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INTEROPERABILITY, TECHNOLOGY TRANSFER POLICY, AND DEFENSE TRANSFORMATION TO ENHANCE COALITION WARFIGHTING ABILITIES

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Introduction: The Emergence of an Integrated European Defense Structure

In recent years, the United States has watched with a sense of both skepticism and ambivalence (some might say oppositi the gradual emergence of an integrated European security and defense policy centered on the European Union.   Once upon a time, it was possible to deny the emergence of a single European defense entity independent of NATO, but not any longer.   With the collapse of the Iron Curtain, the enlargement of both NATO and the EU to encompass former Eastern European adversaries, and above all, the need to respond to military crises on the European periphery has reinvigorated what for years had been a pipedream.   With the implementation of the Berlin Plus accords, and successful EU military operations in the Balkans and elsewhere, the concept of a European Security and Defense Policy is taking on a tangible form.   The steps might be halting, the effort might be diffuse and under-resourced, and will inevitably take longer than expected.   The U.S. concern has been this evolution will create a countervailing power that could stand in opposition to U.S. strategic endeavors and undermine NATO.   However, the time is long past due for the United States to take cognizance of the changing environment and move to engage it.   In other words, we need to get over it and work to help shape these developments in a manner consistent with our mutual security interests.

The signs of evolution of the EU's security function are all there:

??   The drafting of a Treaty Establishing a Constitution for Europe, and its ratification by EU heads of state at the Rome summit in October 2004

??   Rapid evolution of the ESDP: Spurred by the crises in Bosnia and Kosovo, the EU has created new and tailor-made structures to enable more prompt and decisive decision making in Brussels to respond to military crises in Europe and elsewhere, coming out of the Helsinki and Nice European Councils of December 1999 and December 2000 respectively.

??   The decision to create a 60,000-man EU Rapid Reaction Force capable of deployment out of area within 60 days, for the purposes of peacekeeping, humanitarian relief, and crisis management—independent of the NATO Response Force (NRF) authorized by the NATO Prague Summit.   This would be supplemented by a 5000-man police force for international security operations, as authorized by the June 2000 Lisbon Summit.

??   The emergence of a general consensus on the formation of a single EU armaments to rationalize requirements formation within the EU; integrate the European defense industrial base; maximize return on defense investments by eliminating fragmentation and

duplication of effort; and ensure commonality and interoperability within European defense forces. The cessation of British objections to such an armaments and R&D agency, a reversal of long-standing British policy, practically ensures that this development will be implemented sooner, rather than later.

?? Cooperation in military space programs and the development of a more robust European military space capability to oppose long-standing U.S. dominance in this field. The development of the Galileo satellite navigation system, while not technically a defense program, has obvious military implications and stands as a direct challenge to the monopoly of the U.S. NAVSTAR GPS system (which forms the basis for most modern tactical communications and weapon guidance, in addition to navigation systems).

In short, it ought to be obvious by now that the United States can no longer ignore or reflexively oppose these trends. To do so risks being left out of the process, with no ability to exert influence over it or to shape it in a manner that enhances or is at least benign to long-term U.S. strategic interests. Moreover, the process of European defense consolidation and integration can have significant ramifications for the U.S. defense industrial base, for the ability of the U.S. and Europe to operate effectively in coalition environments, and by extension, on the entire transatlantic relationship. Left to its own devices, a single European defense procurement and R&D agency could easily morph in a protectionist direction, locking U.S. industry out of meaningful participation in its most important export market. European development of systems and capabilities without reference to parallel U.S. systems and capabilities creates the risk of incompatibility, especially with regard to command, control, communications, computers and intelligence (C4I), which is the backbone of transformational network-centric warfare. If the U.S. and Europe are locked in a defense industry trade war, if we are fielding systems that cannot interoperate, if our forces cannot fight together on the same battlefield, then a major foundational pillar of our strategic relationship is undermined, and we will continue to drift apart and follow divergent—and eventually opposing—strategic visions. Therefore, the time for realistic U.S. engagement with Europe is now.

The Capabilities Gap and Its Implications

Also lurking in the background is the unpleasant reality of the U.S.-European "capabilities gap"—the immense dichotomy between U.S. military capabilities and those of Europe, which first became painfully apparent during operations in Bosnia and Kosovo, and were reinforced by the poor showing of European forces that participated in Afghanistan and Iraq. The plain fact is that despite having a larger population than the U.S., a technology base fully equal to that of the U.S., and a combined GDP roughly comparable to that of the U.S., Europe is, in the words of Lord Carrington, "a military pygmy". Dr. Lindley-French, in a recent study, quantified something which all knew but were loathe to acknowledge: that despite having some 1.7 million men in uniform, Europe has fewer than 170,000 combat ready troops, of which fewer than 50,000 could be deployed outside of central Europe. The British army, which generates two-thirds of deployable European military power, is smaller than the United States Marine Corps.

Why is this so, when NATO has repeatedly exhorted (through the Defense Capabilities Initiative and the Prague Capabilities Commitment) its European member states to invest in transformational capabilities, to modernize its forces, and to bring its defense posture into line with post-Cold War realities? There are three main reasons: money, institutional resistance, and lack of political will.

The reality today is that European defense spending is flat at less than half that of the United States, and because Europe maintains a large and obsolescent force structure, an inordinate share of its defense budgets are dedicated to personnel and O&M costs at the expense of procurement, and more importantly, defense R&D (which stands at barely 25% of the current U.S. level).

Is it possible to increase European defense spending to redress this imbalance? Probably not:

??   First, one must recognize that economic growth in most parts of Western Europe is anemic, between 1.5 and 2.5%, while in the new expansion states of Eastern Europe, one either finds stagnation or rapid growth which is focused mainly on modernizing the antique, communist-era infrastructure.
??   Second, there is the Maastricht Treaty, which effectively prevents Europe from deficit spending its way out of both its economic and military holes.
??   Finally, there is Europe's looming demographic crunch: with fertility rates below replacement, and a rapidly aging population, demands for pensions and other social services will overshadow demands for increased defense spending.

If the European defense topline cannot be increased significantly, then the procurement and R&D programs presently on the books—Eurofighter, Leclerc, A400M, Mangusta, etc.—will gradually squeeze out funding for modernization and transformation. In that case, Europe has a limited range of choices:

??   Initiate massive cuts in force structure and redirect the savings into defense transformation
??   Cancel some existing programs to free funding for transformation
??   Move towards industrial and military specialization at the national level
??   Reform social welfare programs to free funding for defense
??   Override the Maastricht Treaty's spending caps specifically to deal with outstanding defense requirements.

All of these options could be implemented with sufficient political will. But there is no evidence that such a will is present, nor at present is there any factor likely to generate it (short of a massive terrorist incident on European soil—bigger than Madrid—that galvanizes public opinion and demands a military response). So Europe is likely to continue in its rut for the foreseeable future. The reality is that the capabilities gap is going

to last for at least a generation, and this should be taken as a working assumption by strategic planners on both sides of the Atlantic.

Thus, given this reality of different levels of force capability for year to come across the Atlantic, if we care about coalition warfare and being able to fight together with Europe, we need to change our emphasis to ensuring that the United States and European forces are nevertheless interoperable notwithstanding differents in capability that are entrenched. Here the dilemma is that the world is not static and the longstanding interoperability problem is being exacerbated through differential levels of investment on both sides of the Atlantic and differences in focus. The United States, spurred by the impetus of war, has dramatically increased its defense spending, and particularly its investment in transformational technology and its focus on "net-centric" warfare. With the R&D budget growing at more than 5% in real terms since 2001, more technology is moving into the armed forces faster than ever before, particularly in such areas as C4I, remote surveillance, and precision weapons. The "Rapid Fielding Initiative" (equivalent to the UK's "Urgent Operational Requirement" program) has significantly shortened the period between requirement identification and fielding for some critical capabilities. One need only compare the capabilities demonstrated by U.S. forces in Kosovo versus what was displayed in Afghanistan and Iraq to see how rapidly advances are being integrated into the forces. So the "interoperability gap" between the U.S. and Europe is still growing—indeed, the rate at which the gap is widening seems to be accelerating, particularly in those areas most closely related to transformation and network centric warfare. As a result, we may be approaching a point when it is not longer possible for U.S. and European forces (with some specific exceptions) to fight together with the U.S. in a coalition scenario. The "interoperability gap" is becoming much more significant than the "capabilities gap". In the future, interoperability will largely be about information sharing and net-centric warfare, ensuring that we and our allies have the same situational awareness on the battlefield, the same blue force tracking capability,etc. After all, would European nations fight side by side with us with a "dumbed down" version of situational awareness.

This is not to say that the United States has invested wisely in every area, or that its vision of defense transformation has yielded the best return for the strategic and operational situation in which it finds itself. Indeed, once conventional operations in Iraq ended, the U.S. found many of its most advanced capabilities irrelevant against an enemy who fights in a distinctly low-technology, asymmetrical fashion. And the cost of operations in Iraq has been bleeding money out of the procurement budget, since the U.S. has reached the saturation level for defense budget increases, which must now return to their historically normal levels. Nonetheless, the United States has chosen to forego near-term procurement of some "big ticket" end items, such as the Crusader self-propelled gun, the RAH-66 Comanche scout helicopter, and even the USAF's beloved FA-22 Raptor stealth fighter, in order to sustain current levels of transformational R&D and new "niche" capabilities that enhance the warfighting effort in Iraq. So even with the drag of war operations, it appears that the U.S. commitment to transformation remains solid, and that the interoperability gap will continue to grow, absent a major change of policy on both sides of the Atlantic.

Addressing the Interoperability Gap

Why, precisely, is it so important to close the interoperability gap specifically (and not just focus on broadly-defined capabilities)? Mainly because coalition military operations are not like pick-up games of basketball. If all the members of the coalition are to make useful contributions to the overall effort, then at the very least they need to be able to communicate with each other, keep track of each other's forces, share intelligence and situational awareness information. If they cannot do this, then each coalition member must be assigned a discrete area of operations and act in a semi-autonomous manner. Under such circumstances, the lesser members of the coalition will be relegated to secondary tasks, and will not be considered equal partners entitled to an equal say in policy-making and post-conflict settlement. Moreover, in the eyes of the dominant member of the coalition, the other members will appear to be shirking the load, creating resentment and a tendency among policy makers and planners to take them for granted. Conversely, being consistently relegated to secondary tasks, the lesser members of the coalition will feel like "second class citizens". In both cases, resentment will poison the well of good will, making future coalition operations less likely.

But, if the gaps are growing bigger, and there is neither the will nor the ability of Europe to close them by increasing spending, what solutions are realistic? Several present themselves, and should be pursued simultaneously.

?? First, within Europe the process of formulating an ESDP with a single European procurement agency and a single R&D agency should be pursued with more urgency. Putting the organizational and bureaucratic mechanisms in place, hard as that might be, is only the relatively easy first step. Europe must be prepared to address the hard issues, which would include development of a single European grand strategy, and of the roles of each member nation within that strategy. If true efficiencies are to be realized, then some smaller states may have to give up pretensions of maintaining full-spectrum military forces in favor of specialization in a particular niche. This goes to the very heart of national sovereignty and the notion of a pan-European identity; getting to that point will take time and effort.

Second, both the United States and Europe must engage each other more closely in armaments development and defense R&D, with a focus on interoperability rather than capability. This will require a real change of heart on both sides of the Atlantic, but mainly on the U.S. side. A cursory examination of the U.S. defense budget shows remarkably little cooperative development of any kind—on the order of 0.5%, and almost nothing in the area of interoperability and defense transformation. Indeed, most of the critical U.S. transformational programs, such as the Army's Future Combat System and Future Battle Command—Brigade and Below (FBCB2), the USAF's Multimission Command & Control Aircraft (MC2A), the Joint Tactical Radio System (JTRS), are closed to foreign participation (except at a limited bi-lateral basis). Technology transfer regulations, notably the Low Observables/Counter-Low Observables (LO/CLO) Executive Committee and more recently the Anti-Tamper Executive Agency, as well as the National Security Agency's

oversight authority for encryption and communications security, have been used to restrict or lock out foreign participation in critical programs and capabilities areas. Indeed, the problem extends not only to procurement and R&D, but also to information sharing in an operational environment (e.g., the prohibition against foreign access of the DoD SIPRNet prevents coalition partners from accessing much U.S. imaging and other technical intelligence in near-real time). When one considers that network centric warfare is based upon the open sharing of all sources of information to facilitate "effects-based" operations, it becomes apparent that there is a major disconnect between the United States' doctrinal commitment to coalition warfare (as expressed, e.g., in Joint Vision 2020), and its technology transfer and information-sharing policies. Our national disclosure policies, under which we release information on an ad hoc basis, are not set up for true, sustained coalition warfare, where participants need to have ongoing access to the same situational awareness and must be able to train and work with it in advance of conflicts.

Indeed, this disconnect tends to undermine U.S. policy when it does attempt to be more open with its allies. For instance, the Global Program Agreement (GPA) negotiated for the F-35 Joint Strike Fighter program was supposed to alleviate the need for individual TAAs and licensing agreements on every component of the aircraft. However, as implemented the GPA excluded more than half of all aircraft systems, including most of the critical ones; and the GPA contained so many "caveats" as to make compliance more difficult than the traditional licensing process. In short, there are systemic problems that need to be addressed, including the fact of many individual decision makers in the process with discretionary authority, and the prevailing culture is weighted heavily towards preserving notional U.S. technical superiority even over close allies rather than ensuring security through coalition warfare.

Alternative solutions have been proposed both in and out of government. The most commonly heard one is "open architecture" and commercial standards will save us from ourselves. That is, if the military simply leaves industry to its own devices, it will evolve universal sets of standards and protocols that will allow for "magical" interoperability. Those of us with experience in dealing with commercial standards, for, say, computer networks, know just how hollow this promise really is: a standard is no guarantee that a particular device or software package is compatible, no matter what it says on the box. The only way to ensure a true plug-and-play architecture is for someone to impose standards from above. In a military context, this is especially true of the backbone network architecture to which all users must subscribe, and to encryption. As these have specifically military requirements that will not be met by commercial standards, a centralized standards authority will be needed. NATO's Advanced Capabilities and Transformation (ACT) group would be a useful multilateral platform for such a group.

Without it, we are left with a series of generally unsatisfactory half-measures—software patches, ad hoc "kludges" of incompatible systems that work poorly but are accepted in lieu of not working at all. If we go that route, we will remain hobbled in the extent that we can work together, and exploit the capabilities that technology is opening to us.

This problem is already coming to a head in the NATO Response Force. Intended as a vehicle for capabilities acquisition and European defense transformation, the NRF is at present very much the "pickup team" described above. Not only does it bring together units from several different European countries, which must learn to interoperate and fight effectively as a team, but it must also be able to interoperate with the U.S. forces on which it will have to rely (for at least the next decade) for many of its enabling capabilities (e.g., airborne ground sensors, UAVs, ELINT platforms, satellite imagery, broadband satellite communications, etc.). At present, dissimilar communication systems, dissimilar battle command and combat information systems, dissimilar network architectures all make the necessary interoperability problematic. The NRF is just a harbinger or precursor of the difficulties that will confront all European forces attempting to work with the U.S. in a coalition scenario. Before going one step farther on battlefield capabilities, we must solve the interoperability problem.

Fortunately, that goal is much more economically feasible for Europe than matching the U.S. in raw combat capabilities. Communications, combat information systems, computer networks, encryption systems—all these are relatively inexpensive as compared to big end items like armored vehicles, combat aircraft, or guided weapons. From a strategic point of view, it is not really necessary for Europe to try to match the U.S. in these areas, anyway— provided that European forces are truly interoperable with U.S. forces (indeed, this is said explicitly in the U.S. doctrinal statement Joint Vision 2020).

Transformation Does Not Mean Imitation

In fact, one could make the argument that it is counterproductive for European military forces to attempt transformation using the U.S. model of "network centric warfare": not only is it not affordable on a scale that would make a European version effective, but it also creates an operational and tactical monoculture, in which adversaries responding asymmetrically can play upon common vulnerabilities on the margins of our capabilities. Allowed to engage in real transformation that is not blind imitation of the United States, Europe can develop a range of advanced military capabilities that best serve its own needs and exploit its own unique areas of expertise. In a coalition context, this would allow for greater operational and tactical diversity without sacrificing interoperability. It would place in the commander's hands a broader and more flexible pallet of options with which to implement his "effects-based operations". It would present potential adversaries with complementary and synergistic coalition capabilities less vulnerable to attacks upon the margins.

The Bottom Line

The first question we must resolve is whether we are truly interested in acting together in coalition operations? Do we see a future in which the United States and its European allies will need or desire to fight side by side on the same battlefield? Or do we see the United

States and Europe on such divergent trajectories that our vital interests will never coincide in such a manner again? There is no doubt that if we continue the status quo much longer, our coalition warfare capabilities will be irrevocably eroded, making the second option a fait accompli. What, then, must be done?

First and foremost, we should shift our focus from improving European combat capabilities to interoperability. We need to refocus our Transatlantic efforts on ensuring interoperability among forces with significantly different levels of capability for years to come. On the European side, this means cutting force structure where necessary to free funding for the acquisition of the necessary enabling technology—new communications systems, computers, networks, displays, etc. This may require some hard choices between the continued production of legacy systems of marginal utility on the modern battlefield (e.g., main battle tanks) but which provide both prestige and high-paying industrial jobs, in favor of less visible and less glamorous information technology.

The heart of the new effort must be the development together of some overall net-centric architecture that the United States and its allies can "plug and play" into and enjoy the benefits of all available sensory inputs and maximize situational awareness.

On the U.S. side of the ledger, there must be first and foremost a change in our basic philosophy on technology transfer, information exchange, and coalition warfighting. From a quasi-protectionist attitude that is inclined to reject cooperation unless forced to do otherwise, we must adopt a posture that is inclined to cooperation unless serious reasons can be produced against it. This will require policy guidance from the top. Beyond that, the process itself requires reform, including a reduction in the number of agencies and activities with de factor veto power over the release of information, and a reduction or even elimination of discretionary authority by individuals. Ideally, all actors in the process would be brought under a single umbrella, and all issues would be adjudicated once and for all in a single forum, where explicit rationales for rejection would be required. The number of items on the munitions list should be further reduced, taking into account the commercial availability of many technologies, of the rapidly evolving nature of the high-technology marketplace, the ubiquity of "dual-use" technology, and the globalization of the supplier base. By opening up the U.S. to transformative cooperative programs focused on interoperability, both sides can exploit the technology base of the other, and also ensure the growth of common interoperability standards.

To drive those standards, the U.S. and Europe must create some form of joint interoperability office, either in NATO, or as an independent agency cooperating with both NATO and the EU, to devise a common backbone information architecture for NATO, with common interface standards, file structures, communication protocols, encryption permissions, etc. This will help ensure that future systems will be truly plug-and-play. This would allow all NRF members, for example, to have access to full situational awareness during deployments. We also must train together in the use of these new netcentric backbones; we cannot wait for exigencies.

If we begin to act now, we can, over time, work to address the yawning interoperability gap, and therebyrescue the possibility of future coalition actions involving the U.S. and Europe, balance the military capabilities of the partners in the alliance, and by increasing the probability of our working together for peace and security, counteract the centrifugal forces that are pulling us apart.