NATO Force Planning: Rethinking the Defense Industrial Base

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The Ukraine war has many lessons for NATO, but one of the key lessons is the need to rethink the linkage between its force planning and its defense industrial base. Some of these lessons reinforce the lessons of past national, NATO, and EU studies. Some illustrate the need to take a new approach to shaping the industrial base of NATO states and their strategic partners, and some are tied to the need to look beyond defense and to look at the national and collective trends in terms of grand strategy.

Reinforcing Past Warnings and Lessons

The familiar lessons both reinforce the warnings of many past studies, and they show the steady growth in the urgency of ending the decline in capability and the need to tie national industrial bases and force planning together in some integrated approach to reshaping NATO forces. The war has already shown all too clearly that the following past warnings and lessons have become more urgent and that any attempt to reshape and modernize NATO must take these warnings and lessons into account:

- NATO’s defense industrial base is deeply divided by country and has far too many different weapons systems; munitions; C4I/battle management systems; and different needs for supply, maintenance, and combat reports.

- These divisions and variances deprive NATO of major potential economies of scale, and they create major problems in interoperability and effective alliance-wide modernization efforts.

- Many parts of NATO’s diverse national systems of weapons development and production have very limited surge capability. It can take years for given countries to rebuild stocks of modern and critical weapons even after comparatively limited expenditures of equipment and munitions in wars like the conflict in Ukraine.

- Major development and production capabilities are concentrated in relatively few countries whose major firms have experienced a steady process of consolidation that limit both development and production capabilities.

- Many countries retain large inventories of aging and low-quality weapons, munitions, and support systems. Significant numbers of these systems have no supporting industrial base capability and cannot be replaced, supplied, or supported in face of combat losses and the stress of supporting active military operations. In some cases, such systems may have some marginal value in limited wars, but in all too many cases, the weapons and technologies involved have aged to the point where they have created the equivalent of a military junkyard.

- In spite of years of studies and warnings, little or no progress has been made in dealing with these issues in most countries with major defense industries and development efforts, and the growing diversity between national weapons holdings and production capabilities that has been driven by changes at the national level – and by absorbing former Warsaw Pact countries – has made things worse at a national level.
Creating New Warnings and Force Improvement Priorities

The war has been relatively limited in scale, and it so far has only involved the limited use of new weapons, technology, and tactics. In broad terms, it has been a relatively slow-moving land war of attrition. Even so, it has shown that NATO also faces new requirements in terms of tactics and technology. The war in Ukraine highlights major issues that go far beyond NATO’s current levels of engagement:

- Ukrainian forces could not have survived even the initial period of combat without extensive support from other countries – with much of the conflict shaped by weapons and technology far more advanced than ones possessed by Ukraine at the start of the conflict. Ukrainian forces were, instead, able to fight by drawing on the NATO alliance’s industrial base, willingness to transfer advanced weapons, and ability to rapidly deploy new weapons systems that Ukrainian forces could quickly learn to support and operate.

NATO’s industrial base, weapons holdings, munitions, and supplies cannot be restricted to the support of national versus alliance-wide operations. The need for alliance-wide support of military operations will be even more important when a member country, rather than a strategic partner, is involved. Logistics can only be a national responsibility to the point where military reality intervenes – an intervention that may well be required before any form of active conflict takes place.

- Even though the Ukraine war has been limited and relatively simple by the standards of an all-out theater-wide NATO conflict, it has still shown that emerging and disruptive technologies (EDTs) like drones, precision-guided artillery and missiles, anti-air and anti-ship missiles, and new intelligence and targeting systems can radically alter the patterns of conflict on both sides. NATO and its member countries must seek to fully exploit EDTs at every level. Any effort to improve NATO’s defense industrial base must focus on shaping the future, and not on trying to fix the past.

- Quite aside from the patterns of combat to date, the Ukraine war has shown all too clearly that NATO is now likely to face a mid- to long-term threat of major combat with Russia, as well as evolving threats from terrorism and China. NATO’s industrial base will have to address all of the key priorities laid out in the NATO 2022 Strategic Concept. These include creating advances in air and missile defenses, space, cyber warfare, and modernization of sea power to deal with the full range of major threats and to create a spectrum of defenses and strike systems that can deter and defend against evolving long-range conventional and nuclear strike systems as well as the other major new priorities outlined in the Strategic Concept.

- A review of the unclassified data on NATO’s country force plans in the International Institute for Strategic Studies (IISS) Military Balance and the country reports of IHS Janes make it clear that many of the defense industrial bases, force structures, and interoperability of NATO countries are certain to remain over the coming decade even in the face of the best organized NATO force improvement efforts. Past failures and probably future resources virtually ensure this. At the same time, there is little prospect that NATO countries – and NATO’s strategic partners – will agree to fully standardize their force structures and force plans.
Many NATO countries – like the UK and the U.S. – are seeking to create new capabilities through what the U.S. calls joint all-domain operations (JADO). This would involve the creation of new battle management, intelligence, sensor, communications, and computer systems using artificial intelligence that could link a wide range of different systems together in near real time, cut across military services, integrate defense-wide functions, and ideally alter the user to new options and warn of newly developing problems. This potentially could radically reduce the problems in interoperability between countries and within their forces, using software, advanced communications, and AI to reduce the need to manufacture weapons platforms and other military hardware.

Russia did not succeed in deploying its most modern weapons in ways that quickly defeated Ukraine, but it remains a major competitor in every aspect of military development, technology, and tactics. To date, NATO, the EU, and member countries have tended to focus on industrial base issues without making detailed net assessments of NATO’s member countries’ and Russian military technology, the priorities of each side’s weapons production, given aspects of weapons technology and military production, and industrial and STEM capacities.

Following the Ukraine war, destroyed and captured Russian equipment revealed Russia’s reliance on imports of key foreign technology and components. NATO, the EU, and the U.S. must exploit this vulnerability in Russia’s defense industrial base by securing Western supply chains and denying Russian access to critical technology.

Rethinking the Defense Industrial Base in Grand Strategic Terms

Finally, a number of NATO, EU, and national studies have already raised the issue that developing the defense industrial base cannot be separated from the need to examine the overall trends in national STEM capabilities and the decline in the overall share of manufacturing in many Western states. This issue is particularly important given the massive effort China is making to improve its overall STEM capabilities and leading role as a global manufacturer. NATO needs to review its defense industrial base relative to the overall trends in national civil-military efforts – not simply in terms of defense-related industrial activity.

This same need to look beyond national, NATO, and EU industrial capabilities applies to net assessments that include China as well as on the industrial bases and arms transfer options affecting Iran, North Korea, and major terrorist movements. The new Strategic Concept explicitly recognizes that the People’s Republic of China’s “stated ambitions and coercive policies challenge our interest, security, and values,” and it recognizes that NATO must work with partners in the Indo-Pacific region as well as the Middle East and North Africa.

Given the steady advances in the advanced military technology in partners like Australia, Japan, and South Korea, NATO now needs to consider options for global cooperation with Asian and other strategic patterns as well as advances in the industrial base of other global threats.

Most past assessments of the defense industrial base have tended to focus on weapons and various forms of hardware as well as on the ability to develop and produce major weapons platforms like armor and artillery, aircraft, and ships. Both remain key aspects of the industrial base, but the share of the industrial base devoted to manufacturing has
steadily declined since the late 1950s, and the importance of the technologies that support new forms of software, artificial intelligence, services, and global links and trade have increased in the process.

One key question is the extent to which these shifts away from the past “hardware”-oriented definition of manufacturing has made NATO less-dependent on the related aspects of technology, conventional manufacturing, component imports, and trade-linkages to imports of the materials and subcomponents used in producing military equipment. More broadly, however, the issue arises as to how the evolution and capability of the “soft” and service sectors of the industrial base should be now assessed and compared, and to which it alters – and potentially reduces – the need for past forms of “hardware” manufacturing capability.

- More broadly, focusing on the previous trends in the capacities of NATO’s diverse defense industrial base needed in the past presents the same potential problems in assessing needed capabilities that existed before World War I (where poison gas, the role of artillery; and the impact of the machine gun, aerial reconnaissance, and trench warfare radically changed military forces); before World War II (where tanks and other armor, tactical and strategic bombing, radar and advance code breaking, carrier and amphibious warfare, nuclear weapons, the global scale of warfare, and massive combat losses changed warfare), and more recently in conflicts from Vietnam to the present (where space, cyber, precision-guided weapons, new intelligence and battle management systems, improved deep strike capabilities, higher lethali ties, and new barriers to given types of escalation have also change military needs).

One potential lesson of these trends from Vietnam through the current fighting in Ukraine is the extent to which very sophisticated major weapons platforms like armor, aircraft, ships, intelligence, and hypersonic weapons are still needed versus (a) placing growing reliance on supporting sensor, intelligence, targeting, and battle management systems; (b) exploiting the proliferation of “smart” medium-range anti-armor weapons, longer-range artillery and precision guided rounds, and more advanced missile systems; and/or (c) developing the ability to link all national and allied systems together in some credible form of alliance-wide JADO that can rapidly alter its structure to deal with different contingencies.

- At the same time, the distinctions between competition in developing the defense industrial base and the developing overall industrial base – from key minerals to subcomponents to coding all the way up to finished weapons and AI systems is growing steadily smaller. This is also occurring at a time major powers are competing in overall political and economic terms, and where that competition often focuses more of deterrence and political objectives than contingencies involving warfighting.

As part of this global civil-military competition, nations differ sharply in the rate at which they are shifting their civil and military dependence on imports ranging from critical minerals to the most advanced solid-state components and manufacturing technology. The same is true of competition in every aspect of STEM capability, and in their focus on the many different areas of emerging and disruptive technologies. The present civil-military competition between China and NATO/its strategic partners illustrates just how serious this grand strategic aspect of global competition is, but so
will the extent to which NATO Europe and Russia improve their capabilities as a result of the impact of the Ukraine conflict.

- It is also striking that the Ukraine war has again highlighted the overall lack of any meaningful net assessment of the size and efficiency of both NATO countries’ and Russian military spending, expenditure, and development of their respective military industrial bases – a near intellectual vacuum that also applies to net assessments of NATO national capabilities relative to Russia and to the capabilities of key threat countries like Iran and North Korea.

NATO does not issue any net assessments. The U.S. only regularly reports on Russia, and it officially does nothing more than report Russia’s official military spending figures – where they are almost certainly heavily politicized and say nothing about comparative real-world military production and levels of truly comparable expense and buying figures. Analytic centers like SIPRI and the IISS do make rough attempts to guesstimate actual totals of Russian and Chinese spending, but they receive no apparent support from NATO country intelligence services and do not assess relative production levels, internal consumption vs. arms sales, and the comparative efficiency of defense industrial bases.

**Dealing with an Exercise in Complexity Theory**

These three sets of shifts in the way the industrial base needs to be analyzed present a massive practical challenge for NATO – and U.S. and other member countries’ – force planning. There are no reliable open-source data in many of the areas involved, and there are no clear analytic methods that attempt to comparing the various factors together.

As the appendix to this study shows, there are enough quantified estimates, data summaries, graphs, and maps to warn how serious the problems involved are. At the same time, they also warn that trying to tie them neatly together in some single analysis or model must involve an exercise in complexity theory where there are simply too many variables and unknowns to do more than suboptimize and put potential policies and plans into context.

Suboptimization, however, is far better than nothing, which has been the net result of many NATO, U.S., and partner country efforts to date. It also is often far easier to predict near-term trends than look a decade or more a head, and constantly updated planning and analysis efforts can almost certainly provide key priorities and warnings for force planning – particularly when supported by even partial net assessments of current trends and capabilities that focus on a given problem or set of issues.

The cost of not doing this should also be obvious. NATO countries approached two World Wars with fundamentally wrong approaches to shaping their military industrial bases. Each smaller war since that time has again shown how difficult it is to anticipate real-world military industrial needs and has seen dramatic shifts in the balance of national capabilities to compete. If NATO is to react to even limited challenges like the Ukraine War, it needs to greatly improve its assessment and planning of its national industrial bases. If it is to compete with China and a Russia that is reacting to its lessons about the Ukraine War, the NATO must do this in a global context.