to merge, the former acquiring the latter, in 1997. This was blocked by the Department of Justice at the suggestion of the Department of Defense, concerned about the reduction of defence prime contractors in radar systems and electronic counter-measures. After about a year of negotiation, the merger was called off, as agreeable terms could not be found.\textsuperscript{18}

At the major prime contractor level, the U.S. has probably completed its consolidation process for the time being. The wave of consolidation was facilitated by government policy. With an increase in the defence contracts available, there is less need to reduce

\textsuperscript{15} Schmitt, \textit{From Cooperation to Integration}, 23-4.

\textsuperscript{16} Alliant Techsystems often goes by “ATK,” its New York Stock Exchange symbol.

\textsuperscript{17} Pagliano, \textit{The US Defense Industry}, 22.

\textsuperscript{18} Federation of American Scientists. “Lockheed Martin Terminates Northrop Grumman Merger Agreement,” <http://www.fas.org/man/company/docs/980716-termination.htm> April 29, 2007. Interestingly, this press release cites “concern over the litigation with our principal customer” as the other reason for the decision.
the field of industry players. The major firms should persist, but there will be attrition and acquisitions amongst smaller firms, particularly the subcontractors that often escape notice.

Policy

Defence industrial policy is tied to industrial policy, employment and defence policy. Industries continue to have much influence over the U.S. defence procurement. Firms can lobby to keep their production lines running. Congressmen can be lobbied to keep industry and employment in their state who negotiate the defence budget accordingly. Abetted by “replacement thinking,” Department of Defense and armed forces figures can be brought on side. Establishing clear defence industrial policy and firm action is complicated by the myriad of interests and the resulting lack of clear criteria for deciding the fate of a programme. The drawn out struggle to cancel or continue the Crusader programme was a case in point. The Crusader was a self-propelled howitzer intended to replace the long-serving M109 Paladin. Comparable to a tank in size and weight, the Crusader did not fit the Pentagon’s transformation agenda. The Crusader was an obvious candidate for cancellation, a Cold War concept in a post-Cold War world, but against the vested interests, including the Army itself, it proved difficult to cancel. In the end, the Pentagon succeeded in terminating the programme.

The 1993 Bottom-Up Review compiled a list of areas in which the DOD might be able to achieve savings. Amidst consolidation and procedural improvements, privatisation of some functions was tabled. Training, depot-level maintenance and
business functions were identified as possible targets for outsourcing.\textsuperscript{19} The 1997 Quadrennial Defense Review (QDR) addressed the reform of procurement and management, and privatisation in more detail, seeking further savings under the rubric of the “Revolution in Business Affairs”. This counterpart to the RMA entailed “reducing overhead and streamlining infrastructure; taking maximum advantage of acquisition reform; outsourcing and privatizing a wide range of support activities when the necessary competitive conditions exist; leveraging commercial technology, dual-use technology, and open systems; reducing unneeded standards and specifications; utilizing integrated process and product development; and increasing cooperative development programs with allies.”\textsuperscript{20} The 2001 QDR appeared shortly after 9/11: most of the work was done prior, but a few alterations were made in light of developments. Personnel retention and infrastructure recapitalisation were high priorities. The idea of the “revolution in business affairs” was played down, but the individual components were elaborated.\textsuperscript{21} These plans would be quickly overwhelmed by events: the steady-state condition of the U.S. military was replaced by a very high operational tempo. The 2006 Quadrennial Defence Review was written amidst the operational realities of Iraq and Afghanistan, so it concentrated more on achieving national security objectives relating to asymmetric opponents with less emphasis on economic objectives. Resource limitations are recognised, but speed of procurement is shown to be important relative to efficiency.


During the Cold War, the Soviet Union and its allies had a clear advantage in terms of numbers, following Stalin’s “quantity has a quality all of its own” axiom. Military technology, in which the U.S. already had an advantage over the U.S.S.R., seemed like a way to redress the balance. The belief in the value of technological superiority as a force multiplier remains a core element of U.S. military strategy. Advanced weapons allow the U.S. to deploy fewer soldiers and equipment to similar effect. The emphasis on the development of new technologies thus continued beyond the Cold War structure of the U.S. armed forces, but with some changes. Production is to be cut, whilst research into new technologies and development continues. There will, of course, be the usual pattern for many crucial pieces of military hardware. Some cutting-edge equipment not seen as vital will be produced as prototypes or demonstrators only. This will allow the U.S. to maintain R&D capability and technological superiority, without having to pay for tooling or production. These technologies will then be “rolled over” into the next generation of equipment. Critical systems required in small numbers, such as nuclear powerplants for aircraft carriers will continue to be produced in small numbers so that production capability is not lost. Upgrading will also help the larger mass of the production base. This will allow high technology items to be put into production and help ensure military equipment superiority for the U.S. It will also give some work to platform builders. So-called “silver bullet” systems, such as stealth bombers, will follow a similar pattern, but will only be built in modest numbers. Some limited scale production runs will also improve manufacturing technology. This will


23 Ibid., 17.
result in lower production overall, and should promote continued rationalisation. A further benefit of limited production is that some field experience with new technologies can be gained for better operational understanding and doctrine.24

Despite the civil-military defence industry separation, defence research and development had been justified on the basis that it provides a stronger base for commercial industry through spin-offs.25 Until the rise of Airbus, the U.S. had enjoyed a long period dominance in commercial airliners and freighters.26 This is often traced back to U.S. advances in long-range bombers during the Second World War, and the head-start it offered U.S. aerospace firms. Defence expenditure otherwise has been used to ends that are not strictly defence oriented. For instance, the armed forces sponsor education and training for their personnel. This improves the quality of the defence workforce, and also serves as an inducement to volunteer. Much of the advantage is lost, however, as personnel leaving the forces take their skills and education out into the civil marketplace.

Dual-use technology and associated products have been promoted inconsistently. Dual-use products could gain the economies of scale associated with the civil sector, as well as benefit from private-sector investments. This would be a more cost-effective, if rather less secure, source of military equipment. Sematech is one example of the principle. Sematech was a consortium of major U.S. electronics firms acting in combination with the Department of Defense. It was formed in 1987 under the Reagan Administration, and sought to support U.S. semiconductor technology until such time as

24 Ibid., 15.
25 Belous, Creating a Strong Post-Cold War Economy, 24.
26 Boeing may have regained the upper hand amidst problems with the Airbus A380 and A350, but Airbus remains a peer competitor.
the industry regained a competitive position in the global market. The goal is generally considered to have been achieved, so the consortium lost DOD support a decade later.\textsuperscript{27} The Clinton administration encouraged public-private partnerships in the early 1990s. In particular, the Technology Reinvestment Project specifically targeted dual-use technologies and provided funds for suitable development programmes. A few years later, Congress discontinued funding for dual-use programmes, in favour of fully defence-related programmes.\textsuperscript{28} Meanwhile, commercialisation was encouraged. The rules for defence acquisition were made less restrictive. This made it worthwhile for firms not familiar with the unique procedures of defence procurement to bid for and fulfil contracts, and easier for procurement officials to buy commercial off-the-shelf equipment. The section of goods and services was also broadened to allow greater use of COTS equipment.\textsuperscript{29}

The declaration of the “war on terror” has not only re-affirmed the U.S. commitment to technology as the key to warfare, but reversed, to a certain extent, the commercialisation of those technologies. Guay and Callum question the lessons of recent conflicts:

The Gulf War, Kosovo and Afghanistan also illustrate another trend, this one at cross-purposes to production run lengthening: the paucity of opportunities to use cutting-edge weaponry. The threats of the Cold War are gone, and today’s defence planners are kept awake not by trying to defend the Fulda Gap, but by keeping phantom terrorists at bay. The real lesson of Kosovo may have been not how far Europe had fallen behind the United States in precision death gadgets, but the economic and strategic


\textsuperscript{28} Ibid., 135-136, 141-2.

\textsuperscript{29} Pagliano, The US Defense Industry, 27.
fool of fighting ethnic cleansers with high technology. To counter the threat, the United States relied on ‘smart bombs’ costing $1 million each. The economics of using million-dollar weapons to hit thousand-dollar targets is questionable, to say the least. Granted, part of the rationale was to limit ‘collateral damage’; but part of it was also that, in this age, to justify supply you must create demand.30

The RMA encourages change in the structure of the defence industry. While it is not a direct industrial policy, the system of systems approach is best handled by the system integrator model of defence firm. Indeed, the U.S. defence industry is increasingly dominated by system integrators. Now the most significant elements of actual hardware are inspired by, and incorporate, civil technologies.

**Fortress Europe**

European states vary considerably in their defence industrial capabilities, making categorisation difficult. One scheme divides European states into four categories. This scheme encapsulates both their level of industrial capability and their relative orientation towards the U.S. v. Europe as their default external supplier.

- **Group A** (France and the United Kingdom): countries capable of producing the complete range of weapons systems, and importers of very little U.S. equipment;
- **Group B** (Germany): a country with the capacity to manufacture complete systems, and importer of very little U.S. equipment;
- **Group C**: countries with considerable (Italy, Spain and Sweden), specialist (Finland, the Netherlands) or more limited (Belgium) industrial capabilities, and purchasers of a medium amount of U.S. equipment;

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30 Terrence Guay and Robert Callum, “The Transformation and Future Prospects of Europe’s Defence Industry,” *International Affairs* 78, no. 4, (October 2002): 764. The economics might be sensible if the resources of the state sufficiently exceed the resources of the target group by a wide enough margin (at least a thousand-fold in the above example), the result would be a relative gain.
Group D: countries with little industrial capacity, and purchasers of a high percentage of U.S. equipment (Denmark, Greece, Norway, Portugal and Turkey).  

Even here, the states in Group C show much variation, only their level of imports of U.S. equipment are held in common, and Germany is in a group on its own. Regardless of category, European states find the burden of developing and building new weapons systems onerous; they all share a pressure to reduce costs and consequently have a powerful incentive to collaborate.

The beginnings of the European project can be found in an understanding of the security of supply problem. The European Coal and Steel Community sought to pool European resources of coal and steel. These resources were brought under multinational jurisdiction. Coal and steel were the main resources of warfare at that time. This pooling was designed to take national control away from the resources of war, and in particular, out of German national hands. The latter part was understood by the German government and actively supported by it on that basis. It was a matter of reassuring German neighbours and regaining trust within Europe. Interdependence was harnessed to the cause of peace in Europe.

The defence industry falls outside of the purview of the European Union by treaty. Indeed, there is a specific and explicit exception, Article 296 Paragraph 1(b) of the Amsterdam Treaty:

Any member state may take such measures as it considers necessary for the protection of the essential interests of its security which are connected with the production of or trade in arms, munitions, and war materiel; such measures shall not adversely affect the conditions of competition in the

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common market regarding products which are not intended for specifically military purposes. 

Most states had chosen to employ this to protect their defence industries from international competition in the pursuit of national security. The exercise of this provision also allows states to use their defence industries for political ends not directly connected with national security. There is the temptation and opportunity to protect jobs, especially high-technology jobs, by ensuring the independence of national industry and awarding production contracts domestically.

There has been a shift in attitude towards the use of commercial parts in defence products. Formerly, manufacturers would need to justify the use of commercial components: the standard was specialised defence systems. Now, building new defence-specific components requires justification. It is expected that existing parts, commercial or military, will be used wherever possible. Cost is the primary consideration. In principle, the European Union could extend its jurisdiction over a great deal of defence equipment because it is also commercial equipment. Nevertheless, in practice, the EU does relatively little—instead, dual-use equipment is subsumed under defence only when it is actually a part of a defence system. The commercial components that are also used in defence systems retain their non-security status, and the effect dual-use components may have on national security is not a matter of concern.

It is broadly recognised that the fragmented nature of the European defence market results in unnecessary duplication, short production runs and general inefficiency.

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33 This section was based on confidential interviews conducted by the author.
A pan-European defence market is perceived as a solution, but it is difficult to achieve. Most European states have distinctive national security cultures that lead to different views of the defence industry. It may be hoped that, by taking the politics out of the defence industry, consolidation can take place. The commercialisation of defence products does not lead directly to a more European result. Commercial products suitable for defence use are more likely to be globally sourced. If, indeed, the nationalism with which defence industries are traditionally regarded is eroded by commercialisation, the result would be a globalisation of European defence industries.

Against these forces, there is a recognition that the fragmented nature of Europe’s defence industries reduces the overall effectiveness of defence spending, and with it, the effectiveness of Europe’s foreign policy. In particular, it is an impediment to the European Defence and Security Policy. It is difficult for proponents of ESDP to be influential against the industrial and national actors for whom the stakes are much more direct.

The American Factor

Europe faces a dual funding dilemma. The combined defence budgets of Europe are less than that of the U.S., which spent over $507 billion (U.S.) in 2005. All of Europe, including Russia, Turkey, and the states of the Caucasus spent a total of $305 billion (U.S.)\(^\text{34}\) The second major factor is fragmentation. As the defence budgets are allocated nationally, there is considerable duplication and similar economies of scale.

\(^{34}\) Figures from International Institute of Strategic Studies, *Military Balance 2006*, London: Oxford University Press, 2006, 338-341. Figures are in 2005 U.S. dollars. Russia and Turkey are mostly in Asia, but do project into Europe. The Caucasus states are Armenia, Azerbaijan and Georgia.
cannot be achieved. For defence industries, the problem is exacerbated by the difference in how the defence budgets are allocated, with the U.S. spending a much greater proportion, of that much greater whole, on both R&D and procurement.\textsuperscript{35}

Table 1: Defence Expenditures of European and North American States, 2005.\textsuperscript{36}

<table>
<thead>
<tr>
<th>Country</th>
<th>$USM</th>
<th>Country</th>
<th>$USM</th>
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<tbody>
<tr>
<td>Austria</td>
<td>2,305</td>
<td>Luxembourg</td>
<td>348</td>
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<tr>
<td>Azerbaijan</td>
<td>265</td>
<td>F.Y.R. Macedonia</td>
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<tr>
<td>Belarus</td>
<td>367</td>
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<td>Belgium</td>
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<td>Moldova</td>
<td>9</td>
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<tr>
<td>Bosnia and Herzegovina</td>
<td>179</td>
<td>Netherlands</td>
<td>10,136</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>653</td>
<td>Norway</td>
<td>4,991</td>
</tr>
<tr>
<td>Croatia</td>
<td>626</td>
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<td>5,480</td>
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<td>Cyprus</td>
<td>202</td>
<td>Portugal</td>
<td>4,031</td>
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<td>Czech Republic</td>
<td>2,259</td>
<td>Romania</td>
<td>2,166</td>
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<tr>
<td>Denmark</td>
<td>3,641</td>
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<td>28,814</td>
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<tr>
<td>Estonia</td>
<td>209</td>
<td>Serbia and Montenegro</td>
<td>717</td>
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<tr>
<td>Finland</td>
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<td>Slovakia</td>
<td>845</td>
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<tr>
<td>France</td>
<td>54,143</td>
<td>Slovenia</td>
<td>586</td>
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<tr>
<td>Georgia</td>
<td>202</td>
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<td>Germany</td>
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<td>2,030</td>
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<td></td>
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<td>Europe Including Russia</td>
<td>304,924</td>
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\textsuperscript{35} Cornu, “Fortress Europe—Real or Virtual?” 53.

Aside from the secular trends noted in Chapter Three, the European defence industry has the additional impetus of external competition from the U.S. defence industry. The level of U.S. exports to Europe has long been a matter of concern for European states seeking to maintain viable domestic defence industries. More precisely, it is the high level of U.S. exports not matched by the low level of European products exported to the U.S. A “two-way street” in defence trade has long been discussed, but has never been witnessed or even promised. Declarations of intent notwithstanding, the “two-way street” is little more than a one-way flow of U.S. equipment into Europe. It can hardly be otherwise given the largely closed nature of the U.S. market. The imbalance is not so great when the group D states (Denmark, Greece, Norway, Portugal and Turkey) are excluded—it is worth observing that Turkey and Norway are not part of the EU. Major European states are also culpable of keeping their markets closed to U.S. goods.

The Europeans have more pressing difficulties keeping their production lines busy, and are consequently more inclined to sell technology if it means being able to gain a sale of equipment. This is in marked contrast with the U.S. view in which sales are compromised to protect technology. Given the limited access to the world’s largest defence market, the enthusiasm with which European producers seek export sales is unsurprising. Former British Prime Minister Harold Wilson explained that

> [t]here is no future for Europe, or for Britain, if we allow American business and American industry so to dominate the strategic growth industries of our individual countries that they, and not we, are able to determine the pace and direction of Europe’s industrial advance, that we

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37 Ibid., 59. Cornu notes that these four states typically take 45-60 percent of U.S. sales to Europe.
are left in industrial terms as the hewers of wood and drawers of water while they, because of the scale of research, development and production which they can deploy, based on the vast size of their single market, come to enjoy a growing monopoly in the production of the technological instruments of industrial advance…this is the road not to partnership but to an industrial helotry.  

While he was referring to industrial production more generally, this applies directly to the defence industrial sector particularly. It also echoes the division of labour problem of defence capabilities in a strategic sense.

From the “last supper” speech to the prevention of the Lockheed Martin/Northrop Grumman merger, the wave of consolidation in the U.S. created defence-aerospace giants of unprecedented size and breadth of capabilities. The very size of major U.S. defence contractors makes transatlantic cooperation difficult to balance. It tends to cast any European partner in any capacity other than the junior partner, at least until the emergence of Europe’s “big three”. Furthermore, the Pentagon’s “procurement holiday” gave these firms a greater interest in finding markets abroad, though the more recent increase should cause U.S. defence firms to focus back on the lucrative home market.

Size has its own merit for defence industrial firms. As the number of major programmes declines and the costs and risks rise, larger companies are able to spread the risk by bidding on more major programmes, and having the resources to fund the necessary developments. Less fragmentation on major programmes offers the potential for production savings and economies of scale. Transnational consolidation becomes vital once national consolidation has reached its limit with effective monopolies in most defence sectors. Europe has responded more slowly than the U.S. because it requires

38 Harold Wilson, quoted in Guay and Callum, “The Transformation and Future Prospects,” 775.
cross-border deals, and the consequent sovereignty and national prestige issues that go along with that. It means reducing employment, politically more difficult with the often state-held European defence firms.\(^{39}\) Also, outside of the U.K., the continental patterns of industrial relations make downsizing more difficult. Despite the difficulties, consolidation in Europe has proceeded and will continue. European leaders believe that the defence industry is an important tool of the state, essential to political and industrial cooperation with the United States and a prerequisite to be able to face the United States on an equal, or at least acceptable, basis.\(^{40}\)

_France_

The French DIB is one of the two largest in Europe, roughly comparable in size to that of the United Kingdom. It has a nearly complete range of capabilities, including those fields that the U.K. lacks, such as submarine-launched ballistic missiles. The French use little U.S. equipment, preferring to rely on their own capabilities, or European joint ventures of which French industry is a part. They do acquire U.S. equipment on occasion where neither a French nor a European equivalent exists, or because acquiring equipment that is already in production is significantly less expensive.\(^{41}\) The E-3 Sentry and E-2 Hawkeye early warning and airspace control aircraft are two of the few instances where an American product has been acquired rather than relying on domestic

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\(^{39}\) Deutch, Kanter and Scowcroft, “Saving NATO’s Foundation,” 58.

\(^{40}\) Ibid., 59.

\(^{41}\) Cornu, “Fortress Europe—Real or Virtual?” 57.
production. Although French defence spending declined after the Cold War, the French reduction was much more gentle than that of other major Western states. This was in part to protect the domestic DIB. In 1996, the French president announced a change that would do much to enable the armed forces to adapt to the post-Cold War condition: conscription was to end. The shift to a professional force will make each soldier more expensive, but should release some funds for other ends.

For France, the defence industry is a core strategic asset. The French have been willing to expend the required resources to retain an independent capability. Traditional French procurement has involved discussion between producers and the state. Costs were but one element of the negotiation, and certainly not the highest priority. Costs have come to the fore only recently. Though not immune to the pressure, the general move to greater value for money and efficiency has been resisted longer in France. Few major programmes have been cancelled: production volumes have been reduced instead. Such volume reductions do cut expenditures, but lowering volumes increases unit costs, thus decreasing value for money. However, even these measures are proving insufficient. Incoming President Sarkozy has warned that defence spending will be reduced, underway and upcoming defence programmes will be reviewed, and the procedures for defence

42 European products of which French industry is not a part may not be given preference.

43 While France has a high level of defence expenditure compared to most of its neighbours, the defence budget numbers are inflated by the inclusion of pension costs and the Gendarmerie, categories which most other states count separately.


45 Hébert, French Defence Industries, 26.
procurement will be revised. While not adopting a value-for-money approach as such, the purpose of these changes is to cope with the projected unaffordability of current procurement plans.46

The DIB is subject to the traditional French dirigiste manipulation. That is, the state directoire guide the development of the defence industry through policy, procurement and ownership. State support to maintain the defence industry was guaranteed. The state also assisted in exports of French defence equipment. Foreign investment is not common for French firms. Indeed, permission for foreign investment is required before such investment can be made, and is normally limited to 20 percent of the firm’s capital.47 Clearly some flexibility is working its way into the system, but Thales’ investment in the U.K. is still exceptional. GIAT’s acquisition of the famous Belgian firearms manufacturer FN is a notable investment more in line with the usual pattern. In general, international collaboration with European firms is preferred. Hébert observes that:

In the face of American hyperpuissance, Europe seemed a potential platform for French global ambitions. The goal of autarky switched to that of creating a European DIB. To that end, the government sought to restructure French industry to make it suitable for integration into a larger European defence industrial base. New markets were sought, and there was a pressure to reduce costs and increase efficiency. However, the major effort was to create industrial poles for major market sectors.48


47 Cornu, “Fortress Europe—Real or Virtual?” 62, see also notation.

In the 1990s, the French defence industries were mostly public or nationalised, with only the electronics sector featuring a strong private presence.⁴⁹ Since then, the state has been transferring the defence industry to private hands, in steps carefully negotiated with domestic industry. Restructuring was encouraged and enforced. It was envisioned that European champions could develop in particular sectors, for instance, missiles or helicopters. At the centre of most of these champions was a French company. Consolidation was to develop around four industrial units: a merged Aérospatiale and Dassault for aerospace; land and naval systems through GIAT Industries and shipbuilders DCN; defence electronics through a merger of Thomson and Matra Hautes Technologies; and the Commissariat à l’Énergie Atomique (CEA) and Technicatome for nuclear systems.⁵⁰

In the late 1990s, the French government made major moves to reorganise the French defence industrial base, although the result did not always emerge as envisaged. It was decided that Thomson would be privatised and that aerospace firms Aérospatiale and Dassault Aviation would be merged.⁵¹ Those efforts failed, but other arrangements were made. State-owned Aérospatiale had often been a vehicle for collaborative venture, being a major partner in Airbus (airliners), Ariane (rockets) and Eurocopter (helicopters). Aérospatiale also builds guided weapons and the SOCATA line of light aircraft. Dassault produces fighter aircraft and executive jets as well as offering design systems. The two firms’ lines are complementary, and the fighter aircraft would be particularly useful for

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⁴⁹ Ibid., 2.
⁵⁰ Ibid., 28.
⁵¹ Ibid., 33.
Aérospatiale’s and the French state’s ambitions for future European consolidation. The French state’s 45.76 percent share was transferred to Aérospatiale, and through the voting structure, this gives Aérospatiale a strategic veto over Dassault’s business decisions.\(^{52}\) Instead, the privatisation of Aérospatiale was accomplished by merging it with Matra, decided by the government in July 1998.\(^{53}\)

With Thomson up for sale, both GEC of the U.K. and Lagardère made an offer. Both offers were declined. GEC’s on the basis that it would undermine national security.\(^ {54}\) In October 1997, the French government consolidated the defence electronics and space sector. Aérospatiale’s satellite unit, Alcatel’s defence electronics, space and military communications divisions, and Dassault’s commercial and defence electronics businesses were combined into Thomson-CSF. In return, the first three companies gained a shareholding in Thomson-CSF, and Alcatel became half owner with Thomson-CSF in Alcatel Space, responsible for satellites. The state shareholding in Thomson was reduced from about 58 percent to about 40 percent, effectively privatising the firm.\(^ {55}\) Matra remained in the space business through the joint venture Matra Marconi Space.\(^ {56}\)

The *dirigiste* impetus remains strong, even in the civil sector, where EU rules restrict it. The French government sought to prevent the takeover of utility firm Suez by

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\(^{52}\) Schmitt, *From Cooperation to Integration*, 34.

\(^{53}\) Ibid., 33.


\(^{55}\) Schmitt, *From Cooperation to Integration*, 33.

\(^{56}\) Ibid., 34.
Italy’s Enel by arranging a merger with Electricité de France. France would also intercede again in Alcatel, arranging for its remaining space assets to be transferred to Thales in return for a shareholding in Thales, so that Alcatel could merge with Lucent Technologies, a U.S. telecommunications equipment firm, without compromising national security. The creeping privatisation route is also still practiced. In early 2007, the French government arranged for the sale of Thales Naval France to DCN, the state-owned shipbuilder for €514M, and for the acquisition of 25 percent of DCN by Thales for €55M, rather less than expected.

Realities of defence inflation cannot be ignored in France, even though the state is more willing to spend to retain its defence industrial base. The French nuclear aircraft carrier, Charles de Gaulle, proved to be too expensive for there to be a second ship in the class. After negotiation, the French made an unusual move to join the British CVF aircraft carrier programme, paying into the development costs. The fact that Thales is a major contractor to the programme and the ship’s designer may have eased that decision. The next French aircraft carrier may or may not be based on the CVF, but if it is, it will be built in France by a combination of Thales and DCN.

United Kingdom

The U.K. is the world’s second largest exporter of arms after the U.S. It has a wide range of capabilities in aviation, land systems, naval systems and electronics. The only capabilities missing are some aspects of space systems and in strategic missiles.57

The U.K. has not produced a fixed-wing aircraft carrier since the *Hermes* in 1959, but that deficiency will soon be rectified, with two large conventionally-powered aircraft carriers to be produced in the U.K. by BAE Systems and Thales. There is the possibility that France will join this programme to produce a third unit. This vessel would serve alongside the existing slightly smaller, but nuclear-powered *Charles de Gaulle*.

The British tend to view defence equipment as a commercial good, a consumer product where the consumer is a state. Trade in defence equipment is expected. To the British, a successful defence industry is one that is efficient and profitable. From the state end, the mechanism has been procurement policy. The post-Cold War British effort concentrated on competition and privatisation. The U.K. has a stated principle of “value for money”. U.S. and other foreign firms are able to compete on this principle. The British Government does maintain a *droit de regard* ("right of observation") over the defence industry, but does not extend to the kind of *dirigisme* observable in France. Instead firms are generally free to act in their own interests. The result is a relatively efficient defence industry, albeit incomplete. These motivations and practices have led to the U.K. becoming an innovator in the commercialisation of defence. From the state end, the mechanism has been procurement policy and practice, which has become a laboratory for procurement reform in the West.\(^{58}\)

The British Government has been willing to allow British defence firms to be bought by foreign firms. However, there is resistance to allowing such firms to fall under the control of foreign nationalised firms. Concern has also been voiced regarding foreign firms that are not nationalised, but are offered a greater degree of government security,

\(^{58}\) This section was based on confidential interviews conducted by the author.
such as those in Germany. However, the French Thales, having made efforts to establish its credentials as a free-standing competitive firm, has been allowed considerable access to the U.K. market. Thales acquired the premier British defence electronics firm Racal, as well as a few smaller defence-oriented firms and units. Thales has been concerned that its level of investment has not been rewarded with sufficient government contracts. Its prominent role in the new aircraft carrier programme may alleviate that, at least for a while. In an extraordinary effort to improve competition in the British market, Thales has been offered help by the British government to aid it in bidding for procurement contracts—help no British firm could expect operating in the French market.

In another remarkable move, the British Government selected the Carlyle Group to be a strategic investor in the privatisation of Defence Evaluation and Research Agency as QinetiQ (less a few units that were retained in the public sector). Privatising such an agency is unprecedented among major Western states. As its former name suggests, QinetiQ is the national defence research and development organisation and also evaluates defence equipment. Carlyle is a U.S. venture capital group that specialises in defence firms and has ties to the U.S. government. As a close ally, the U.K. is privy to some sensitive U.S. technologies, which the U.S. was concerned about falling into unauthorised hands. The selection of Carlyle may have been to allay U.S. fears about the risks of privatisation.

One of the most ambitious British plans is the use of a private contractor to provide air refuelling services. AirTanker, a consortium of civil firms, will be

59 Hayward, Keith, Government Policies, 11.
undertaking a task fairly close to the front line. Perhaps for similar reasons, aerial refuelling is also coming into the list of activities that are considered suitable for private provision. While still a support function, this is closer to the field of battle. In the event of hostilities, a tanker aircraft would surely be considered an acceptable target. However, because of their vulnerability and value, the exposure of tanker aircraft to danger would be minimised. Unlike training services, tanker services do raise questions about the military status of their operators. The British plan is that the winning firm will sponsor its personnel to become reservists, but will remain employed by the contractor. This will ensure that they can be deployed in wartime.60

Despite the “value for money” approach, the U.K. uses little U.S. equipment. U.S. equipment might be expected to be the most cost-effective, given the economies of scale available in its home market. Perhaps in some cases, the rhetoric exceeds the reality: political considerations intervene in major purchases. There is also the legacy factor, in that defence equipment from previous procurement regimes, prior to “value for money,” remains in service. Most equipment is either British or collaborative in origin. An important exception is nuclear weaponry.61 The British nuclear arsenal is essentially leased from the U.S., consisting of a number of warheads (but not necessarily the same warheads) maintained by the Americans. To have a weapon of last resort not fully under domestic control is a strategic dependence of the highest order, especially in a post-Cold War world where British and American impressions of appropriate targets may vary.

60 Nick Cook, “Tanker PFI is a Pathfinder for Procurement,” Jane’s International Defence Review 36, no.1, January 2003, 47.

61 Cornu, “Fortress Europe—Real or Virtual?” 57.
The British experiment with a more relaxed attitude towards security of supply has not been without problem. During the Persian Gulf war, the Ministry of Defence was unable to buy ammunition from the well-known Belgian firm FN. The Belgians refused to supply munitions for the duration of the expedition. That a closely allied state would deny ammunition in wartime suggests that the security of supply in an open market, even for low-technology items, is by no means assured. The openness to foreign competition also presents difficulties. Awarding too many contracts to foreign firms may result in British “champions” abandoning the market, especially in sectors where contracts are infrequent, thus eliminating domestic capabilities. Awarding too many contracts to British firms may ruffle the foreign firms who perceive their bidding costs and other investments as going to waste, and also may leave the market, expensively re-establishing the prior condition.\textsuperscript{62} This is perhaps the cause of the awkward contract split between BAE Systems and Thales for the new aircraft carrier contract, in which BAE Systems was made the prime contractor, but the Thales design was selected and made a major subcontractor. In 1996, domestic defence industrial base considerations were officially returned to the list of considerations to be made in procurement programme awards.\textsuperscript{63} Despite the reverse, the UK is still has a relatively open market for defence equipment.

\textit{Germany}

As the expected battlefield of any major East-West conflict during the Cold War,


\textsuperscript{63} Ibid., 86.
Germany’s frontline status had an impact on its strategic thinking. Where states further away from the Soviet Union could contemplate interdiction and standoff attack, Germany would have to fight mainly on the ground at home. This led to a large army with heavy armour in large quantities. The German land systems industry was able to gain economies of scale greater than other European states. Its tanks in particular achieved good sales success amongst NATO allies as well. Despite the crucial role the United States has played in post-war German security, Germany is not a major buyer of U.S. equipment, keeping 70 percent of its procurement within Europe.64

The defence industry has an awkward relationship with the German state. German politicians are reluctant to address defence industrial concerns for that would require their acknowledgement. The defence industry itself is seen in a negative light. The means provided for defence do not always meet the limited rhetorical encouragement, or the goals related to the sustenance and restructuring of the defence industrial base. Defence is unpopular with politicians and the public alike. There apparently still lingers an awkwardness from Germany’s role and actions in the Second World War. The German procurement and budget systems are cumbersome and inefficient. Without the impetus of an adjacent foe, the defence effort in Germany is winding down.65

Most of the German industry’s strengths also hark back to the Second World War: conventional submarines and armoured vehicles. It is only in these fields that German

64 Cornu, “Fortress Europe—Real or Virtual?” 57.

65 This section was based on confidential interviews conducted by the author.
firms serve as prime contractors.\textsuperscript{66} Where the United States has abandoned production of conventional submarines, Germany is probably the world leader. Many other European states still build conventional submarines, but Germany has achieved much greater production rates and export success. Germany is not a welcoming environment for foreign buyers even in commercial industry.\textsuperscript{67} That applies more strongly to the defence industry. British Aerospace was deterred from its interest in buying out the German firm STN Atlas by the German government in 1998. The government was concerned about the national security consequences of this defence electronics firm falling into foreign hands. BAe relented on the takeover, instead taking a 49 percent share, the rest being bought by the German firm Rheinmetall.\textsuperscript{68} However, Germany is interested in having its defence industry collaborate with other European defence industries and for it to be incorporated into a larger European whole. Collaboration with the United States is limited to guided weapons.\textsuperscript{69} The unfavourable defence climate in Germany makes international cooperation difficult. Gaining funding approval for cooperative ventures is particularly challenging. The difficulties faced over the budget for the Airbus A400M

\textsuperscript{66} Cornu, “Fortress Europe—Real or Virtual?” 57.

\textsuperscript{67} The purchase of the Mannesmann cellular telephone by Vodafone AirTouch in 1999 was the first foreign hostile takeover in German history and was met with popular and political dismay. See, for instance, British Broadcasting Corporation, “Mannesmann Fights Back,” 9 November 1999. <news.bbc.co.uk/2/hi/business/527852.htm>

\textsuperscript{68} Cornu, “Fortress Europe—Real or Virtual?” 61. The divided shareholding was recently rationalised by dividing the firm. The naval systems unit became part of BAE Systems, and the defence electronics unit was incorporated into Rheinmetall. Since then, the Marine portion has been re-patriated, bought out by a combination of ThyssenKrupp (60 percent) and EADS (40 percent). Naval-Technology.com, “Rheinmetall and BAE Systems Agree: STN to be divided,” August 2, 2003. <www.navaltechnology.com/contractors/simulators/stn/press6.html>

\textsuperscript{69} Cornu, “Fortress Europe—Real or Virtual?” 57.
airlifter is a case in point: even though procurement numbers were agreed, they had to be revised to match the funding.

France has been Germany’s traditional partner in European integration, but the relationship has not always been smooth. France’s ambitions for European integration under French industrial leadership rankled with Germany. For a while, the major German defence-aerospace firm DASA switched its French allegiance from state-owned Aérospatiale to privately-owned Matra in 1997. This change was made irrelevant by the merger of Aérospatiale and Matra as part of the privatisation of Aérospatiale. In late 1999 DASA was merged with Aérospatiale-Matra to form EADS. With that, Germany no longer has a defence-aerospace prime contractor fully under domestic control.

The German government is keen to effect defence industrial consolidation in Germany. Buying power is one tool that can be used to influence the shape of the defence industry. The Puma programme, an armoured infantry combat vehicle intended to replace the Marder, came with a non-specification requirement: the programme had to improve defence industrial consolidation in Germany. There are two major German land systems firms, Rheinmetall and Krauss-Maffei Wegmann: they chose to cooperate on the project. The state preference would be for the two firms to merge, creating a German national champion in land systems. Instead, they forged a partnership through establishing a jointly-held design authority for the programme, PSM (Projekt System und Management). The programme was then divided neatly: Krauss-Maffei Wegmann took responsibility for the turret, and Rheinmetall took the chassis. Similarly, Germany has sought to combine the two domestic missile houses, Bodenseewerk Geratetechnik (BGT),

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70 Schmitt, *From Cooperation to Integration*, p. 32.
a unit of Diehl, and Lenkflugkörpersysteme (LFK), a subsidiary of pan-European guided
weapon firm MBDA. MBDA’s 2006 acquisition of LFK was permitted by Berlin on the
condition that consolidation talks be held with Diehl BGT. MBDA’s French unit held
shares in BGT, but those have been bought back by Diehl, citing lack of progress on
consolidation.71

Many officials in the German government would like to restructure the German
industry to be a part of a wider European enterprise. Once accomplished, the distaste for
a domestic defence industry would be alleviated. That does not indicate a lack of
ambition in the sector. It is envisioned that the German specialties, conventional
submarines and land systems would have a privileged place in the European system. In
other sectors, German firms would play a quieter cooperative role, such as the way
DaimlerChrysler Aerospace SA has been incorporated into EADS. But in land systems
in particular, German proficiency would make the country the natural “centre of
excellence” for European programmes. At the same time, the industry’s ability to
become such a centre of excellence is hampered by government policy. Expertise has its
own value, but for firms in the process of merging, weighting the values has much to do
with the condition of business. The size of the order book is a crucial factor in measuring
a firm’s value. The unwillingness to spend on defence leaves the land system’s firms
order books weaker, and the firms in a consequently weaker position in any European
grouping. The whole German establishment is not unanimous in support of European-
level restructuring. Officials within the Ministry of Defence, and the armaments branch

in particular, have a more nationalist outlook towards procurement. This is reflective of a greater awareness of the possible consequences of dependency.

*Italy*

The Italian defence industry is less well developed than that of the U.K. or France. There are a few market niches in which the Italian industry is capable of undertaking the entire development and production process. Competition for defence contracts is unusual, for Italian defence firms are usually unique in their specialties. The appropriate firm is ordinarily awarded any given contract. Firms have been aided in their specialties over years by such contractual awards. Italy does not have a defence industrial policy that provides the industry with a clear direction or offers strategic goals for defence industrial purposes. The defence industry is regarded as “a necessary, but up to a certain extent disposable, element of the whole national industrial system.”

There is nothing that could be understood as a vision of what the Italian defence industry ought to be or how it is to support the armed forces. Italy spends much less on defence and defence procurement than the other three large European states. Indeed, the state is somewhat indifferent to the defence industry insofar as a producer of defence equipment, but it does have some value qua high-technology employment. This indifference is not the same as the German “ambivalence bordering on hostility”. The Italians are generally supportive of defence and the defence industry, but are not enthusiastic about investing a great deal of money into it.

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73 Ibid., 9, 10, 19, 21.
Investment in research and development is also limited by the state’s lack of defence industrial policy. Even defence policy is unhelpful, as plans for equipment modernisation are too limited to give Italian industry direction. There is simply insufficient policy information to make such investment worthwhile.⁷⁴ The Italian industry seeks to manage without state help. The industrialists are comfortable and practiced at working with English, American and French partners, and tend to proceed with collaboration on their own. There is one respect in which the defence industry turns to the state, and the state offers active support. That is in major international programmes that are the subject of intergovernmental bargaining. Even with relatively low defence spending, Italy is one of the largest European markets, and that bargaining chip is parlayed into slices of international defence equipment projects, such as the Galileo global positioning system. These seem not to be directed specifically by assessments of military requirements, but also by the industrial benefits involved.

The “New Model of Defence” was a ten-year plan from 1995 to reorganise the armed forces and their defence industrial support. Privatisation featured strongly in the plan, as well as a reorganisation of the maintenance and manufacturing capacity of the armed forces.⁷⁵ This was paralleled by restructuring in the defence industrial base, a process smoothed by the highly public character of the sector. The developments of the biggest Italian defence firm, Finmeccanica, and its parent holding companies, will be covered in the next chapter. The Italian industry experienced a wave of consolidation

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⁷⁴ Ibid., 19.
and restructuring in the mid-1990s, which extended beyond the purely public sector reorganisation. The state facilitated consolidation by selling units to the private sector. Notable examples were the acquisition of Alfa Romeo Avio by FIAT, which was merged into its FIAT Avio unit. This became the single Italian producer of civil and military aircraft engines.\textsuperscript{76} Avio, as it is now known, has been sold to Carlyle, also part owner of QinetiQ. To produced a unified training aircraft firm, the Finmeccanica unit SIAI-Marchetti, a builder of light training aircraft, was sold to Aeronautica Macchi, Italy’s major producer of jet training aircraft. The other major IRI defence holding, Fincantieri, is Italy’s national shipbuilder. It has a wide product range including helicopter carriers, major surface combatants, and submarines. Fincantieri’s product line is biased towards commercial shipbuilding; it is the world’s largest manufacturer of cruise ships.\textsuperscript{77}

The industry is not tasked with being able to independently support the Italian armed forces. By no means does it possess the complete range of capabilities needed to do so. These capability gaps exist in technology, research and development, and in production. Thus cooperation is generally essential for development, and foreign suppliers are needed for manufacturing completed products.\textsuperscript{78} There are a few “centres of excellence,” such as in combat training aircraft, helicopters and naval guns. Following the defence support function, participation in major cross-border European programmes is a priority for the Italian state and defence industry. Privatisation, specialisation, and national consolidation all support this aim. Privatisation and specialisation make Italian firms more attractive collaborative partners. National consolidation, around

\textsuperscript{76} Cremasco, \textit{The Italian Defence Industry}, 11, 14.

Finmeccanica, is intended to ensure that the Italian industry is not absorbed entirely into other European firms.\textsuperscript{79} Funding for defence is low, such that the defence budget cannot sustain European participation as well as sustain the armed forces themselves. In order to meet obligations, the state has loaned money to the defence department so that cooperative programmes will be funded.\textsuperscript{80}

\textit{Conclusion}

The response of the U.S. to the 9/11 terrorist attacks has been substantial, though the approach has been an affirmation of the existing course. Europe’s response has been much less marked. Combined efforts concentrate on producing a viable expeditionary force for operations abroad. The capabilities sought are conventional military capabilities. New ideas by defence contractors are not sought. European planning has not oriented itself around the possibility of an attack such as that on the United States.

It is mostly small programmes in Europe that are conducted nationally, and typically then only after collaboration has failed. Transnational projects are the norm, but only within Europe. It is unusual for European transnational programmes to expand beyond the continent. Smaller European states seek to use the European integration process to their advantage. The European propensity for transnational programmes gives smaller states a platform for joining. Participation is legitimised by membership in Europe, even if not by defence industrial capabilities or the magnitude of their off-take.

\textsuperscript{78} Cremasco, \textit{The Italian Defence Industry}, 11.

\textsuperscript{79} Battilega et al, \textit{Transformations in Global Defense Markets and Industries}, section V.

European Intergovernmental Cooperation

There are three kinds of international collaboration. The “natural” cooperation is where firms with different specialities and capabilities combine to design and build a defence product seeking to make good use their talents. The second kind is that which is imposed politically from above. In the second case, the defence budget is likely to be the driving factor. If the expense of independence is too daunting to contemplate, collaboration is the apparent answer. States must decide on a common specification, although some tailoring may be possible beyond the standard. The third variety is internal to a firm, in which a multinational prime contractor draws on its various national divisions to use their particular capabilities to design and build the whole product. That firm may then hope to establish itself as a domestic firm in each of its national markets.

A wide range of possible problems are inherent in international co-operation. States entering agreements in good faith may later experience difficulties. Delays are an especially common problem for international collaborative projects. Funding difficulties in one state can slow the project for all of the members. A coming election in one state could mean suspending a common decision until after the election. A change in government can alter a state’s outlook and its assessment of the value of particular projects. A change in requirement could mean a change in the numbers involved—typically this will be a reduction. Other states are then inclined to renegotiate, to ensure that the workload split is appropriate for their relative contribution to the project.

Whilst the difficulties of cooperative programmes are well known, the alternative can be less palatable. Failing to cooperate means dividing the defence budget on a wide
range of programmes, or concentrating on but a few. The former leads to lower quality equipment: the expense of leading in all fields is too high. The latter option will typically lead to the need to bring in foreign equipment to fill the gaps. The resulting loss of skills and employment is politically difficult and necessitates dependence. The cost of dependency lies in the risk that partners will not be supportive in a crisis. The risk is higher where there is no overarching structure to which to turn. A European Defence and Security Policy gives some measure of reassurance, which may allow some states to accept dependencies. The budgetary pressure may be sufficient motivation for acceptance even with the persistence of perceived risks.

The perception that Europe is the necessary future is nevertheless offset by a continuing national preference. In part, this derives from not knowing how to achieve this European future. The process is unknown, as is, to some extent, the nature of the end product. In the meantime, the national systems persist. Procurement systems still regularly favour domestic procurement as far as is feasible. One trend that favours the “Europeanisation” of European defence efforts is the increasing privatisation and commercialisation of defence functions. Outside of the core fighting capabilities, the tendency to outsource support functions relegates them to the private sector. There, transnational cooperation is more easily accomplished.

Common pools of equipment, with common financing and common ownership or shared leases could be the solution to the defence inflation problem and European fragmentation, for some time at least. While difficult, there are precedents. NATO has some experience in advanced forms of cooperation. NATO physical infrastructure and the NATO AWACS system are shared assets, jointly owned and operated. Such forms of
cooperation may be necessary for European states to be able to employ the kinds of capability they want.

If a common European army is the ultimate goal, then the headline goal would be a milestone rather than an end. The forces assembled under the headline goal are merely allocated to the task from national stocks. It is not actually an increase in European capability. However, it may be functional in a different way. This assembly of forces will require much more coordination. This could lead to common planning. It may facilitate a common European defence policy and/or a common European armaments policy. If that is not the case, then other measures, particularly forms of commercialisation, would appear to be the only route to increased efficiency in Europe.

International cooperation does undermine security of supply, but the concern is muted in the absence of a major security threat, or the perceived absence. For most states, costs are a higher concern. The market is large for most defence equipment, so availability is often high. One reverse pressure is the political need to conserve jobs. Major projects are thus accomplished cooperatively. Politicians are often satisfied with the retention of work-shares, and are less concerned with the security of supply problem. The market is large, and there are many suppliers. What would change this position would be the emergence of a new systemic threat from a state actor. That would return the security of supply issue to the fore. A direct, but not systemic, threat from a state actor would make the security of supply issue vital to a state being threatened also. The ability to restore autonomy in defence production may not follow the desire: capabilities once lost are difficult and expensive to re-acquire.81

81 This section was based on confidential interviews conducted by the author.
The European experience with collaboration has involved learning. An important development was the principle of *juste retour* (“fair return”), by which each collaborating state would receive a fair share of the industrial benefits. The national industrial shares were proportionate to the share of the final product that would be ordered by each state. Beyond that, there is a constant process of give-and-take to determine the configuration of the programme. Work-shares must be reconciled with off-take. Particular skills and capabilities (especially “centres of excellence”) need to be included, but also must be reconciled with work-shares. State goals for collaboration vary, so the work-shares must match the ambitions of the states involved. European (and other international) collaboration can be criticised for its high cost and long delays. National programmes typically achieve results in a much shorter timescale, and with an overall lower cost. Collaboration is a process, a process of iterated political, military, and commercial bargaining. The military component is more a matter of specification than strategic consideration. Thus equipment programmes may be driven by the bargaining process itself rather than by assessments of the international security situation. There is a “not seeing the wood for the trees” problem: in working out the details of industrial organisation, the larger issue of strategic need is lost. It may be argued that both the A400M and Eurofighter have suffered this problem. The strategic environment has

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83 The choice of the name “Typhoon” for the Eurofighter is not without irony. The name was chosen for its suitability for a combat aircraft and for its similarity in meaning and spelling in the languages of the member states. It was also the name of a British Second World War era combat aircraft, made by Hawker. The Eurofighter Typhoon will start as an air defence fighter and gain ground attack capabilities. The Hawker Typhoon was originally designed as a fighter. Structural problems made it unsuitable for the role, and it was recast as a ground attack aircraft, often armed with rockets, an evolution similar to that of the Eurofighter.
changed from the time that the projects began, as the Euroflag and EFA respectively, to
the time that production begins.\textsuperscript{84} The A400M will be larger than the C-130 Hercules
tactical freighter, but will not be in the same category as the much larger Boeing C-17
Globemaster III strategic airlifter. For expeditionary warfare, the kind of activity for
which the headline goal forces are envisaged to be able to undertake, the logistic
requirements would be better met by a large strategic airlifter. The Eurofighter Typhoon
is optimised for air defence, being a short range air superiority fighter. It will gain
substantial air-to-surface capabilities, even to the extent of being able to switch roles mid-
mission. Nevertheless, its suitability for strike operations will be limited by its short
range. Instead of being adapted to the newer security environment, the programmes have
been adapted to the changing economic circumstances of the partners. Both have been
described as strategically obsolete before entering service.

The principle of \textit{juste retour}, whilst making cooperative programmes possible, is
recognised as a hindrance to efficient consolidation in Europe. The purpose in organising
OCCAR (Organisme Conjoint de Coopération en Matière d’Armament) was to eliminate
the strict application of \textit{juste retour}. In taking responsibility for many programmes,
OCCAR aims for a longer-term view—essentially applying \textit{juste retour} over the course
of many projects. The return in work share would be unlikely to match the proportion of
production for one programme, but would match up over many programmes. This does
not allow for the maximum efficiency by allocating work uniformly to the most efficient
provider. It does allow for a much greater efficiency as that principle can be mostly

\textsuperscript{84} The Euroflag studies began in 1985, and the requirement was set in 1991. The EAP was announced in
1982 and was unveiled in 1986. The EAP was a British national project that became the basis for the
Eurofighter programme.
followed, only with some adjustments to balance out the shares. For instance, Germany might gain the bulk of work share for all of the land systems projects, but a modest share of aviation projects. Inefficient producers, which currently exist to ensure security of supply, would go out of business, or be absorbed by more efficient producers.

OCCAR does not yet work this way. States are still unwilling to give up their defence industrial policies, or their particular defence industrial firms. It is especially difficult for smaller states with small defence industries. For these states, entering collaborative agreements is a mechanism for maintaining their defence industries. Their accommodation to a programme is predicated on the involvement of their industry. It becomes impossible to gain much efficiency with such a partner. The presence of so few defence industrial capabilities imposes a particular division of labour. The survival of smaller defence industries can be dependent upon taking a particular share at a particular time. Waiting for the next contract in the global balance may be too late. So for OCCAR to develop into a global balance system, it may be necessary to keep smaller states out. That is at odds with the general inclusive principle of European cooperation. It is an acute example of the European conflict between deepening and broadening cooperation. Founded in 1996, OCCAR members are Belgium, France, Germany, Italy, Spain and the U.K. The Netherlands is an applicant, and Sweden is considering its application.85

While collaboration is intended to improve efficiency, the effect of intergovernmental cooperation can sometimes be perverse. Some states use their involvement in international programmes to expand their defence industries. This tends to be characteristic of smaller states, or larger, but less well-developed members of the

Union, seeking to reap some reward for cooperation. For an industry already characterised by fragmentation and duplication, this is at odds with the quest for efficiency at the European scale. Some parts of the production may need to be duplicated for political reasons, typically final assembly. Costs rise not only due to the duplication of functions, and also the need to test and certify systems under different regimes. The latter can be overcome by establishing common standards and procedures, but this is more difficult at the military level than the commercial. NATO is the leader in this field rather than the European Union.

Collaboration may fail for a number of reasons. The partners may not be able to devise a set of common requirements that are acceptable to all. Similarly, the compromises that need to be made in terms of technology and capability may lower the specification to an unacceptable degree. The costs of the programme may rise so much that the cost savings of collaboration are not worth the cost to specification, and perhaps, to defence industrial self-sufficiency. These collaborative difficulties may affect different types of defence equipment than others. Ships, for instance, are built in very low numbers even with collaboration. The economies of scale for collaboration may therefore be small. Devising a common specification for a warship can be especially difficult owing to the number of systems involved. Too much tailoring would lead to little commonality, which would render the collaboration irrelevant.

While industry has shown more ability and flexibility in restructuring in Europe, there is a limit to how much can be accomplished without state involvement, and that limit is nearly reached. State direction does not work well, but involvement, as opposed to mere acquiescence, is still needed. Much of the state hindrance to European-level
consolidation is from the French government. The French are amongst the most keen on developing a European defence industry. However, they have a distinct vision of how that European defence industry should look. Generally this involves constructing pan-European firms dedicated to specific sectors, built around a former French national champion. The French defence industry has been restructured with that aim in mind. Holding out for such a structure is tempting. Other states and other firms are not so keen for European industry to become a French industry writ large, having different goals (e.g. British value for money) and their own ambitions to be centres of excellence (e.g. German land systems).

When the market is particularly weak, there is a greater tendency to protect national firms. The loss of a contract may be sufficient to send a defence industrial firm out of business. It is difficult to buy from a foreign manufacturer when it is expected that the domestic firm will disappear. States are therefore reluctant to surrender to market forces, lest they work against the domestic industry. Even when firms are not at risk, states can seek to ensure that contracts go to domestic bidders. The easiest way is to manipulate the specifications so that domestic firms will have the edge in bidding for collaborative contracts. The cost is thus borne by the armed forces, using equipment not optimised for operational requirements.86

The European Union has run a number of collaborative technology support programmes. While these are clearly congruent with EU principles, the expected technological boost that U.S. industries would gain from the Strategic Defense Initiative

86 This section was based on confidential interviews conducted by the author.
was also an impetus.\textsuperscript{87} ESPRIT (European Strategic Program for Research in Information Technology) operates in microelectronics and information technology. BRITE (Basic Research in Industrial Technologies for Europe) is a programme to stimulate research at a lower level, upon which firms can conduct their own research to a useful level. It operates in industries not covered by the other programmes.\textsuperscript{88} EUREKA concentrates on the development of market-oriented industrial research.\textsuperscript{89} RACE (Research into Advanced Communications technologies) for Europe was active in the broadband field: after its ten year programme was complete, it terminated in 1998. None of these are specifically defence-oriented, but some of the technologies have dual purpose applications. The only specifically defence-oriented programme was EUCLID (EUropean Co-operation for the Long-term for Defence). EUCLID was organised in response to the U.S. Ballistic Missile Defence programme. That programme, it was felt in Europe, would provide U.S. firms with a great deal of funding for defence research and development, leaving European firms unable to keep apace. EUCLID was organised by the Western European Armaments Group (WEAG), which ceased operations in February 2004.

The European Defence Agency (EDA) is the indirect successor to WEAG. All EU members, save for Denmark, are also members of the EDA. Its mission statement tells us that:

\begin{quote}
\end{quote}


[T]he European Defence Agency has been created to help EU Member States develop their defence capabilities for crisis-management operations under the European Security and Defence Policy.

The Agency will achieve its goals by:
- Encouraging EU governments to spend defence budgets on meeting tomorrow’s challenges, not yesterday’s threats;
- Helping them to identify common needs and promoting collaboration to provide common solutions.\(^{90}\)

This somewhat uninspiring mission dovetails well with its budget. The EDA’s 2005 budget was €21.2 million,\(^{91}\) a sum that buys institution rather than capability.

A more direct challenge to U.S.-dominated technology is the Galileo programme, a European equivalent to the United States’ Global Positioning System. GPS is a dual-use system. GPS satellites transmit signals that allow compact devices to determine their location on the globe. The civil uses include hand-held GPS devices for hikers and tracking systems for package delivery services. GPS receivers are also incorporated into missiles and guided bombs. The GPS signals are provided in the manner of a public goods, and can be received by users anywhere. As such, the U.S. objected to the prospect of a European competitor. Galileo was approved over U.S. objections in March 2002.\(^{92}\)

Originally, GPS operated so that only U.S. military receivers were able to precisely determine locations, commercial versions were degraded. The possibility exists for the U.S. to make GPS a two-tier system. Primarily intended as a civil system, Galileo can


give European forces security over their location service supply.\textsuperscript{93} The programme was organised as a public-private partnership, with an industrial consortium taking responsibility the bulk of the project and its infrastructure. With consortium partners squabbling, it is well behind schedule. The European Union is considering taking the over the programme.\textsuperscript{94}

**Transatlantic Cooperation: Collaborating with the United States**

NATO also has some effect on defence industrial cooperation. The long-standing NATO goal of equipment standardisation has not succeeded. However, the development of common standards has been valuable for interoperability. Standardised connections and ordnance at least allow NATO states to supply, support and connect with each other, even if the equipment is not interchangeable. Deeper transatlantic collaboration evidently requires state efforts beyond institutional cooperation.

The U.S. Department of Defense does recognise that there are range of benefits that could accrue to the U.S. through cooperation in defence production. Costs can be shared, and duplication avoided, in all phases of the life of the equipment. Shared expertise can provide better quality defence equipment, as each contributor has specialties. Common equipment would simplify logistics and interoperability for combined operations. Even common subsystems would help. Political goals must be coordinated: for any policy of technology transfer, non-proliferation, weapons exports and domestic industry to work, it must be harmonised with those of the defence industrial


\textsuperscript{94} Michael A. Taverna, “United We Stand,” *Aviation Week and Space Technology* (April 30, 2007): 30-2.
partner states. The latter can be a stumbling block. In order for international cooperation to succeed, those issues would need to be solved in advance. While the benefits of international cooperation are understood, so are the risks. The latter might be exaggerated, but their effect is stifling. The difficulty that this generates is that for the defence industry, as with other industries, protectionist policies are liable to diminish the advantage of leading states rather than extend it.

Cautious, but significant, moves were made to encourage cooperation, both at the state level and to allow industrial cooperation during the Clinton administration. For instance, the DoD adopted the standard commercial ISO-9000 series in 1996. The previous system was unique to the Department of Defense, and made it difficult for foreign firms to compete for Pentagon contracts. The Foreign Comparative Test programme, in which the U.S. tests foreign equipment to see if it meets U.S. requirements, has gained new momentum. Even the Buy American provisions can be bypassed if another state offers similar procurement opportunities to U.S. firms. Momentum was subsequently lost. As we shall see, the plan to extend the ITAR exemptions to major partners in the Joint Strike Fighter did not survive Congress, and more modest arrangements were made instead.

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96 Battilega et al., *Transformations in Global Defense Markets and Industries*.


98 Ibid., 29.

99 Ibid.
Technology

The U.S. sees more strategic value in its defence industrial base, probably because of its defence industrial superiority. As we know, the key element in that superiority is technological. While Europe has a civil industry that is comparable to the U.S., the vast U.S. research and development budget ensures American dominance in defence technology. Furthermore, the particular sectors that the U.S. intends to harness for its RMA, computers, software, communications and information technologies, are sectors in which the U.S. has an advantage even in the civil arena.\(^\text{100}\)

The advanced nature of U.S. technology makes U.S. firms attractive partners for international collaboration. However, U.S. policies towards technology make them partners of dubious value. European firms, in collaborating with each other, will generally share the technology. A joint venture product typically may be sold by a state in the consortium, without the other states having a veto. This arrangement cannot usually be extended to a collaboration involving the United States, which will expect that the U.S. views on technology transfer and national security of sales will prevail. This makes it more difficult for European defence contractors to collaborate with U.S. based firms. Sharing the ownership of technology is very difficult from the U.S. point of view. European states and firms often accept shared ownership in which each state is able to export the technologies, often as part of a deal to sell a defence product. Technology is still perceived a valuable good, but it is an asset that can be realised through sale. Thus there is a persisting cross-Atlantic distinction is that where the U.S. seeks to protect its technology, the Europeans seek to sell theirs. This can make European products more

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\(^{100}\) Deutch, Kanter and Scowcroft, “Saving NATO’s Foundation,” 61.
attractive. Buyer states, wishing to build their own defence industrial base, will seek to improve their domestic technology with each purchase. Technology transfer may be treated as part and parcel with a contract for military equipment.

The U.S. is concerned that other states do not have the same rigour in their export controls, and that sensitive technology may be resold to undesirable customers. The concern is heightened when such technologies are still in development. The U.S. further grants itself the right to review and veto third party sales of defence equipment that use U.S. components, measuring the value of the sale against national security. Should the sale proceed without U.S. acquiescence, then supplies of parts could be cut off and the selling state would be subject to further restrictions. Such a state would be regarded as an unreliable customer in the future. An effect of this has been that some states and firms seek to “design out” U.S. components, so that sales may be restricted to their own recognisance, and export prospects improved. Indeed, it was an informal policy of DASA to substitute other parts for U.S. parts wherever possible. It has a bit of “with us or against us” flair. States with a demonstrated respect for U.S. technology, who employ appropriate safeguards to protect it, and only sell to approved buyers, will have better access to future U.S. technologies. States that are less stringent will have limited access.

Internationally, the U.S. has a reputation for “cherry-picking” in its cooperation. It seeks to cooperate with firms that possess technologies and capabilities in advance of its own, aiming to acquire them. This contrasts strongly with its view of exporting technology. The export of U.S. defence technology is tightly constrained. The U.S. even

seeks to sell defence goods without their constituent technology. Electronic “black boxes” in major defence items, such as aircraft and guided weapons, are sometimes sold with the restriction that they may only be serviced by U.S. personnel. Trade in technology is more of a “one-way street” than is trade in defence equipment, but flowing in the other direction.  

*Made in America*

Another difficulty with U.S. collaboration is the Buy American policy for defence equipment. Major procurement items must be made in the United States or Canada. The Pentagon does look at non-North American equipment. Non-North American equipment is sometimes considered to save the cost of designing something that is already available. There has also been an increased tendency to undertake side-by-side trials of U.S. versus non-U.S. equipment. If the winner should be the foreign product, then arrangements must be made to build the product in the U.S. Typically, a foreign contractor seeking to enter U.S. competitions will do so in conjunction with a major U.S. contractor. The American contractor serves as a sponsor, being familiar with the ways of Pentagon procurement. In the event of victory, the U.S. contractor will take up licence production of the item. It is unusual for more crucial types of equipment to be non-American; foreign firms have a better chance at supplying the non-fighting needs of U.S. forces.

Partially as a result of the strict U.S. view of how its technologies and weapons may be used, the U.S. has an onerous procedure for approving the sale of its military equipment, including components. Procedural delays have prompted complaints from

102 This section was based on confidential interviews conducted by the author.
allies, and often make U.S. firms undesirable partners for international projects. There have been efforts to reform the system, especially for states that are regarded as trusted allies, and the firms headquartered within. The U.S. Department of Defense is in favour of such a change. Impediments to international collaboration result in more expensive products for the DOD, and may reduce interoperability with allies should it decide to seek alternatives. The State Department prefers the system as it is, which gives it a strong voice in the proceedings. It allows the State Department to use the sale of military equipment as a foreign policy tool.

The commitment to technological supremacy has immediate application to trade. In most sectors, especially those that are electronics-related, the U.S. has a distinct advantage in weapons technology. Technology transfer is a major issue for the United States. Having achieved, often at great expense, a military technological edge, the U.S. perceives the maintenance of that edge as a national security matter of the highest order. There is an impetus to share such technologies with allies (for a suitable fee), but not if the technology could leak out to unfriendly states. There is a one-way character to this. The U.S. does seek technologies in which other states have an advantage, with the general expectation of being able to buy it. Buying the technology frees the U.S. from foreign dependence.

Concerns about foreign dependence may be justified. While the U.S. is concerned about the proliferation of defence technologies, other states do use defence technology transfer as a part of their foreign policy, and sometimes that entails withholding the technology. When the U.S. sought to supply Taiwan with conventional submarines, it planned to first acquire the designs from Germany or the Netherlands.
Conventional submarine technologies are better developed in Europe, as the United States has standardised on a nuclear submarine fleet. Germany and the Netherlands elected not to sell the designs to the U.S., reasoning that such a sale could impair their relations with China.\(^{103}\)

Canada has been able to gain privileged access to the U.S. market and their associated production volumes. The integration of the Canadian defence industry into a U.S.-led North American Defence Industrial Base was accomplished mainly via the Defence Production Sharing Arrangement (DPSA) of 1956 and the Defence Development Sharing Arrangement (DDSA) of 1963. Through these, Canadian industries had been given equal treatment as domestic industries by the U.S. government. In 1998, the U.S. revised the International Traffic in Arms Regulations (ITARs) so that Canada was treated as an allied or a friendly state. The change applied to Canada-based subsidiaries of other firms, including U.S. firms, as well as Canadian firms. The waivers that had previously existed for a number of Canadian products on the U.S. Munitions List were suspended.\(^{104}\) Canadian firms had to apply for specific licences from the State Department for technical data, defence services and defence contracts. This put Canadian producers at a significant disadvantage to U.S. firms in bidding for Pentagon contracts, although at a similar level with other non-U.S. firms. It made it very difficult for U.S. firms with Canadian subsidiaries, which had to seek permits for inter-firm business. The differences were largely worked out by April 2001. Canadian export controls were made


\(^{104}\) Subcategories requiring licences increased from 10 to 57, so that 11 of 19 major categories then required licences. Binyam Solomon, *The Canadian Defence Industrial Base*, Strategic Finance and Economics, Department of National Defence. December 1999, 2.
to more resemble those of the U.S. by aligning the Canadian list of Controlled Goods
more closely with the U.S. Munitions List. Also, a registration programme was arranged
so that only registered defence contractors would receive ITAR exemption.\textsuperscript{105}

While the Canadian market access has become more restricted, the White House
and the Pentagon have moved to open market access to other reliable allies: Australia
and the U.K. These two countries had toughened their export laws to make them more
compatible with U.S. security aims. ITAR waivers for Australia and the U.K were
attached to the 2005 Defense Appropriations Act. Congress, however, was unwilling to
allow this opening. The waiver was lost amidst negotiations to pass the act. Instead,
“expedited licenses” were offered, mainly to ease the progress of the Joint Strike Fighter,
discussed below.

To get around the Buy American provisions, foreign firms sometimes seek to
invest in the U.S. market. Technology transfer is, as always, the greatest concern. U.S.
restrictions on the export of technology make it difficult for non-American firms to work
with U.S. firms. Strict provisions were always incorporated into any collaborative
arrangement with foreign governments and industries. National security, including the
defence industrial base and technology transfer and further transfers, is prominent, and
the competitiveness of U.S. firms is also a consideration.\textsuperscript{106} On the domestic front, the
Exon-Florio amendment to the Defence Production Act, passed in 1988, seeks to protect
the DIB from foreign influence. The President is empowered to delay and prevent the

\textsuperscript{105} Ken Epps, “US Imposes Improvements to Canadian Export Limits,” \textit{Ploughshares Monitor} (Spring,
2002). <www.ploughshares.ca>

\textsuperscript{106} Pagliano, \textit{The US Defense Industry}, 18. Pagliano also asserts a preference for multilateral export
controls, but the U.S. seems to have continued to favour bilateral arrangements.
acquisition of U.S. firms in the interests of national security. The Committee on Foreign Investment in the United States was formed specifically to investigate takeovers in the defence industry by foreign firms. ¹⁰⁷ Even allies may be subject to such measures. In 1992, the Exon-Florio legislation was amended to prevent the acquisition of the missile division of LTV by Thomson-CSF. Thomson-CSF (now Thales) was a French state-owned defence electronics firm. The amendment allowed national security reasons to intercede in a sale where the acquiring firm was state-owned or state-controlled.

MEADS

Cooperation has been fostered in a few specific projects. One major transatlantic programme is the Medium Extended Air Defense System (MEADS) programme in which the U.S. is cooperating with Germany and Italy, shared respectively 55 per cent-28 per cent-17 per cent. The industrial partners are, respectively, Lockheed Martin, MBDA-LFK (an EADS subsidiary at the start of the programme), and MBDA-Italy. This theatre defence programme has had the usual collaborative problems, including the loss of an original participant, France, and limitations on funding in the U.S. The very principle of the system has also generated difficulties. The U.S. contends that the best solution is to utilise the Patriot PAC-3 missile. Germany and Italy have interpreted the programme as an underhanded effort to sell U.S. off-the-shelf systems to them under the guise of cooperation. Exacerbating the issue is the U.S. determination to include a “black box” electronics system into the missile, in which the software codes will only be accessible to

¹⁰⁷ Ibid., 23.
U.S. personnel regardless of the operating service. The U.S. also upset Italy in trying to shift part of Italy’s share of the fire-control radar to Lockheed Martin in the United States. Germany was also upset about restrictions that the U.S. had placed on simulation and testing data, and the exclusion of parts of the radar development. Approval from the German parliament proved especially difficult, as opponents claimed that the programme was “only being pursued to maintain the illusion that arms cooperation with the United States is still possible.” In April 2005, nearly a year after the U.S. and Italy approved the design and development phase funding, the German parliament also did so. The NATO MEADS Management Agency signed a contract with the industrial partners shortly thereafter, and work continues. The development work is allocated on the juste retour basis.

**Joint Strike Fighter**

The Joint Strike Fighter (JSF) is the largest defence programme in history. It is producing an aircraft intended to replace U.S. Air Force A-10 Thunderbolts II and F-16 Fighting Falcons, U.S. Marine Corps AV-8Bs and Royal Air Force/Fleet Air Arm Harriers. This programme is exceptional in that the U.S. sought overseas participation at

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the design stage. Investment in the programme would result in a share of the work—somewhat similar to the European juste retour mechanism. It is unique for the U.S. to be seeking such participation in a major procurement item. The first partner, and only “full collaborative partner,” is the U.K., which joined the programme as the USMC successfully lobbied for a STOVL variant. Neither the USMC nor Fleet Air Arm could see any other viable replacement for their Harrier-derived V/STOL aircraft. By investing about 10 percent of the costs of the Concept Development phase and, once approved for production, the Engineering and Manufacturing phase, the U.K. expects to receive about that level of industrial involvement. This level of participation also offers the U.K. some influence in the design. The second level of partnership, “informed partners,” are Italy and the Netherlands. Third level partners are Australia, Canada, Denmark, Norway and Turkey.

Kapstein argues that the JSF programme was intended to breach the walls of “Fortress Europe”. Europe has three fighter programmes underway already (Gripen, Typhoon and Rafale), so the possibility of the United States being shut out of the market seemed high. The invitation to participate directly in the programme was therefore an inducement for European states to continue to consider the U.S. alternative.

112 Short Take-Off and Vertical Landing
113 Vertical/Short Take-Off and Landing. Originally Royal Navy Sea Harriers were also to be replaced by the JSF, but they have already been withdrawn, replaced by ground attack Harriers from RAF stocks.
previous generation of U.S. fighters met with success in Europe. In the so-called “sale of the century,” General Dynamics sold F-16s to Belgium, the Netherlands, Norway and Denmark in one deal. Now more elaborate inducements are needed to gain participation.

Touted by some as a model for the future of defence-industrial cooperation, the JSF programme was not as smooth as might have been hoped. Technology transfer issues were the perennial culprit. As the scheme to extend ITAR waivers to Australia and the U.K. failed in Congress, the U.S. launched the Defense Trade Security Initiative in its place. This was a policy that was intended to allow the transfer of technologies to allies and other friendly states, while ensuring that they do not proceed further. Facilitating the JSF programmes was a particular objective, and the means for this was the “Global Project Authorization,” covering an entire international collaborative programme. Notwithstanding these reforms, many partners were disappointed with the share of the work that has been allocated, and restrictions on technology transfer.116 Finmeccanica in Italy was one disappointed party, although Italy obtained the right to undertake final assembly for its own aircraft. Norway threatened to withdraw from the programme over workshare issues. These have been assuaged so far by promises of increased workshare. Norway has assured the U.S. over its commitment to the programme’s current System Development and Demonstration phase, but observed that does not constitute a commitment to the Production, Sustainment and Follow-up Production phase. It might buy a European fighter instead.117 Even the U.K. took issue, demanding access to


software codes to ensure the ability to maintain and upgrade the aircraft independently of the U.S. Australia took a similar position. Both indicated a willingness to abandon the programme over the issue. The Dutch voiced similar worries.\textsuperscript{118} The U.K. was also unimpressed with the Pentagon’s efforts to discontinue the second engine programme, in which Rolls-Royce was a major partner. Countervailing forces within the U.S. kept the programme working, and the partners on-side, if not satisfied. In the last defence budget, Congress ordered the continuation of the second engine programme.

\textit{Overall}

The U.S. is not inclined towards creating a larger defence industrial marketplace. Instead, it prefers to arrange bilateral Memoranda of Understanding with individual states, especially on the matter of technology transfer. The bilateral approach is typical of the U.S., but intentionally or unintentionally it has another effect. It divides the European nations. It effectively competes with the Framework Agreement. For instance, the U.S.-U.K. agreement on stealth for the JSF programme makes it difficult for BAE Systems to cooperate with European firms on stealth technologies. In this way, cooperation is an “either/or” choice: either cooperation with the U.S. or with other European states. It is possible to do both, but only by setting up internal “Chinese Walls,” in which the U.S. cooperative team is completely separate from the European cooperation team. Even then, such an arrangement might be viewed with suspicion by one or more of the partners. In this respect, the outward U.S. preference for a stronger

Europe and European defence industry is undermined by the policy in effect. Some observers believe that to be a deliberate policy of sabotage.

**Conclusion**

States are subject to the major trends in the defence industry: defence inflation, globalisation, and civil-military convergence. Policies may be directed at mitigating the unfavourable consequences of these trends. Major European states have, to varying degrees, been trying to cope with these trends while retaining sufficient independence to qualify as major powers: they are succumbing to the creeping advance of systems change. It is, however, systemic change that is a state-led affair, and it is signs of systemic change which should be most observable in state responses. States planning a hegemonic challenge will need to make strategic moves in the defence industrial sector whilst accommodating the environment established by the external trends. What we observe is that European states are generally seeking to improve their position in the defence industrial system, and in particular to keep from falling too far behind the United States. The ideal would be to gain access to the U.S. market. Instead of seeking systemic change, European states are seeking transaction-level change in their favour.

The U.S., however, remains aloof. Opponents of even selective defence industrial integration have so far stymied the efforts of its proponents. Although competition in the domestic market has been sharply reduced, foreign competition is only brought into programmes selectively. The United States still has the wherewithal to resist systems change and is using its resources to do so. The U.S. pursues bilateral agreements of convenience rather than taking a multilateral approach to defence industrial integration.
It does not seek to tie its security interests so tightly to Europe as to risk dependence. This is the defence industrial approach of a hegemonic state aiming to retain its primacy. Technology is seen as the edge that the U.S. needs to maintain its military advantage and it is here that the U.S. is most careful and most selective. The U.S. is also seeking transaction-level change in its favour, in support of its hegemonic position.
CHAPTER SIX

INVESTIGATING CHANGE—INDUSTRY RESPONSES

Industry Consolidation and Collaboration

The reduction in the number of major defence contracts gave the defence industry a strong impetus to consolidate and collaborate. Within a state, firms often collaborate to spread the costs and the risks of a new major defence procurement item. Major defence products are very complex and expensive—only a handful of defence contractors have the technical and financial resources to undertake them alone. Even those will often seek partners to reduce the costs and risks. These firms can then be a part of more projects to further reduce their exposure to the vagaries of particular competitions and procurement contracts. The purpose of international collaboration is usually to cope with the combined problem of defence inflation and declining defence budgets. Collaboration also increases market size. An international joint venture between firms can claim two or more domestic markets. An agreement between states to collaborate in procurement can result in a larger combined purchase, with resulting economies of scale and lower costs per unit.

In major platforms, there are fewer but larger defence contracts. Losing a major contract to a competitor can force a firm out of that sector altogether: there may be no further opportunity for a decade or more. The early exit of McDonnell Douglas from the
JSF competition was instrumental in that firm losing its independence in a merger with Boeing. Conversely, winning a major contract can give a firm an effective monopoly on a particular sector. Firms are reluctant to shoulder such stark risks if there can be ways around them.

Industrial collaboration is commonplace and pragmatic. The simplest major form of international collaboration is licence production. The Canadair-built CF-104 Starfighter aircraft is an example of this. Licence production can allow a state to maintain its productive capacity. It does little for national research and development, and little for technology. The desire to maintain employment combined with the need for economy often results in licence-built defence products. A more advanced form of co-operation is collaboration on a complete single project, such as the Anglo-French Jaguar aircraft. Sharing research and development costs, and dividing up the production tasks allows two or more states to pool their resources and take advantage of their combined market. A frequent problem is the division of labour. Each state wants to claim the more prestigious parts of the design and production processes for its own industry. In order to maintain fairness, the proportion of work usually matches the proportion of intended purchases. Final assembly is often duplicated in each state. International marketing tends to divide world responsibilities amongst the partners.

An intermediate level, albeit rare, is collaboration on a group or series of weapons. This allows firms in different states to take the lead in different projects. One of the few good examples is the Gazelle/Puma/Lynx helicopter programme undertaken by France and the U.K. French Aérospatiale took the lead on the Gazelle and Puma,

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1 *Juste retour,* see Chapter 5.
where British Westland took the lead on Lynx. Each served as a principal subcontractor
to the other for non-lead helicopters. While this would seem to offer more room for
compromise, the drawback of this arrangement is that it repeats the problem of the simple
collaboration. Each state has an incentive to more strongly promote and support the
product for which the domestic prime contractor is the lead contractor at the expense of
the other parts of the programme.

Extending that idea to multiple projects, firms may merge their activities within a
single field, such as the Franco-German Eurocopter, a combination of helicopter assets
of MBB and Aérospatiale. Although national concerns may remain, this arrangement is
likely to be better at achieving efficiency through specialisation. European cooperation is
driven mainly by industry. Perhaps as a result, it has been generally quite successful.
Intergovernmental agreements tend to be difficult to arrange and are often reversible.
Collaboration is driven forward by firm to firm negotiations. These arrangements tend to be
pragmatic and successful. Once business units have been amalgamated, it is much
easier for firms to divide responsibilities and the share of the work. They tend to bypass
intergovernmental discussions on the same points—the very points that make state-to-
state negotiations so difficult.

The most thorough form of collaboration is amalgamation of entire firms. The
simple version is for one firm to acquire another outright. In the defence field, there may
be safeguards imposed by the government of the firm being bought. A more ambitious
arrangement is a merger in which no partner is predominant. In the long run this offers
the best chance for efficiency, but is the most difficult to arrange. EADS, the result of the
merger of DaimlerChrysler Aerospace SA of Germany, Aérospatiale Matra of France, and CASA of Spain, is the pre-eminent example.

The reduction in the number of firms reflects the smaller defence market. Fewer firms can divide the market so as to better achieve consistent production and stay in business. A reduction in the number of firms could also be achieved by attrition. With a limited number of contracts available, firms losing the bidding may go out of business. The survivors would be sufficient to meet the demands of the market. Instead, firms have chosen to consolidate through merger and takeovers. The motivation for this route may be the management of risk. Smaller, more specialised firms can lose out in a tighter market. If a firm produces only a few defence products, it may need to win most competitions to keep its facilities running. Losing a major contract may mean going out of business. If a firm acquires competitors, it can broaden its reach, bidding for contracts in new markets. It can then divide up the contracts it does win amongst its various units. Some reduction in capacity will be necessary in general, but no single contract is likely to be critical for the survival of the firm. Defence firms are getting larger, and doing so by absorbing smaller firms.

Table 2: Market share of the top N global defence industrial firms as a proportion of the top 100.²

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U.S. firms had the additional impetus of the so-called “Last Supper” speech. Some firms chose to exit the defence market altogether, particularly those that were predominantly oriented towards the civil market. Generally, defence related divisions were sold to interested buyers. Among those buyers were defence focussed firms that went the other way, concentrating more on the defence market. Firms concentrating on the defence market sought to restructure their firms, often through acquisitions, to improve efficiency. Other defence firms chose to diversify into the civil market without exiting the defence sector. Employment has typically fallen.\(^3\) However, production lines have generally remained open—long-term production capacity remains, while only the production levels have declined. A significant development was the 1995 merger between two of the world’s largest defence contractors, Lockheed and Martin Marietta. The merged Lockheed Martin was far greater in size than any defence contractor in the world, dwarfing any non-American defence firm. The addition of Loral, a very large defence electronics firm, further increased the company’s mass. Lockheed Martin became a prime contractor capable of tackling any defence procurement contract alone.\(^4\)

Divided by sector, the aerospace and electronics sectors have been quicker to consolidate than the land systems, marine and munitions sectors. The high costs, particularly in research and development, bring the difficulties of defence inflation to bear on the aerospace and electronics sectors much more heavily than on the other


\(^4\) Ibid., 20.
sectors.\textsuperscript{5} Land systems, marine systems and munitions are mature industries using established technologies. Moreover, the expensive parts of land and marine systems tends to be the defence electronics fittings.\textsuperscript{6}

\textbf{The Largest Defence Contractors}

The SIPRI and Defense News listings of the largest defence contractors reveal much about the structure of the global defence industry. There were 40 American firms on the SIPRI top 100 list in 2004, compared to 44 in 1994. This was not a sign of the relative weakness of U.S. firms, but is the result of consolidation in the U.S. DIB. Also, the comparison was skewed by the introduction of Russian and South Korean firms on the list: the comparison should be to 40 of 94 (about 42.6 percent) to 44 of 100 (44 percent). The actual industrial consolidation in the United States was understated by the comparison: most of the new U.S. entries were service providers. Some major service providers had already joined the consolidation trend. The top ten firms had a market share of 61 percent of the top 100 in 2003, up from 37 percent 100 in 1990.\textsuperscript{7} This represents a considerable concentration in the market. The Defense News list contained 43 U.S. firms in 2005.\textsuperscript{8}

\begin{quote}


\textsuperscript{7} Stockholm International Peace Research Institute, \textit{SIPRI Yearbook} 2006, 422-7.

\end{quote}
The major defence firms in Europe were much more stable than those in the U.S. In 1994, there were 37 European firms compared to 38 in 2004. These include 11 in France, 7 in Germany, and 11 in the United Kingdom in 1994, compared to 8, 5, and 11 respectively in 2004. For all of the effort put into cross-border consolidation, it was still much more difficult than in the unified U.S. market. Over the decade, the French industry was fairly constant. Two firms were incorporated into EADS, one disappeared amidst state sponsored restructuring, SNPE dropped off the list, and one firm was added. In Germany, land systems restructuring tended to involve firms both on and off the list, leaving a less discernible effect. Firms that disappeared from the list were civil oriented, divesting defence assets. The most change was observable in the U.K. Five new firms rose onto the list, which replaced four firms which disappeared through amalgamation and one that divided. For 2005, Defense News listed only 28 European defence firms: 10 British, 5 French, 5 German, and 8 others. There were two Canadian firms on the SIPRI list in 1994, Bombardier and CAE. Only CAE remained in 2003, the divestment of assets having dropped Bombardier off the list. Defense News also only lists CAE. The next edition may be without a Canadian representative, as CAE’s divestment of its marine controls unit will probably render it too small.

The introduction of service firms is striking, having filled no fewer than 14 entries on the SIPRI list. In 1994, there was only one, Mitre. The largest of the defence service

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providers is SAIC, listed 12th in 2004, with $4.3 billion in defence sales. Service providers Computer Sciences Corporation and Halliburton (through its KBR unit), were 13th and 16th, with $4.3 and $1.8 billion respectively. The other service providers on the list were QinetiQ, Titan, Anteon, EDS, EG&G, CACI International, ManTech, Aerospace Corporation, Cubic Corporation, Jacobs Engineering and Mitre. Only one of the fifteen, U.K.-based QinetiQ, is not American. Defense News had 17 services firms for 2005, led by Halliburton in 10th position.

The importance of aerospace and electronics firms was such that, on both lists, the top ten industrial firms (excluding the service providers above) all featured defence electronics and all but two, General Dynamics and L-3 Communications, some form of aerospace capabilities. On the SIPRI list, of the next ten industrial firms, only two did not provide aerospace products or defence electronics. United Defense has since been bought by an defence electronics and aerospace firm, BAE Systems. DCN, a shipbuilder, was also not involved in aerospace or electronics. Of the top twenty industrial firms thirteen were involved in electronics, nine in missiles, and eight in aviation. For the Defense News list, the results are similar, except that United Defense was not on the list: ATK was the other exception.

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13 SIPRI concentrates on the manufacture of weapons systems. It should be noted that many industrial firms offer defence services as well.


15 Aero-engines and guided missiles are being considered to be part of the aeropace sector. Curiously, General Dynamics is in the civilian aerospace market.

The United States Defence Industrial Base

The United States has a virtually complete defence industrial base. Its strengths are manifold and its weaknesses are few. There are no major product lines that the U.S. does not, or could not produce. Occasionally foreign defence goods will be used. Typically, they will be produced in the United States, thus ensuring security of supply. Rarely are any major cutting-edge procurement items acquired abroad—instead, foreign designs fill niche support roles where some efficiency can be gained with a marginal concern about foreign dependence.

A strong development effort has put the U.S. at the forefront of the use of information technology on the battlefield. The U.S. desire to undertake an RMA has yielded considerable advances, although the “revolution” is far from complete. Nevertheless, the U.S. has achieved a level of information integration not yet achieved by any other state. The U.S. has a clear advantage in the production of sensors and battlefield management and their associated platforms. This capability makes the U.S. the default supplier for information systems and sensor systems in the West.

The U.S. also has advantages in the production of many more conventional weapons, including precision ordnance and fighter aircraft. Large freighter aircraft are a U.S. specialty in the West. American aircraft are only matched by a few Ukrainian Antonov and Russian Ilyushin designs in this field. The U.S. also possesses near-monopolies in specialised communications and reconnaissance assets, such as AWACS aircraft\textsuperscript{17}, the Global Positioning System and ground surveillance and control aircraft\textsuperscript{18}.

\textsuperscript{17} AWACS Airborne Warning and Control System.

\textsuperscript{18} Such as the E-6 Mercury.
While the number of official nuclear powers has grown of late, and there are still a few unofficial nuclear powers, the U.S. is the strongest state in nuclear technology. Russia still possesses a large nuclear capability, but it is unlikely that its technology has kept apace. The U.S. Navy also continues to build more and larger nuclear-powered warships than other navies. Indeed, the U.S. is just about able to have continuous production of nuclear-powered aircraft carriers and submarines, although reducing orders much more would compromise that. Other states produce nuclear-powered vessels in small batches.

There is no need for U.S. firms to be highly efficient, or to collaborate with foreign firms or other domestic firms. While some competition has been maintained in most sectors, the competition is limited. U.S. defence firms usually act as duopoly and oligopoly suppliers. The large size of U.S. defence contracts does not emulate a perfect competition model that would force firms to seek maximum efficiency. The historical preference for “cost-plus” contracts encourages performance over efficiency. European firms, though often monopoly suppliers, face tight budgetary conditions as a matter of course, necessitating a measure of efficiency.

*Lockheed Martin*

Lockheed Martin is the largest defence contractor in the world in terms of defence revenues. It has broadly achieved its goal of becoming a “one-stop shop,” is capable of serving as prime contractor on almost any type of military equipment. Prior to its merger with Martin Marietta, Lockheed was primarily an aerospace firm. It abandoned its major commercial aircraft activities with its large L-1011 *Tristar* airliner, choosing instead to
concentrate on military activities. Martin Marietta had concentrated more on space and electronics. The defence electronics side was improved with the acquisition of Loral in 1996. Several of Loral’s units were demerged into L-3 Communications the following year.\textsuperscript{19} Although it has limited production facilities for land and naval systems, Lockheed Martin leverages its defence electronics expertise to bid for contracts in those elements. Systems are now paramount: hull production (either ship or armoured vehicle) can always be subcontracted.

For a while, Lockheed Martin’s military aircraft line was concentrated on freighters and military airlifters. The venerable but still popular C-130 \textit{Hercules} aircraft remains in production. It has also returned to become the most important U.S. builder of fighter aircraft. Its most important product lines are the F-22 \textit{Raptor} and F-16 \textit{Fighting Falcon} fighter aircraft. The F-35 Joint Strike Fighter will likely be Lockheed Martin’s most important product for years to come. Lockheed Martin and Boeing jointly control the United Space Alliance, sole contractor to maintain the NASA Space Shuttle fleet. The two firms compete for conventional launches, where the \textit{Atlas V} is Lockheed Martin’s rocket.

\textit{Boeing}

Boeing Corporation is the world’s largest aerospace firm. Boeing vies with Airbus for the greatest share of the commercial airline market, last year pulling ahead of Airbus in terms of orders taken. Its airliners are often modified for defence purposes in support roles. Several hundred C-135 airframes, virtually identical to civil 707 airframes,

\textsuperscript{19} See also appendix A, figure A1.
have been delivered to the U.S. and to other states to serve as the basis of tankers, freighters and electronic systems platforms. It is worth observing that much of Boeing’s jet airliner development was done under Pentagon contract.\textsuperscript{20} The firm’s civil-military balance changed when it merged with its major U.S. rival, McDonnell Douglas. On one hand, Boeing gained a national monopoly on commercial airliners. However, McDonnell Douglas was the world’s largest U.S. military aircraft firm, and also produced airliners and helicopters.\textsuperscript{21} This increase in military business provides Boeing with the opportunity to balance commercial and military business cycles, and indeed the firm has two operating divisions, “Commercial Airplanes” and “Integrated Defence Systems”. The commercial airplanes division has recovered its position, owing as much to the difficulties Airbus has experienced with its A380 and A350 models as to the success of the new 787 model. Aside from converted airliners, another McDonnell Douglas product, the C-17 \textit{Globemaster} III gives Boeing a dedicated military airlifter.

Boeing has two units making helicopters. Its Vertol subsidiary produces large military transport helicopters, which occasionally are found in civil roles as well, and the McDonnell Douglas Helicopter unit makes AH-64 attack helicopters. Unmanned air vehicles and guided missiles make up a smaller portion of Boeing’s aerospace production. The firm builds rockets and satellites as well. Its \textit{Delta} range of rockets is a popular U.S. military and commercial launch vehicle. Finally, although Boeing is more platform-oriented than its major competitors, it produces a range of defence electronics, communications and sensor systems.

\textsuperscript{20} The Boeing model 707 was designed alongside the KC-135, which was intended to meet USAF tanker requirements, and the 747 was originally developed for a military freighter competition. The model 720 was a short fuselage variant, and models 727, 737 and 757 retained elements of the 707 design.

\textsuperscript{21} See also appendix A, figure A3.
Boeing is strong in all sectors of aerospace, but has suffered a number of reverses. Its prototype for the Joint Strike Fighter, the YF-32, lost out to Lockheed Martin in 2001. The F-15 line is reaching the end of its life, but still finds new business. A lucrative contract to supply tanker aircraft to the U.S. Air Force has been put on hold over contracting irregularities. Another of Boeing’s market sectors was dealt a blow when the RAH-66 Comanche scout helicopter, a joint venture with Sikorsky, was cancelled. Boeing lost further business when the Pentagon transferred launch contracts to Lockheed Martin that had previously awarded to Boeing.

Northrop Grumman

Having concentrated mainly on subcontracting roles, Northrop Grumman was a prime contractor for the B-2A Spirit stealth bomber and the large Global Hawk UAV. Because of its high price and the low strategic requirement, the stealth bomber was only built in small numbers. Production of the Global Hawk UAV continues very slowly. Subcontracting still makes up a large share of the firm’s business, especially with its involvement in the Joint Strike Fighter programme. Combining its resources with Lockheed Martin seemed a natural fit. Once rebuffed from its merger with Lockheed Martin, Northrop Grumman had to devise a new strategy for itself, returning to full prime contractor status through defence electronics. It acquired Westinghouse Electronic Systems, Litton, Logicon and TRW in that line. TRW’s considerable commercial automotive operations were subsequently spun off, keeping Northrop Grumman’s focus
on defence. Its UAV business was bolstered through the acquisition of Teledyne Ryan, a pioneer in that field.\textsuperscript{22}

Aside from its electronics business, Litton owned two of the six major naval shipyards, Avondale and Ingalls, adding a new sector to Northrop Grumman's defence business. Anti-trust concerns had led the DOD to prevent the number of warship prime contractors from falling below three in the late 1990s, as separate attempts to purchase Newport News by General Dynamics and Litton were both halted in 1999. Despite that, Northrop Grumman, by then the owners of Litton, was able to buy Newport News two years later. General Dynamics and Northrop Grumman now share the U.S. shipbuilding market, with three yards apiece. The Ingalls yard builds surface combatants, and the Avondale yard is a builder of major auxiliary vessels.

\textit{Raytheon}

Raytheon is a prime contractor in defence electronics systems. Unlike most of its peers, Raytheon did not emerge from a platform builder, but instead has a background in radar and electronics. In the civil sphere, Raytheon has the distinction of having invented the microwave oven. The firm's acquisitions during the U.S. wave of consolidation in the mid-1990s focussed on acquiring the defence units from largely civil firms, concentrating on its core competencies in guided weapons and defence electronics.\textsuperscript{23} Recently, Raytheon sold its aircraft unit to a private equity firm. The aircraft division was the only segment which favoured civil production, which included the Beech and

\textsuperscript{22} See also appendix A, figure A4.

\textsuperscript{23} See also appendix A, figure A2.
Hawker range of business aircraft, and the T-6 trainer. Raytheon is best known for being the world’s foremost producer of guided weapons, producing the AMRAAM, Sidewinder, Maverick, and Tomahawk amongst others. Until the European firms combined into MBDA, Raytheon was the undisputed Western leader in guided weapons. Related weapons include guided projectiles and ordnance, and the Phalanx point defence cannon. Other major business units concentrate on defence systems, intelligence, sensors and electronic warfare, and networked systems. There is also a services division, which handles logistics, maintenance and base support functions on behalf of the U.S. federal government, the DoD and the Department of Homeland Security. Raytheon is allied with Thales in an arrangement covered below.

**General Dynamics**

A few prime contractors are weak in aerospace. General Dynamics (GD) was formed out of the merger between Electric Boat, a submarine builder, and Consolidated-Vultee, an aviation firm. GD decided to abandon its military aerospace activities, mainly by selling its F-16 line to Lockheed Martin. Somewhat surprisingly, GD acquired Gulfstream, a maker of large executive aircraft which are only occasionally used as the basis of military platforms. Galaxy Aerospace was also acquired and added to Gulfstream’s executive jet range. Instead of using its military aerospace expertise, GD leans towards the defence electronics requirement for major prime contractors. Command and control, computers, information technology and systems integration are all GD capabilities. It also has a major subsidiary in the U.K. for defence electronics.
For platforms, General Dynamics now concentrates mainly on land and sea systems. General Dynamics Land Systems (GDLS) is the United States’ only producer of main battle tanks, offering the gas-turbine powered M1 Abrams tank. GDLS also builds the LAV range of light armoured vehicles for the U.S. Army and U.S. Marine Corps, as well as various other armoured vehicles. General Dynamics acquired GM Defence from General Motors, its Canada-based defence subsidiary, renaming it General Dynamics Land Systems Canada. GM Defence had been GDLS’ partner in the LAV programme. GM Defence was also the owner of Switzerland-based Motorwagenfabrik, Mowag for short, which designed the LAV’s predecessor. European penetration proceeded further with the acquisition of two armoured vehicle firms: Santa Barbara of Spain and Steyr-Daimler-Puch Spezialfahrzeug of Austria. GD also produces a variety of guns, ordnance, armour and other equipment for land forces.

Three of the six major U.S. military shipyards are owned by General Dynamics. The Electric Boat subsidiary is one of two builders of nuclear-powered submarines in the U.S. Bath Iron Works builds primary surface combatants, currently destroyers. NASSCO concentrates on auxiliary ships. A fourth element to the General Dynamics naval operations is American Overseas Marine, which operates ships on behalf of the U.S. Navy.

United Technologies Corporation

United Technologies is a diversified industrial and services firm, two units of which are defence oriented. Sikorsky helicopters can be traced back to the inventor of

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24 General Dynamics has the largest stake of any firm, Canadian or otherwise, in the Canadian DIB.
the vehicle. Although a few Sikorsky helicopters are sold for civil use, they are primarily military vehicles. The S-70/H-60 series Blackhawk/Seahawk/Knighthawk is the main tactical helicopter for the U.S. Army and the main multi-purpose helicopter for the U.S. Navy. Pratt & Whitney, one of the world three largest turbine makers, is the other division of United Technologies with military products. Pratt & Whitney produces a range of civil and military turbofan, turboprop and turboshift engines. Its Canadian unit produces the PT-6 line of turboprops, which have a variety of civil and military applications, including trainer and light utility aircraft.

_L-3 Communications_

L-3 Communications was spun off from Lockheed Martin in 1997, a very new firm amongst the major contractors. Its initial composition was primarily of units of the former Loral, which Lockheed Martin had acquired the previous year.25 L-3 was conceived as a supplier to major aerospace defence firms, which had become so competitive as to seek to avoid subcontracting to each other, and also counts the Department of Defense, Department of Homeland Security, and U.S. intelligence agencies as major customers. It is a very defence-focussed firm, dealing mainly in ISR (intelligence, surveillance and reconnaissance), and in various communications fields, but also supplying various other aerospace and defence products and services. It has been an aggressive buyer of small defence-related firms, Bombardier’s Military Aviation Services unit being a major Canadian acquisition in 2003. In 2005, L-3 acquired Titan Corp., a

25 See also appendix A, figure A1.
major provider of IT services to the Department of Defense and Department of Homeland Security, and it also has products in fields similar to those of L-3. 26

BAE Systems

The other major U.S. armoured vehicle manufacturer is United Defense Industries. United Defense was formed by the merger of FMC’s armoured vehicles business and another armoured vehicle firm, BMY. United Defense is the prime contractor for the M2 Bradley, the main U.S. infantry combat vehicle. Their M109 is the primary U.S. self-propelled gun system, and has achieved significant foreign sales. Its natural successor, the Crusader, has been cancelled. In a major recent transatlantic move, United Defense was acquired by BAE Systems of the U.K. Amongst foreign firms, BAE Systems has enjoyed privileged access to the U.S. market, but it has been mainly a large subcontractor. The United Defense acquisition makes it a prime contractor in the armoured vehicles field. BAE Systems will be covered further in the European section below.

Other Notable Firms

Bell, a unit of Textron Corporation, produces military and civil helicopters. Bell’s military helicopters have often found widespread commercial use in addition to their military roles. The veteran “Huey” (UH-1) series still finds customers in its more modern variants, such as the Bell Model 212 in service in Canada. The UH-1Y variant is in service with the U.S. Marine Corps, as is a dedicated attack helicopter derived from the

UH-1, the AH-1. Bell’s Model 206 *Kiowa* remains in U.S. and other military service as a light utility and scout helicopter, and is also very popular in civil use. Cessna is also a division of Textron. Cessna focuses on business and private aircraft, but some do find service in secondary military roles, such as training and liaison. Lycoming is another Textron unit, mainly building reciprocating-engines for light civil aircraft. Lycoming does produce some larger turboprop and turbojet engines for smaller military training, liaison and utility aircraft.

General Electric (GE) is diversified industrial, financial and media group. It is a major U.S. defence contractor by virtue of its turbine engine division, which produces powerplants for both civil and military use. GE is one of the three largest aero-engine manufacturers in the world. It has links to Snecma, now a division of Safran, the sole French turbine maker, but these links are in the civil sector.\(^7\) Having diversified out of the defence market, GE made a surprising return, agreeing to buy the aerospace operations of U.K.-based Smiths Industries in 2007.\(^8\) Smiths Aerospace makes instruments and subsystems for civil and military aircraft. Honeywell is a diversified industrial group. Its aerospace units are primarily the result of the acquisition of Bendix and AlliedSignal. Honeywell’s defence operations lie in subcontracting to the major defence-aerospace firms—defence does not feature at a major level of organisation. ITT is also a civil focussed telecommunications firm with a major defence arm. ITT’s defence operations are low-key, and account for less than a third of overall sales. Its products include communications, radar systems, air traffic control, navigation, command

\(^{27}\) The joint venture, CFM International, builds CFM56 engines for such aircraft as the 737 and A320.

and control, satellite equipment and related items. Nearly half of ITT’s defence sales are in technical and support services. Rolls-Royce of the U.K. is also a large aero-engine supplier to the Pentagon. Aside from its own range of gas turbines, Rolls-Royce bought the U.S.-based Allison firm. Allison builds turboprop and turboshaft engines that are popular with military support aircraft, but also find civil applications.

Conclusion

There may be a few gaps appearing in U.S. self-sufficiency. The situation is clear at the prime contractor level where it is obscure at the lower subcontracting levels. At the subcontractor and sub-subcontractor level, consolidation may continue. For the most part, such activities go unnoticed. If the subcontractors become oligopolistic, it may change the structure of the industry. More likely, the subcontractors will quietly become more globalised. In the quest for greater efficiency and cheaper products, prime contractors and their major subcontractors seek to reduce costs from their own supply chains. The actual sources of lower level contracts may become difficult to ascertain. This is especially true of software codes, which may have originally been written for other purposes and in unknown places. There is some concern that this could be a weak point for sabotage. An unknown software engineer, in seeking to disrupt the U.S. military machine, could write some malicious code, designed to break down under certain conditions, or at a certain time. However, the very obscurity that allows the weakness may be the security against it: how would a software engineer know for what purposes software code would be later used?

The U.S. emphasis on technological warfare combined with the relative progress of commercial technologies compared to military technologies produces another weakness. It is easier to keep controls on purely military technologies. Firms, competing in international markets, will be unwilling to withhold their commercial technologies. For many computer and communications firms, military business is but a small fraction of their research effort and overall sales. Putting new products on the market first may be crucial to the survival of the firm. Thus, the very technologies that the United States seeks to employ to revolutionise the battlefield may be the most susceptible to globalisation. They are technologies that other states, both friendly and hostile, may be able to acquire most easily: off the shelf.

Many foreign firms would naturally like to increase their presence in the United States market. The U.S. market is so large that even a small presence can offer great rewards. Against the attractive power of the market, there are obstacles to entry that keep many firms out. The U.S. is generally hostile to takeovers by firms owned by foreign states. American citizens must typically be installed to lead the divisions operating in the United States. Also, so-called “firewalls” must separate U.S. research and development from the rest of the firm in the interests of national security. Only BAE Systems has made significant inroads in the U.S. market. The U.S. considered the U.K. to be in the most reliable category of allies; ownership of most British defence firms, private and widely held, has made them more palatable for U.S. reviewers.

The bulk of the consolidation process in the U.S. defence industry is probably complete. After the proposed Lockheed Martin/Northrop Grumman merger was stopped, Northrop Grumman established itself as a prime contractor, gaining mass through the
acquisitions of TRW and Litton in particular. While U.S. firms do invest abroad, there is little impetus to do so. A production line set up to supply the U.S. can often supply foreign customers also. With a product’s development paid off by sales to the Pentagon, foreign orders can be very lucrative. One reason for foreign investment is market access. By buying into a foreign market, firms may be seen as sufficiently domestic to receive orders from that government. In the case of Europe, U.S. firms can hope that investment in one state may ultimately lead to good market access for the whole of the EU.

European Defence Industries

European Cooperation

Cooperation in defence electronics and aerospace has developed over the last few decades. Initially cooperative programmes constituted little more than a division of labour. There was no common structure, but instead an agreement to share work and markets. SEPECAT and Transall are examples of this arrangement, the former resulting in the *Jaguar* attack aircraft, and the latter the C-160 tactical freighter. The second stage involved the creation of a subsidiary of cooperating partners to give a specific project a common face. This subsidiary gave customers a single entity with which to relate. This subsidiary is given a legal identity in one state or in Europe as a *groupement d’intérêt économique* (GIE). The industrial side remains as before, with the development and production tasks shared between the partners. Eurofighter GmbH is a current GIE

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based in Germany, offering the Typhoon multi-role fighter aircraft.\textsuperscript{31} It built upon the former Panavia, organised to manage the Tornado multi-role fighter.

A common difficulty remains the political nature of the defence industry. As mentioned previously, states are eager to join collaborative arrangements in order to reduce the costs of their defence modernisation programmes. For collaboration to reduce costs significantly, specialisation and division of labour are needed. While in principle in favour of this, states prefer that the division of labour fall within their own borders. As we have seen, the juste retour method was worked out by which each state could enjoy the gains from specialisation while still receiving an appropriate share of the labour. While the fairness of this arrangement was clear, it did present some problems. Different parts of a major defence product are valued differently. For instance, the fire control system of a tank is a more advanced technology than the “caterpillar” treads. As such, juste retour was often extended to the major components of the final product. The arrangement does not allow for subcontracts to be applied to the most efficient firm. Indeed, sometimes it obviates competition altogether as there is only one contractor in a particular state capable of handling a particular subcontract. Another problem is the propensity of states to change their orders. Changes in government, fiscal conditions, and the security environment may cause one or more states to change their orders for a collaborative product. This usually means that the industrial shares will have to be recalculated and rearranged.

Joint venture companies appeared in the 1990s. Instead of collaborating on a single programme, here two major firms combined their assets, usually all of them,

\textsuperscript{31} Ibid.
within a particular sector. This helps solve some of the difficulties with *juste retour*, as contracts can be laid with a single firm which decides its own production processes. Eurocopter and MBDA are notable examples. Here a holding company is created, with its own legal identity and nationality, and the appropriate business units are transferred to the holding company. Each of the parent firms owns a stake in the new venture. Some effort will be needed to value the units correctly so that the proportional ownership can be correctly determined, but it should only need doing once. As a whole sector is covered by these joint venture companies, this may entail both civil and defence programmes being undertaken. Eurocopter incorporates the entirety of DASA and Aérospatiale’s helicopter units, and is the world’s largest helicopter firm. MBDA, which is composed of the former guided weapons businesses of BAE Systems, Aérospatiale Matra, Finmeccanica, and (later) DASA, is focussed entirely on defence.

*The Grand Plan: EADC*

In a joint declaration in December 1997, the British, French and German governments asked their major defence firms to present, by March 1998, a plan and timetable for integration, including all the necessary restructuring to achieve that. Aérospatiale, DASA, British Aerospace and CASA had already been working on transforming the Airbus consortium into a single company. They responded (with four days to spare), both to their governments and to the Italian and Swedish national champions, Finmeccanica and Saab. Those two firms became involved, as did the French Matra firm through compatriots Aérospatiale and Dassault Aviation. They agreed to work towards the creation of the European Aerospace and Defence Company (EADC).
EADC would function as a single profit-making company responsible to its shareholders as an ordinary business. Management would have a central element, national government liaisons and business divisions. Those divisions would be determined by business sector, which would include: commercial aircraft, combat aircraft, helicopters, rockets, satellites guided weapons and defence electronics.\textsuperscript{32}

Ownership was a major stumbling block. Three different ownership structures needed to be accommodated. DASA was owned by a large industrial conglomerate, DaimlerChrysler. Similarly Lagardère owned Matra, and the French state has a large stake in Aérospatiale. BAe and Saab had more distributed ownership, and did not relish the prospect of a few major shareholders being able to hold so much influence over the proposed entity. Neither those two firms nor DaimlerChrysler was willing to accept French state ownership in EADC.\textsuperscript{33}

Three different approaches were put forward. As Airbus was already set to become a single company, it could be used as a basis, adding new business lines detached from the national companies. Otherwise, an EADC entity could be created, owned by the various national firms. Business units could then be added one at a time, sector by sector, to EADC. The third plan involved less preparation, simply merging all of the core business units of each company all at once, the new entity being EADC.\textsuperscript{34} It was decided to start with two firms, and then progressively incorporate others. BAe and DASA were considered the best candidates to start. The French firms would be added next, followed

\textsuperscript{32} Ibid, 29-30.


\textsuperscript{34} Schmitt, From Cooperation to Integration, 31.
by the smaller industries.\textsuperscript{35} This top-down approach came to naught. Independent merger talks were held between various firms. Finally, a sudden merger between BAe and Marconi Electronic Systems (MES) put the EADC plan on indefinite hold.

\textit{Transformation}

The transformation of the European defence industry is a complex affair, driven by both state and commercial interests.\textsuperscript{36} It is complicated by the different ownership structures of the defence industries in the different states, as well as the business cultures of each. The organisational principle of defence production in Europe has changed from the national level to the transnational level. In the late 1990s, European states each had their private defence industries, of whatever capability. In a very short period, the defence industries of Europe broke out of their national boxes and assumed a transnational character. In most cases, that international character was largely contained within Europe.

Transformation in the European defence industries is led by aerospace and defence electronics producers. These industries are particularly important for their high-technology, high value added production, and for their contribution to the military machine.\textsuperscript{37} The aerospace sector is connected more to its civil counterpart than other realms of defence production. Industrial restructuring in Europe in aerospace, especially

\textsuperscript{35} Merritt, “Industrial Aspects.”


\textsuperscript{37} Schmitt, \textit{From Cooperation to Integration}, 15.
with Airbus, has promoted defence-aerospace cooperation and consolidation. U.S. shipyards concentrate on supplying the U.S. Navy, and are not major competitors in the European naval market. U.S. land systems firms are stronger competitors, but face domestic competition in most European states. With lower R&D costs, land systems manufacturers have been able to manage in smaller markets than firms in other sectors. Taking another tack, U.S. firms have started to become equity investors in Europe and are presenting a stronger challenge with domestic credentials.

The pressures on the European defence industries were akin to those on the U.S. defence industry, but greater. Yet European restructuring took place only after consolidation in the defence industry. Most European defence firms were monopolies in their home market. There are few synergies to be gained by consolidation with defence firms in different market segments. Sheer mass might be gained, but for most European firms, a size comparable to a major U.S. contractor could not be achieved even by a monopoly in all domestic market segments. European defence firms faced a constraint that the U.S. firms had not yet reached: they had reached the limit of expansion within their national boundaries. Firms had established relations with their own government, and did not always want to put that relationship at risk by joining with a foreign firm. Most European states remained reluctant to allow their defence firms to be absorbed by foreign firms, or simply disallowed it altogether. Sovereignty was a major reason, as well as the domestic political rationale of seeking to retain jobs in a high-technology sector that could be protected from international competition. This delay meant that

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38 Schmitt, “The Integration of Defence and Aerospace Industries in Europe.”
European defence firms quite suddenly faced the competitive threat of U.S. firm with a much larger research, development, and production base.

Not fully free of national considerations, European defence firms have responded. As in the U.S., defence firms have typically become more concentrated on defence, or abandoned the defence market altogether. Firms have rationalised their product lines and market sectors. This has been accomplished by shedding peripheral units, and making strategic acquisitions at home and abroad. Also, following the U.S. lead, major defence firms have become system integrators primarily with platform expertise, rather than platform builders specifically. System manufacturers have also transformed into service providers, to gain access to the increasingly lucrative maintenance and training markets. Consolidation has left Europe with four major prime contractors: BAE Systems, EADS, Thales, and Finmeccanica.

**EADS**

The British Aerospace-MES merger caused some dismay in Europe. The new defence firm was far larger than any of its continental counterparts. DASA was miffed at having been jilted at the last moment. However, the existence of BAE Systems provided an additional spur to the major continental firms. The European Aeronautics, Defence and Space company, EADS, is the spiritual successor to the EADC. DASA and Aérospatiale-Matra were the instigators behind EADS, and are the main constituents. CASA, the Spanish state-owned aviation firm, had already agreed to merge with DASA,

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and was brought in also. Unlike EADC, the formation of EADS was propelled by industry, and presented to the state governments involved. The firms deliberately delayed notifying their governments until the negotiations were nearly complete.

EADS’ main activity is the construction of Airbus aircraft, accounting for two-thirds of its business. Airbus started out as a cooperative venture. Airbus has been transformed from a consortium to a proper firm, a process facilitated by the simplification of its ownership structure, which previously consisted of four unequal partners. In 2006, BAE Systems sold its 20 percent share in Airbus to EADS, making Airbus a wholly-owned subsidiary of EADS. Eurocopter is fully owned by EADS. Amongst its military products are the Tiger attack helicopter, the Puma/Cougar range of tactical transport helicopters, and the NH90 naval and utility helicopter. Although EADS is one of the largest European defence contractors, it is weighted towards commercial activity. The Airbus line continues to be its strength. The military side is much smaller, but, along with the other non-Airbus divisions, is helping EADS through the difficulties with the commercial airliner unit. Not everybody is convinced about the continuing viability of EADS. The major shareholders represent a variety of different business cultures. There is a French state holding with a dirigiste tradition. DaimlerChrysler is a large industrial firm in which large banks wield influence through their large shareholdings. Lagardère is a media conglomerate. CASA’s former parent, SEPI (Sociedad Estatal de

40 See also appendix B, figure B2.


42 A reverse of the situation in EADS’ early years, in which limited success in defence markets was more than offset by a good sales in airliners. Merritt, “Industrial Aspects,” 215-240.
Participaciones Industriales), is a Spanish state holding company. EADS has been described as “two separate companies flying in close formation”. German ministers have suggested that a state investment company should buy into EADS so that the German government could directly match the influence of the French. Cooperation is more difficult in harder times than good. Plans to streamline Airbus by selling factories and laying off staff have resulted in strikes with a nationalist flavour and interest from political figures.

EADS faces another and unusual problem with its dual-plus nationality. From Paris, EADS can be viewed as a German firm, whereas from Berlin, EADS can be viewed as a French firm. Instead of simply achieving “domesticity” in its major markets, it also achieves “foreignness” to them. The fact that it is not entirely domestic allows the governments to view it variably according to the need. When the aim is to cut defence spending, EADS’ foreign aspect can be brought to the surface: the state cannot ensure that EADS will fulfil its contracts through activities at home. Otherwise, the domestic character of EADS can be raised to encourage enthusiasm for a new programme. Reducing defence spending tends to be more popular, particularly in Germany. In France, Thales and Dassault are more distinctly French, offering appealing alternatives. Although propelled in part by a reaction to the formation of BAE Systems, the two firms

43 Merritt, “Industrial Aspects.” Also, DaimlerChrysler had its own dual identity problem, between the Daimler-Benz and Chrysler halves of the company. (This matter will return in the chapter conclusion.) It might be noted that both DaimlerChrysler and Aerospatiale Matra have large institutional shareholders, unlike British Aerospace. It may be easier for the former two to accommodate each other’s institutional influence than it would have been for British Aerospace to accept their introduction. In this way, EADS is a more promising proposition than its EADC forerunner.

are not in simple opposition. Much of EADS’ business is conducted through cooperative ventures with the British firm, including MBDA and Eurofighter.

**BAE Systems**

By far the largest British arms manufacturer is BAE Systems. British Aerospace and DASA had been contemplating a merger in 1998. Sharing the perspective of private firms, neither was keen on the French involvement in their aerospace firms. Even when the public share in Aérospatiale was reduced below half by merger with Matra, BAe and DASA were unconvinced. Despite their more commercial outlook, there were some structural hurdles to be overcome. On one hand, BAe was clearly the larger defence-aerospace firm, but on the other DaimlerChrysler would have been by far the largest single shareholder in the new entity, and therefore the dominant influence. However, progress was derailed by another event. The General Electric Company (GEC), was interested in selling its defence arm, Marconi Electronic Systems. (GEC, now called Marconi, is not related to the U.S. based General Electric Co.) This represented an opportunity for BAe to diversify away from airframes and into systems, and to consolidate its position in the U.K. market.

Although its focus is on systems and aerospace, BAE Systems has invested in the more mundane world of armoured vehicles. Alvis Vickers was the sole British builder of armoured vehicles, Alvis having consolidated the industry under its own roof. When

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45 Schmitt, *From Cooperation to Integration*, 37. DaimlerChrysler would not have had a majority share, however.

46 See also appendix B, figure B1.
U.S. based General Dynamics made a bid for Alvis Vickers, BAE Systems responded. BAE Systems’ successful bid secured its domestic market. It also gave it access to Scandinavian and South Africa markets through Alvis subsidiaries Hagglunds Vehicle and Reumech respectively. While getting into the armoured vehicles business was apparently a defensive move, BAE Systems has proceeded to acquire United Defense Industries, one of the two U.S. major armoured vehicle firms. This gives the firm a solid base in Sweden: the former Alvis Hagglunds and UDI subsidiary Bofors have been merged into BAE Systems AB, and in aerospace, 20 percent of Saab.

The opportunity was taken. BAE Systems, as the company renamed itself, became Europe’s largest defence-aerospace firm. It is the only major fixed wing aircraft manufacturer in the U.K. It has a share in the Eurofighter Typhoon, a marketing and production agreement with Saab for the Gripen, and produced the successful Hawk jet trainer and light attack aircraft. BAE Systems sold off or discontinued most of its civil airframe manufacturing. In 2006, BAE sold its 20 percent stake in Airbus, including the Airbus wing-making facilities, to EADS. BAE Systems is still regarded by European defence firms as being too large to be a viable partner for a merger.\(^{47}\) BAE Systems may otherwise seek to undertake joint ventures with continental firms, or to buy them outright. In any case, BAE Systems seems more interested in its penetration of the U.S. market.

While BAE Systems is a prime contractor in the U.K., it is a large defence subcontractor in the United States. One of the primary reasons that BAe chose to abandon continental integration in favour the of the MES merger was that MES was doing a great deal of business in the U.S., mainly through its subsidiary Tracor. BAE has

\(^{47}\) Ibid.
continued to invest in the U.S. market, and has achieved an unparalleled level of access to
Pentagon contracts. It has also been able to operate in areas of sensitive technology.
Among a few divisions of Lockheed Martin that were bought by BAE was Sanders, a
company specialising in electronic counter-measures, a particularly sensitive technology.
It is regarded to some degree as a domestic contractor within the United States. BAE
Systems may be seeking a U.S. partner for a major merger. Boeing has been mentioned,
although the Airbus connection was a problem at the time. The latter has been solved,
but it is regarded as being too soon to attempt such a major transatlantic merger.

**Thales**

The French firm Thomson-CSF emerged from the French restructuring with the
addition of the satellite unit of Aérospatiale, with Dassault Electronique and with the
defence electronics and space units of Alcatel. Non-core operations, such as commercial
appliances and telephone equipment, were transferred away from Thomson. This much
stronger firm went on to make a string of acquisitions, including Netherlands-based
Hollandse Signaalapparaten. A number of smaller British firms such as Pilkington
Optronics, Rediffusion Simulation and Shorts Missile Systems were also acquired. Its
biggest and most significant acquisition was the British firm Racal Electronics, which
was strong in defence communications and electronics. Racal undertook sensitive work
for the British government. The result was a large Franco-British defence systems firm,
which reorganised and soon renamed itself Thales.\(^48\) Thales is focussed on defence
electronic systems, for land, air defence, aerospace and marine applications. As a prime

\(^{48}\) See also appendix B, figure B3.
contractor, Thales produces little by way of platforms—guided weapons are the closest semblance of a platform. Thales is strongly oriented towards defence, but it does work in the civil security market, as well as air traffic management, to which its defence expertise can be applied.

Thales is interested in gaining access to the U.S. market, but is only beginning to convince the Pentagon to allow it the access granted to BAE Systems. Thales’ predecessor firm Thomson-CSF was interested in buying Vought Aerospace from LTV. The transaction was referred to the Committee on Foreign Investment in the United States. The expectation of a negative ruling caused Thomson-CSF to abandon the effort.49 Thales’ predecessor was state-owned, giving rise to the perception that it might be an implement of a (sometimes vociferous) foreign power. The privatised Thales was much more acceptable. Thales now has ties to Raytheon in the United States through the RaytheonThales joint venture (for which, see below).

Finmeccanica

The state holding company IRI, the Instituto per la Riconstruzione Industriale, controls the joint-stock company Finmeccanica, as well as the shipbuilder Fincantieri. Finmeccanica is the primary owner of Italian defence industries. Finmeccanica’s most important defence unit is Alenia, created by the internal merger of Aeritalia, Italy’s major aircraft producer, and Selenia, Italy’s major defence electronics and missile firm. In 1995, seven defence related firms from another state holding company, EFIM (Ente

Partecippazioni e Finanziamento Industrial Manifatturiera) Group, were transferred to Finmeccanica.\textsuperscript{50} The EFIM acquisitions included Agusta, Italy’s major helicopter firm, and OTO Melara and Breda, Italy’s major producers of large guns. Agusta was merged with GKN’s helicopter-making Westland unit. More recently, GKN was bought out and the merged AgustaWestland fell under Finmeccanica’s sole control. AgustaWestland claims to be Europe’s largest helicopter manufacturer. In defence electronics, the major operating division is Selex Sensors and Airborne Systems, the internal merger of Galileo Avionica with bought from BAE Systems, also giving this division an Anglo-Italian quality. Finmeccanica dominates the Italian defence industry, accounting for about 70 percent of Italy’s defence production.\textsuperscript{51}

Other Notable Firms

Dassault Aviation is France’s fighter aircraft manufacturer, the builder of the famous \textit{Mirage} series of fighters, attack aircraft and bombers. They have achieved considerable export success with the \textit{Mirage} line compared to other post-war European fighter aircraft. Part of this success has been the considered effort of generating specifications that would make the aircraft appealing to overseas buyers, rather than narrowly focusing on national requirements. The current fighter product is the \textit{Rafale}, under production for the \textit{Armée de l’Air} and the \textit{Aéronavale}. It has yet to achieve export sales. Dassault also produces defence electronics systems and executive jet aircraft.


\textsuperscript{51} Ibid.
The merger of Sagem (Société d'Applications Générales de l’Electricité et de la Mécanique) and Snecma (Société Nationale d’Etudes et Construction des Moteurs d’Aviation), which took place in mid-2005, formed Safran.\(^{52}\) Safran has four divisions, all of which pertain to defence, but none is restricted to it. One is aerospace propulsion, consisting of Snecma, including Turbomeca and Microturbo acquired from another French aerospace-defence firm, Labinal. Snecma is connected in the civil market to the U.S. General Electric firm, as they collaborate on the CFM56 Engine through CFM International. The other three divisions are primarily from Sagem: defence security, aircraft equipment and communications. The lack of obvious synergies between Snecma and Sagem has led to suggestions that the merger was a defensive consolidation, to prevent them from falling into foreign hands.

The British engineering firm Rolls-Royce concentrates on the production of gas turbines.\(^{53}\) Rolls-Royce engines are used on a variety of military and civil aircraft, including powerplants for large airliners and fighter jets. Rolls-Royce has also acquired the U.S. aero-engine firm Allison, much improving its access to the U.S. market. Allison engines, mainly turboprops and turboshfts, are also used in both civil and military aircraft. Not all of DaimlerChrysler’s defence businesses were incorporated into EADS, but DaimlerChrysler has largely withdrawn from the defence market. The turbine and diesel engine manufacturer MTU was kept separate, and but was later sold to a Swedish private equity firm, EQT, and renamed Tognum. Tognum makes engines for civil and military purposes.

\(^{52}\) Though it might be expected to start with “Société Anonyme,” Safran is not an acronym.

\(^{53}\) Rolls-Royce is a name more associated with cars, but Rolls-Royce cars are now built by a unit of BMW, using the name under licence.
Germany is home to two major land systems firms, Rheinmetall and Krauss-Maffei Wegmann. These two firms jointly build the successful *Leopard 2* main battle tanks, and as such are Europe’s foremost tank builders. Krauss-Maffei also produces armoured engineering vehicles, self-propelled guns, and various other light and heavy armoured vehicles. Rheinmetall is strong in ordnance, guns, armoured vehicles and defence electronics. It bought the armoured vehicle operations of the German firm Thyssen, including Henschel and MaK, giving it a variety of wheeled and tracked vehicles, but not tanks. Rheinmetall also acquired the Swiss firm Oerlikon Contraves, a maker of guns, missiles and defence electronics. Rheinmetall previously shared STN Atlas with BAE Systems, but the firm was split, leaving Rheinmetall in full control of STN’s land and aviation related assets. In the security field, Rheinmetall produces homeland security equipment, and on the civil side, Rheinmetall manufactures automotive parts.

*Overall*

The European defence industries display considerable capabilities in a wide range of sectors. The U.K. and France each cover nearly the full range of defence equipment, so Europe as a whole does by extension. Compared to U.S. industry, European industries are fragmented, with much duplication of effort. Rationalisation has taken place in the aerospace and defence electronics sectors, but fragmentation is still characteristic of the land systems and naval systems sectors. These are still organised at the national level—and not always consolidated there. Transnational consolidation has proven to be a difficult process, exacerbated by national governments and national sensitivities.
However convoluted, the process has had success. The collaborative efforts have led to jointly-owned transnational industries in some sectors, such as guided missiles and helicopters. Restructuring the naval and land systems industries now seems almost inevitable.

The European experience in collaboration has been a mix of success and failure. Repeated political bargaining, spiralling costs and delays have marked even the successful programmes. Cancellation is often the fate of unsuccessful programmes. Defence industrial firms may have to undertake further cooperative measures without much governmental support. The defence industry continues to face problems at the governmental level despite intergovernmental agreements. Different states have their own timetables, procurement procedures, planning arrangements, and laws regarding the exports of weapons and their associated technologies.

A proper European prime contractor would result from the merger of EADS and BAE Systems. Alone, the former is too civil-oriented, and the latter is not established in many major European states. The combination would approximate the original EADC vision. It is unlikely to come about, if only because of transatlantic considerations. The union would create a dominant European defence contractor that would immediately generate concerns in the U.S. over the exclusion of American defence firms from European contracting. That in turn, would jeopardise the position of BAE Systems and EADS in the U.S. market—access to which is a prize that both firms seek.\textsuperscript{54} Beyond this

\textsuperscript{54} Schmitt, “The Integration of Defence and Aerospace Industries in Europe.”
particular case, further European consolidation is conceivable, neither supplanting nor necessarily preceding transatlantic consolidation.\textsuperscript{55}

**Transatlantic Industry?**

International collaboration has not been a prominent characteristic of the U.S. defence industry. Some domestic collaboration is taking place, but even there industry consolidation has removed much of the need. U.S. defence industrial firms are large enough to undertake major projects alone, albeit with domestic subcontracting. Major subcontractors may take on part of the risk, by taking on the responsibility for entire subsystems. Nevertheless, programmes have grown alongside the firm. The U.S. Coast Guard’s Deepwater project, for instance, involves more than a single system, but requires various naval and aerial platforms and systems combined, along with life-cycle support. For these programmes, industrial partnerships are generally needed, while one firm takes the lead.

European consolidation has improved the prospects for transatlantic cooperation. BAE Systems and EADS are able to deal with U.S. firms on a much more even level. Their breadth of capabilities allows them to serve as proper partners. Previous national champions were often too small to have credibility as an equal partner. These firms can contemplate a strategic partnership with U.S. firms, not just cooperation on a single programme. Their market position is different as well. EADS and Thales have multiple “domestic” markets. BAE Systems does as well, although more of its markets outside the U.K. are also outside Europe—notably Saudi Arabia, South Africa, and the United States.

\textsuperscript{55} John Deutch, Arnold Kanter, and Brent Scowcroft, “Saving NATO’s Foundation,” *Foreign Affairs* 78,
If offsets are an issue, typically for cooperation that involves selling a U.S.-based product to a European state, then the large defence contractors have another value. They are capable of undertaking and distributing the offset requirements internally. This saves the U.S. firm from seeking out a myriad of partners to meet its offset obligations. It is advantageous for the European buyer also, in that more meaningful contributions can be made to the programme, rather than allowing offsets to be distributed amongst a variety of sectors.

Major transatlantic deals are still conspicuous by their absence. There was talk of a merger between Boeing and BAE Systems, two large companies that have formed a significant partnership. There are obvious synergies. Both firms are divided between military and commercial activities, but Boeing’s strength lies mainly in commercial aircraft, whereas BAE Systems is mainly a defence contractor. Boeing is stronger in airframes, where BAE Systems is stronger in defence systems. One obvious obstacle has been removed, since BAE Systems has sold its stake in Airbus, Boeing’s main competitor in the civil market. However, the U.S. government did not believe that the time was right for such a major transatlantic merger. Since Boeing is a larger firm than BAE Systems, the combined firm would most likely have been headquartered in the U.S. The U.K. would find its only major defence and aerospace firm had become foreign.

The difficulties faced by DaimlerChrysler may be instructive. The major transatlantic automotives firm had been offered as an example of civil efforts that could be emulated in the defence sector. The automotive industry is perhaps not as strategic as the defence industry, but it is a major industrial employer and high-profile sector, which

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no. 6 (November/December 1999): 64.
gives it political importance.\textsuperscript{56} Cast as a “merger of equals,” the merger was actually the purchase of Chrysler by Daimler-Benz. It has been a difficult union, with one division or another being a drain on the group’s resources since its formation, and with few opportunities for cost sharing. Such a move in the defence sector would also require the U.S. unit to be separated from the European half by “firewalls,” and run by a board of U.S. citizens, further undermining prospects for cost savings. In 2007, DaimlerChrysler sold the majority of its Chrysler division to a private equity firm: transatlantic cooperation can be difficult even in the civil sector.\textsuperscript{57}

Raytheon and Thales have collaborated by merging their air defence systems businesses. Aptly named ThalesRaytheonSystems perceives itself as a “system of systems integrator,” although its focus suggests “systems integrator” might be a better description. Radars, communications, air defence and command and control systems are its major product lines. As Thales is France’s defence electronics champion, and Raytheon is a core U.S. defence firm, this partnership is a significant development in transatlantic consolidation. As noted above, Thales’ investment in the U.S was made unwelcome. The acquisition of Racal, which already had high-level security clearances in the U.S., may have helped, though Thales had some ties to Raytheon which preceded that transaction.\textsuperscript{58}

\textsuperscript{56} Deutch, Kanter and Scowcroft, “Saving NATO’s Foundation,” 64.

\textsuperscript{57} The sale is underway but has not closed at the time of writing. DaimlerChrysler is expected to adopt the name “Daimler” following the sale.

Existing transatlantic efforts often seem to concentrate on market access. BAE Systems is the most significant European, or foreign for that matter, investor in the United States DIB. The U.S. has accepted BAE Systems as a reliable supplier to a unique degree. BAE Systems has been allowed to acquire firms involved in sensitive technologies. Notwithstanding the failure of the Boeing link, BAE Systems has in some ways become an American firm: the Pentagon is its largest customer.

EADS is actively seeking entry into the U.S. market, but its divided structure may not endear it to U.S. officials. Where the U.S. seeks controls over technology, the lack of unity may appear less reliable. The lingering state share may not be appealing to the U.S. either. However, helicopters from its Eurocopter unit have made significant sales to the Army and Coast Guard. EADS cooperation with Northrop Grumman has yielded some success. The Eurohawk combines a Northrop Grumman airframe, that of the Global Hawk UAV, with EADS mission systems. This type of cooperation is quite viable. Europe can acquire advanced systems, and do much of the advanced work, without having to undertake the entire project. The pre-existing U.S. platform reduces the overall costs. This is altogether different from, and altogether more shallow than, the kind of cooperation that takes place within Europe, in which technologies are jointly developed and jointly owned. That kind of cooperation is unlikely to take place on a similar scale.

International teaming is helpful for transatlantic cooperation. International teams are virtually necessary for NATO projects. Otherwise, gaining approval from the 26 member states is all but impossible. Transnational, and especially transatlantic teams are in a better position to gain NATO contracts. For instance, in the NATO Alliance Ground Surveillance, the two competing teams each contained firms domiciled on both sides of
the Atlantic. After the usual haggling over European access to American technology a winner was selected, with an industrial mix better matching the participating states. International teams also dilute the nationality of the firms involved. In competitions between different international teams, the politics and nationalism can, to some extent, drop out of the computations. Each team is likely to have a domestic partner, so every candidate will offer a mix of domestic work and imports. The “one-way” street problem disappears into the mix of partners. It is unlikely that this will become the model for the U.S., although it does have its advocates there. This is somewhat reminiscent of early European cooperation, but with competing teams.59

Transatlantic cooperation and industrial restructuring are all but prevented by the different outlooks and positions of the United States and European states. The U.S. would prefer to build systems for its own requirements and sell them to the Europeans, convinced of the superiority of its equipment. The U.S. equipment is often more advanced than European, but is not necessarily well-suited to European requirements. The RMA approach generates products that are of little interest to European armed forces, unconvinced by the relevance of the RMA to the European strategic environment. The European militaries operate at a lower level of capability, with little ambition to develop a “system-of-systems” in the U.S. vision. The U.S. in the post-9/11 period is even more focussed on U.S. requirements. Meaningful cooperation is therefore limited by the divergent requirements of the United States and Europe.

59 This section was based on confidential interviews conducted by the author.
Conclusion

Systemic and transatlantic change are primarily in the hands of the actions of states. It is in industrial developments that the indicators of systems change should be sought, and indeed can be found. The indications are fewer in the U.S. than in Europe. U.S. firms are still interested in consolidating, but have few options without state approval. Any merger between major firms which could result in rationalisation would likely create a monopoly in some sector. Instead, U.S. firms are seeking to make acquisitions abroad, to improve market access. No longer is it usually sufficient to build at home and sell abroad. U.S. defence firms are also moving into new technologies. In becoming larger, prime contractors are able to take responsibility for large programmes. Here the technologies resemble civil technologies more closely, for the systems integration roles are more reliant on developments in information technology. U.S. defence firms have also moved decisively into the services sector, taking over roles previously performed by Department of Defense personnel.

In Europe, the indications are greater. Industrial developments have outpaced state plans, as seen in the formation of BAE Systems and EADS. While not abandoning European programmes, all four European prime contactors perceive themselves as at least multinational firms. All four have found ways of entering the U.S. market to some extent. They are all aggressively globalising, regularly offering industrial workshare and technology transfer as part of their sales campaigns.
CHAPTER SEVEN

CONCLUSION

Review of the Major Argument

The international system is Westphalian in nature, characterised by state sovereignty, anarchy, and self-help. The contemporary order was brought about by the unipolar distribution of power within this system and the hegemonic role of the U.S. As hegemon, the United States provides public goods in the international system through its role in international security. The U.S. presence in Europe and East Asia in particular brings order to those parts of the world. Other parts of the world are subject to U.S. intervention. Given these starting points, there are two possible lines of major change. The particular order could change through a change in the distribution of power—so that it is no longer hegemonic, or the nature of the system could change—so that it is no longer Westphalian. The defence industrial base can tell us about the distribution of power because it is a key generator of power. It can tell us about the self-help characteristics of the system because it provides a security of supply in defence goods which cannot be found in any other way. The two types of major change require looking at the DIB in different ways.

To find out about the ambitions of state actors in the system, the way that states seek to cooperate with other states is particularly informative. To make a hegemonic
challenge, a state will need a strong DIB, independent of the hegemon: a challenger cannot be beholden to its rival. Any other dependencies are dangerous too, for other states may fall under the hegemon’s influence. Challengers therefore need to build a substantially complete DIB with near-autarky. This needs to be built in advance, so that the DIB can support the forces-in-being.

Defence industries also stand out as a useful tool for analysing the international system owing to their unusual place at the centre of political, economic, and strategic forces. Their political and strategic significance makes them resistant to smaller degrees of economic pressure: civil industry will react to economic factors more readily. Larger degrees of economic pressure cannot be ignored, for the industries must continue to produce to survive. The defence industries have a different connection to the strategic environment: defence industrial products help generate the strategic environment.

As the predominant producers and the dominant states in the current international system, major Western states are ideal subjects. To find out about change in the system, the developments which are not state-led are the crucial measures. Self-help is a necessary element of the Westphalian system. Not all states are able to be self-sufficient in defence goods, but it is a hallmark of great powers. A great power unable to maintain its independence suggests that the system is becoming unsustainable. When no power can sustain a self-help posture, then the system is in jeopardy.

Systemic Change—Not Imminent

Outwardly, it may appear as if European and U.S. trends in defence industrial organisation are suggesting a possible European challenge to U.S. hegemony. The
specifics demonstrate otherwise. Inefficiencies born of small market size and duplication have long been noted in the European defence market. For the most part, major European states were prepared to pay the price of such inefficiencies in the name of strategic independence. As particular defence products became worryingly costly, various forms of collaboration were attempted. Such collaborations were often very expensive in terms of money and time. Comparisons were particularly unfavourable to the offerings of U.S. firms working alone in a larger market. At least on cost measures, collaboration was favourable in comparison to a national-scale product in Europe. Through experience, collaborations became better organised and more efficient, but there was little inducement for major European-level rationalisation. Collaboration was a means to limit the exposure to dependence, while improving the effectiveness of a given level of defence expenditure.

The initiative instead fell to the United States. After the “last supper,” U.S. firms were induced to consolidate much more than would have previously been allowed. The principles of competition and duplication in the defence market were reduced to the minimal level, and sometimes abandoned altogether in favour of monopolies. Only then, faced with industrial giants in every major defence sector, did Europe respond, for then European defence industries were caught in a double bind. The unified market allows the U.S. to take advantage of the ways that uneven development can be to the advantage of the strong—through the beneficial effects of the concentration of talent and through larger programmes. Divided European states were unable to take advantage in the same way. Nor could they take advantage of the ways that uneven development can be to the advantage of the weak—through imitation and the demonstration effects of leading firms.
and states. Non-NATO, non-EU suppliers are set to gain more from reverse-engineering advanced equipment. These second-tier suppliers also constitute a competitive threat to European industries. Furthermore, waiting for United States’ designs to emerge would leave European states too far behind.

The only response is to emulate the U.S. model in some way. Intra-European consolidation is promoted to give European firms the economies of scale and depth of resources needed to compete with U.S. firms. The alternative appeared to be obsolescence of defence technology born of fragmentation. The primary thrust of state-led cross-border industrial integration in the form of EADC did not succeed, but did not scuttle the idea. Organisations such as OCCAR and the EDA are manifestations of the European national willingness to integrate. This willingness has allowed industry-led cross-border consolidation, of which EADS and MBDA are the best examples.

European consolidation already is recognised as a second-best option. Indeed, the United States is the key market when it is available, overwhelming other options. Operating in the U.S. market can be very difficult for foreign firms, so the attraction is offset by potential pitfalls. Obstacles can be overcome; it is the generally closed nature of the U.S. market which usually keeps European firms at bay. For European firms, transatlantic expansion is difficult. Those firms that do gain some access maximise the opportunity, as have BAE Systems, Rolls-Royce, and Thales. BAE Systems in particular has been withdrawing from European collaborative ventures, once so carefully negotiated (typically by the government), in order to be able to apply the recovered capital to acquisitions in the U.S.
In Gilpin’s terms, the marginal benefits to Europe for changing the system are relatively small compared to the costs. The changes that European states seek are at a transaction level. By merging their defence industrial markets, European defence industries will be in a better position vis-à-vis their American counterparts, and will rise above the second-tier competition. While European states are trying to improve the rates of transaction to their advantage, the U.S. was the first to move, and it is the state that had reset the rules by managing competition in its home market. Of course, major European defence markets are by no means fully open, and moves to open them are mainly with respect to other European states. It is the smaller European markets, where the defence industry is small and most likely specialised, that are more open to U.S. products. A “fortress Europe” is made much more difficult by the differing interests of states, differentiated by their variable levels of defence industrial capability as well as by national views on strategic interests. The “fortress America” on the other hand is just as open as the U.S. wishes it to be. European consolidation, much as the collaboration before it, is a defensive approach intended to maintain the viability of European defence industries in the face of market pressures and spending restrictions, rather than a strategic move to challenge the primacy U.S. defence industrial system.

The U.S., in taking the initiative, could not have been reacting to a perceived challenge from Europe. The defence industrial consolidation was a retrenching move in the aftermath of the Cold War. The U.S. was reverting to a level that would be less costly to maintain. Duplication and competition, valued during the Cold War to maintain defence industrial capacity and backup systems, were no longer perceived as necessary. Cost-efficiency became more important, appearing through facilitated industrial
consolidation and changing procurement practices. Only selectively integrating with the European DIB is the position of a hegemon: maintaining primacy while not seeming uncooperative. Expanding into European markets is an appealing option for U.S. firms, which, like European firms in the U.S., find the opportunities to be few. U.S. firms have taken advantage where possible, acquiring Santa Barbara, Bofors, and Smiths, amongst others. Finally, selective cooperation has the effect of dividing European states and firms, reducing the competitive pressure.

China is another matter. It is developing a defence industrial base that is independent of the United States. The U.S. is a source of technology, and cooperation exists in the civil market. For key defence technologies for which there is no domestic expertise and is distinctly defence-oriented, China often favours Russian sources. Russia is one of the few states with strong defence industrial capabilities and a defence technology base that is independent of the United States. China does not yet have the full range of defence industrial capabilities, nor an adequate level of defence technology to present a challenge, but may eventually. However, such a conventional challenge may be pre-empted by the emergence of a higher-level change.

*Systems Change—Difficult to Avert*

The possibility of systems change is driven by three related main factors outside of the direct control of states. The first is defence inflation, in which defence products experience a higher rate of inflation than civil products over the long run. This differential derives from the way that defence equipment is valued: not for its inherent capabilities, but the relative capability to other equipment that may be fielded against it.
The second factor is globalisation. The drive for efficiency in civil markets has made them spread out their function around the world. Only the upper tiers of the defence industries, the prime contractors and major subcontractors are typically subject to national constraints. The middle and lower tier subcontractors of the defence industrial supply chain are typically civil-sector firms, and may already be globalised. Not only can productive efficiency be improved, but making use of foreign centres of excellence can make global production defence products more effective. The third major factor is the convergence of civil and military technologies and processes. The civil sector can raise more capital for research and development, as the civil sector is larger than the defence sector, and better integrated internationally. No longer can it be assumed that defence technology is normally in advance of civil technology. In many crucial fields, civil technologies have surpassed defence technologies, and stay ahead with more rapid replacement schedules. Indeed, it is the demonstration effect of the civil applications of information technology which are providing the impetus for similar changes in defence systems.

These factors undermine the nationally independent security of supply, for autarky becomes too expensive and compromises capability as well. The system can be expected to change if there is greater risk in autarky than in interdependence or globalisation. This is the test of the viability of national defence industrial bases. Signs that national defence industries are succumbing to change include: the internationalisation of defence industrial firms; private firms taking over role previously undertaken only by the state defence apparatus; a tendency to seek to maximise the market area to keep defence affordable; and the convergence of civil and military
industrial firms. Let us consider, for the sake of this argument, several interesting cases, starting with the one closest to home.

_Canada_ has a small defence industry amongst major states, and a low perception of threat owing to its convenient geostrategic position. As such, the Canadian defence industrial base is more susceptible to adverse trends for security of supply. Therefore, the early loss of self-sufficiency in defence production is unsurprising. Canadian-owned firms are more likely to be diversified between civil and military markets. Canadian subsidiaries of U.S. defence firms are often more focused on defence production, such as with General Dynamics’ various Canadian units. The Canadian defence industry features both globalisation (or at least Americanisation) and civil-military convergence. Indeed Canada’s largest defence contractor, CAE, uses broadly similar technologies for both its defence and civil equipment. There are some moves in Canada towards increasing the commercial character of defence, in the interest of reducing costs. “Alternate Service Delivery” (ASD) has not achieved the expected cost savings, but has delivered some.¹ One element of ASD is the NATO Flying Training in Canada programme. It has proven to be a successful privately owned and operated training service and has attracted business from Denmark, Italy, Singapore and the U.K.

Or take _Italy_: most of its collaborations are within Europe, but Italy has a history of licencing U.S. designs in aviation. This pattern has transformed to more active participation, but the pattern can still be seen with Italian participation in the JSF and MEADS programmes. Most defence industrial assets have been concentrated in one firm, Finmeccanica, which is focused on defence production. As well as being the national

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champion (outside of the naval sector), Finmeccanica is trying to make the U.K. its second national market, while maintaining ties to EADS. Italy has been less ambitious about its international situation, and consequently about its defence industry. Less committed to self-sufficiency, the Italian defence industry has suffered less from changes which make self-sufficiency infeasible.

In some ways, Germany’s “civilian power” outlook eases the transition to the post-post-Cold War defence industrial conditions. On the other hand, Germany’s reserve with respect to defence and the defence industry has made the transition more difficult. Germany has allowed its major defence interests to combine at the European level, except that it has special plans for the land systems industry. Perceived as a German area of excellence, the German preference would be to lead European efforts in that sector. The German land systems and naval industries remain defence oriented, but defence electronics and aerospace have been given over to European level consolidation. Both the land systems sector and naval sectors have been rationalised, but not to the extent of creating a national champion in either sector. Once attached to the mainly civil firm Daimler-Benz, now DaimlerChrysler, has merged its aerospace operations into EADS, which is more a civil business than a defence business. The MTU engineering firm was sold to a Swedish equity firm, EQT. Another foreign penetration was the acquisition of submarine builder HDW by another equity firm, U.S.-based Equity One. HDW has since returned to German ownership under ThyssenKrupp.

In the post-post-Cold War period, Sweden’s defence industrial independence has been slipping. Saab has become the predominant defence contractor in Sweden, selling its civil automobile business, and acquiring domestic rivals in the defence market, such as
Celsius and Ericsson Microwave. However, it has increased its external links: BAE Systems is now a 20 percent shareholder in the firm. Other foreign penetrations include Bofors, bought by United Defense of the U.S. and Hagglunds Vehicle, bought by Alvis of the U.K. The changes in the Swedish defence industrial landscape are significant. Sweden, while a smaller state than Canada, has traditionally had a much higher motivation for self-sufficiency: neutrality. Sweden has long maintained an independent defence industrial base. Autonomy in defence equipment has been seen as an important contributor to overall autonomy, and therefore neutrality.

France's defence industry has become more divided between defence and civil spheres, as reorganisation of state-owned firms has tended to consolidate defence-related assets. Selected internationalisation, rather than globalisation, might better characterise the cross-border efforts of the French defence industry. EADS is the most important example, incorporating French aerospace assets deliberately with German and Spanish, with careful attention paid to the balance of ownership and power. Thales is the other French firm with major units abroad, which as kept its national identity. Unlike Germany, France has retained a major national aerospace firm, fighter-maker Dassault. France has been privatising its once mostly national defence industries. The arrangements for privatisation have been unorthodox and convoluted to retain domestic ownership, but the end result is that the French state maintains a much smaller share of the major defence firms.

The U.K.'s greater preference for market solutions has nevertheless led to a concentration of most defence activity into a single “national champion”: BAE Systems. Globalisation is also prevalent. BAE Systems reflects the British preference for
transatlanticism, doing more business in the U.S. than in the U.K. Major investment in the DIB comes from France, through Thales, Italy, through AgustaWestland and Selex, and the U.S., mainly through subsidiaries of major U.S. defence contractors. The British Aerospace roots of BAE Systems were in broad civil and military aerospace, but the firm has shifted to a strong defence focus. In aerospace and land systems, BAE Systems is dominant. In electronics Thales is the major competitor. The British government is still seeking rationalisation in the naval sector. The U.K. has gone further than any of the other major European states in opening defence functions to the private sector. Training, asset management, and defence support functions have been contracted out. Even the Defence Evaluation and Research Agency has been largely privatised.

The opportunity did exist to build a viable European common market for defence, as well as common European defence industrial base. The EDA and OCCAR show continued interest, but the principle is dated, for now the whole of the market is too small. Where Canada abandoned self-sufficiency in defence-industrial production decades ago, the major European states are learning the lesson twice. They are finding that self-sufficiency is viable neither at the national nor the European level: the market scale is global. The global market does have one disproportionate component: the U.S. market. For all major European firms, the U.S. is the ultimate prize. The opportunities can be limited, but are pursued vigorously. For European contractors, becoming international will necessitate working with the U.S. An attempt now to build a European DIB would be misguided: the result would be anachronistic at its emergence. But the national champions and nationalism are fading in Europe. Even the continental base is too small. The European firms are not competing just with each other and the United
States, but also with the Israelis, South Africans, and the Chinese. A European defence industry chief executive remarked that the benefit of doing business in Europe was that it was closer to home. Otherwise, there was no difference—and specifically no preference for doing business in Europe rather than further abroad. There is recognition in the European industry that Europe is not a natural scope for the business of defence.²

Civil-military convergence has not had one effect that might be expected of it: the movement of civil industry into the military sector.³ For major European states, the distinction between civil and military industries has traditionally been less marked, except where national arsenals were involved. The incorporation of commercial specification equipment into defence systems is similarly less problematic or unusual. Despite that, the movement has been towards a greater separation. Such firms as Ericsson in Sweden, DaimlerChrysler in Germany, Alcatel in France, GKN in the U.K., and Fiat in Italy have sold off or demerged their defence-focused assets. Instead, commercialisation is occurring further down in the subcontractor levels of the defence industry, where it was already prevalent. Subcontractors deal with other firms, rather than defence departments directly, and are able to bid on familiar, commercial, requirements. For major civil firms, defence is a small sector of the global market, and dealing with defence requirements is bothersome. Large defence contractors have the experience in dealing with defence departments, and the capabilities to apply technologies to defence purposes.

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² This section was based on confidential interviews conducted by the author.

The United States is the final test. It has the greatest resistance to the trends that are adversely affecting the state’s ability to provide for its autonomous security. It also makes the largest contribution in forming and maintaining that system, a task for which such security resources are essential. Recall the last two of Gilpin’s five principles of change:

4. Once an equilibrium between the costs and benefits of further change and expansion is reached, the tendency is for the economic costs of maintaining the status quo to rise faster than the economic capacity to support the status quo.

5. If the disequilibrium in the international system is not resolved, then the system will be changed, and a new equilibrium reflecting the redistribution of power will be established.4

The increase of the costs of maintaining the system can be found in defence inflation. For all states, maintaining their position is increasingly expensive. Defence inflation can be accommodated with increased spending, but few states in the West are prepared to make that investment. So far the United States is doing so.

There is continuing resistance in the U.S. to allow the DIB to be affected by the forces of globalisation. Large increases in U.S. defence spending have allowed the U.S. to remain aloof. The fact that much of that increase is currently directed towards operations shows that there is further room for spending on defence procurement should these operations come to an end. Yet, the global civil market for dual-use technologies greatly exceeds the U.S. defence market and always will—keeping ahead through spending is a losing battle.

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Trends in globalisation and civil-military convergence continue. In part, this is an attempt to suppress defence inflation. It is also the effect of much larger civil markets that are developing related technologies. That is not a coincidence: it is civil-sector developments that are driving ideas about how defence technologies will develop. Ideas about transformation in defence involve harnessing advances in communications, computers and information technology to develop higher battlespace awareness, and to direct weapons with maximum efficiency. These advances are to be found in the civil sector; they are technologies that allow firms to optimise their production and services. They are technologies associated with globalisation: real-time networks. These technologies are not merely subject to globalisation, but are a driving force behind globalisation. The very technologies that the U.S. intends to transform the battlefield are precisely those over which it cannot maintain control. The revolution intended for military affairs is one that has already established itself in civil affairs.

The U.S. is also increasingly reliant on the civil sector for defence services. The rise of service oriented defence contractors is an indication of how this has taken place. Many are directed towards the maintenance of defence infrastructure. However, many firms have made their mark by operating alongside U.S. forces in Iraq, notably (or perhaps notoriously) Halliburton. Training, communications, and research and development functions are also being taken over by the private sector.

The scale needed to properly exploit technologies for defence purposes efficiently is global. Even the United States, in expending half of the world’s research and development effort in defence, is unable to do so alone. Of course, the U.S. is by far the
closest to being able to do so.\textsuperscript{5} Should this trend continue, defence in general will be unable to incorporate fully the technologies available. Civil technological development will have left defence development behind. States may not have the option of optimising their armed forces technologically, but instead have only the option of which fragments to incorporate.

**The Significance of Change**

While an examination of defence industries does suggest that a systems change is on the way, it is not yet imminent. The United States can afford to sustain current and higher levels of defence expenditure as it did during the Cold War. The trends that are likely to give rise to change may be reversible over short time frames, but defence inflation, the adoption of civil technologies into defence, and globalisation can be expected to continue in the long run. Systemic change could occur first, perhaps owing to a U.S.-China rivalry. Such a change could delay the onset of systems change by raising the tolerance for defence expenditures. The globalisation effect might be reversed to some extent by policy, but at the expense of capability. The advance of civil and dual-use technology relative to that of defence would be reduced by increased effort on the defence side—but the civil side will still find a much larger market. A hegemonic challenge might also bring systems change forward by increasing the strategic value of marginal improvements in defence equipment. This would increase the rate of development, and drive costs up more rapidly. The quest for more efficient solutions in

\footnote{Kenneth Waltz, *Theory of International Politics*, Reading, Mass: Addison Wesley, 1979, 179.}
the face of need could also drive the globalisation and commercialisation processes forward.

What kind of system might emerge from a systems change is not so readily apparent, but some indication may be found from states that have already succumbed to the loss of autonomy in defence industrial production. Canada and smaller European states are in that category. Signs may also be visible in larger European states that are undergoing transformation in the anticipation of a more open European defence market. Other possible characteristics of a future system may be those associated with the introduction of civil sector influences.

If the machineries of warfare are global in their design and production, the future of national defence industries could resemble the Canadian model. The Canadian defence industry retains the ability to adapt defence products to the specifics of Canadian requirements, as well as the ability to maintain and support defence equipment. Some “centres of excellence” would be contained within specific states, such as CAE aircraft simulators in Canada. Such niches are too narrow to provide the range of military requirements of a state, but are a valuable element of the global system of defence production, and may provide occasional leverage in international markets. Foreign penetration of the market would be balanced by overseas investment, both tying the domestic industry to international industry. Wide-ranging prime contracting capability is lost, in favour of limited sector prime contracting. For some specific sectors there will be a domestic choice, but in general this should allow for dispersed and variable sourcing of defence equipment. That, in principle, allows the state to seek to optimise equipment choices for specification and efficiency without partiality. The reality of offset
agreements means that the opportunity is typically employed to maximise domestic content instead.

The Canadian experience in internationalisation took place early, and was tied to a specific state—a state that protected Canada. That protection also gave Canada an unusually high degree of strategic security. The result was “continentalisation” rather than globalisation. Extending the pattern to other states would imply a wider variety of influences and sources. In less secure circumstances, states could be projected to use their buying power to primarily to improve their defensive capabilities.

Another possible model is the European model. European states cover a wide variety of defence industrial capabilities, giving a breadth of possibilities. For smaller states, the situation is much like Canada, but their defence industries are not tied to just one state. Larger states seek to collaborate on major programmes, but in general still prefer to select domestic firms for procurements which are within their capabilities. The European “ideal” for the defence industry would be to emulate the civil sector integration of which Europe is so proud. This would make the European defence market like an integrated national defence market, except that there are a number of buyers. Extending this idea to the world would make defence goods like civil goods, with global manufacturing, distributed capabilities, and extensive interdependence.

The European example is also upset by strategic considerations: European integration is unique. It took place under the protection of the United States both from outside threats and as reassurance against those from within. Expanded to the whole world, there could be no outside threats, but internal threats would not be quelled.

6 The European ideal would be for a single collective buyer, but this cannot be expanded to the world.
Another, more important consideration remains: a system has emergent qualities. A system is not simply the sum of its parts, but also the effects of their interactions. A new system implies new sources of power, new threats, and possibly new actors. New bases of power implies a new distribution of power and a new hierarchy of prestige.

A widely accepted principle of national sovereignty is the monopoly of legitimate violence. Force generation is typically organised at a national level. The most integrated group of states, the European Union, maintains armed forces entirely organised at a national level. There are a few elements of integrated forces, most notably the Eurocorps, but even there, it is only the headquarters that are integrated: elements of actual force are still national. This is one area in which change may be expected. Commercial firms are already establishing themselves in areas of military service. This form of defence service was once limited to behind the lines activities, but is creeping towards the front. There are few firms willing to actually engage in fighting, but it is not a far step from the provision of military support services. Most of the fighting in Iraq has taken place after the supposed main battles were won, and it is in this arena that defence service firms are most active.7 It is also the arena in which other non-state actors are engaging in combat, insurgents from Iraq and abroad. Global terror networks are another possible source of non-state violence. Its legitimacy is limited in the current system. In a system without the state monopoly on legitimate violence, the distributed but real support that terrorists have may seem as legitimate as any.

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A broader understanding of security will be needed. National security involves an array of civil structures and these are monitored by civil actors, not military actors. Addressing critical infrastructure security, such as water supplies and computer networks, will involve civil actors and, where military actors are involved it will be in cooperation with their civil counterparts. Conventional weapons with high technology added on will be of little value in defending critical infrastructure from unconventional attacks. Civil, as well as traditional military equipment will be vital.

Defence departments may not be ideally situated to grasp the applications of technology to security problems. Part of the problem is the changing nature of security. Defence departments are tasked with military security, which is not the totality of national security. If the initiative on defence technology passes to the private sector, then the initiative on doctrine may also. The defence establishments are often constrained by the need to replace aging equipment. This gives “replacement thinking” the priority. As defence departments are the buyers, defence industries will seek to meet the required specifications. Thus conventional weapons with electronic augmentation to improve efficiency are offered. This may not be the ideal application of new technologies. Conceptual thinking about the nature of national security and how new technologies might be deployed against them is lacking. Firms can have a better idea on how their technologies might be used, developing new applications along with new technologies. Just as defence technologies are converging with civil technologies, military and civil

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security issues are overlapping. Perhaps information technologies can be used to
generate an appropriate military-civil continuum to counter such a range of threats.

Just as the defence industry has lost the lead in many fields to commercial
technologies, the doctrinal lead has followed in some respects. The defence
establishments are not as familiar with the capabilities and applications of new
technologies as commercial firms can be. The outcome tends to be standard pieces of
military equipment with electronic parts added on to improve effectiveness. This is quite
different to an approach in which the new technologies are central, or to an approach in
which the security threats drive developments. In some cases defence firms do have
better ideas, but must produce what defence establishments will buy.9 It is possible that
defence firms may not fully grasp the possibilities for commercial technologies. To the
extent that defence industries are distinct or partitioned from their commercial
counterparts, commercial practices surrounding new technologies may be overlooked or
misunderstood.10 In the leader in the RMA, the United States, defence industries are
typically divorced from civil industries, even within the same firm. So, with some irony,
the defence industries of the United States may be less familiar with the applications of
commercial technologies than firms elsewhere.

The international system is the highest level of political organisation, and is
always a matter of interest. The last major shift in the system was the end of the Cold
War and consequent end of bipolarity. It was a change that caught many observers by
surprise. The international relations community did not, in general, anticipate the change.

9 This section was based on confidential interviews conducted by the author.
An examination of the defence industry might have been appropriate. The Soviet Union had an over-developed defence industry that compromised its long-term competitiveness, in contrast with the West where the relative defence effort was much lower. However, as a totalitarian state, information about the condition of the Soviet defence industrial base was speculative, and in a command economy, appropriate measures were hard to determine. Of course, many defence programmes will continue to be highly classified. Nevertheless, the broader picture will be easier to determine: listed defence firms need to provide figures for shareholders and investors. An opportunity to anticipate change in the international system is valuable in itself; another task is to anticipate the overall nature of the next system.

10 It is notable that many discussions of historical revolutions in military affairs, there is a corresponding social and/or political revolution.


Dewitt, David B. and John J. Kirton, Canada as a Principal Power: a Study in Foreign Policy and International Relations, Toronto: John Wiley & Sons, 1983.


Haglund, David G. “Has France Finally Said auf Wiedersehen to Its German ‘Problem’?” Orbis 48, no. 3 (Summer 2004): 381-395.


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APPENDIX A:

CONSOLIDATION IN THE U.S. DEFENCE INDUSTRIAL BASE

Figure A1: The Formation of Lockheed Martin and L-3 Communications 1990-1997.


Unisys Federal Systems

IBM Federal Systems

LTV Missiles

Ford Aerospace

Loral

GE Aerospace

Martin Marietta

General Dynamics Space Systems

General Dynamics Convair

Lockheed

Figure A2: The Major Acquisitions of Raytheon 1990-1997

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Source: ibid.

Figure A3: The Major Acquisitions of Boeing 1990-1997

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Source: ibid.
Figure A4: The Formation and Major Acquisitions of Northrop Grumman


TRW Inc

Newport News Shipbuilding

Litton

Teledyne Ryan Aeronautical

Logicon

Westinghouse Electronic Systems Group

LTV Vought Aircraft

Grumman

Northrop Grumman

Northrop

Source: Aviation Week and Space Technology, augmented by the author.

Note: This chart has a different timeline to the previous three. For most U.S. defence contractors, the period of consolidation was in the mid-1990s. The blocking of the merger with Lockheed Martin made it necessary for Northrop Grumman to revise its corporate strategy, and it continued make major acquisitions when the other major prime contractors slowed the reshaping of their portfolios.
APPENDIX B:

CONSOLIDATION IN THE EUROPEAN DEFENCE INDUSTRIES

Figure B1: The Formation and Major Acquisitions of BAE Systems

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<th>British Aerospace</th>
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<td>Reflectone (UK)</td>
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<td>Royal Ordnance (UK)</td>
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<td>Heckler &amp; Koch (Germany) [divested 2002]</td>
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<td>AWADI (Australia)</td>
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<td>LFK (Germany) (15%)</td>
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<td>STN Atlas Elektronik (Germany) 49% [divided 2003]</td>
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<td>BAeSEMA (UK)</td>
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<td>Saab (Sweden) 35%</td>
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<td>Siemens Plessey Systems (Germany)</td>
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<td>Marconi Electronic Systems (UK)</td>
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<td>Lockheed Martin Control Systems (US)</td>
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<td>Aerosystems International (UK)</td>
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<td>United Defence (US)</td>
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Note: Concentration on the UK and US markets.
Figure B2: The Formation and Major Acquisitions of EADS


Matra Haute Technologies (France)  

Aerospatiale (France)  

Siemens Defence Electronics (Germany)  

MBB (Germany)  

AEG (Germany)  

Dornier (Germany)  

MTU (Germany)  

DASA (Germany)  

CASA (Spain)  

Patria Industries (Finland) 27%  

Astrium (UK)  

Siemens unit (Germany)  

Racal Instruments (US)  

Nokia unit (Finland)


Note: Major elements of the German aerospace and defence electronic sectors were undergoing national consolidation in the early period of the chart.
Figure B3: The Major Acquisitions of Thales

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<td>Pilkington Optronics (UK) 50%</td>
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<td>Aerospatiale's military electronics unit (France)</td>
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*Notes:* Thales’ concentration on the domestic and U.K. markets. Also, Shorts Missile Systems is listed as a purchase from Canada, presumably because it was bought from Bombardier of Canada, but is based in Northern Ireland.
APPENDIX C:
DEFENCE EXPENDITURES

Table C1: Defence Expenditures for European and NATO States 1996-2005

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*Note:* States joining NATO and the EU are added to the totals in the year of their accession. Numbers are in millions of constant 2003 U.S. dollars.