
PART I
Principal Findings and Summary

Chapter 1
Principal Findings

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Principal Findings

The North Atlantic Treaty Organization (NATO) has adopted its Follow-On Forces Attack (FOFA) concept as part of its program to counter a growing Warsaw Pact conventional threat, and thus to avoid either an early resort to nuclear weapons or even a collapse so rapid as to preclude escalation to nuclear weapons. But the adoption of the concept has itself raised issues that will have to be addressed.

The general issues are:

- the role of FOFA within NATO strategy,
- how FOFA could be done,
- what is needed to make FOFA practical,
- what the Soviets might do to make it impractical,
- whether the supporting systems can be made to work well enough to justify the cost,
- how they will be paid for, and
- how to avoid political problems that could weaken the Alliance.

In addition, Congress is faced with specific FOFA-related funding issues, particularly: the Joint Surveillance/Target Attack Radar System (Joint STARS), a possible successor to the recently cut back Precision Location Strike System (PLSS), remotely piloted vehicles, advanced submunitions, and the issue of how to handle related armaments cooperation with our NATO Allies.

NATO currently has some quite limited capability to implement this concept, but faces three major shortcomings: adequate resources for reconnaissance, surveillance, and target acquisition; capable munitions in sufficient quantities as well as the weapons to distribute those munitions; and total systems—from surveillance to target destruction—that can respond rapidly, flexibly, and effectively across large areas. There are systems under development that could alleviate each of these shortcomings. However, it will be necessary to procure them in complete packages of systems that work to-

gether to provide the required capabilities, and buy enough of each to make a difference.

FOFA is a mission concept, not a specific weapons system. In general terms, it is the use of various conventionally armed long-range weapons to attack Warsaw Pact ground forces that have not yet engaged NATO defenders. From the Air Force's perspective it is interdiction; to the Army it is Deep Battle. The basic objective is to delay, disrupt, and destroy these follow-on forces so that NATO's defenses can hold as far forward as possible. Although applicable throughout NATO Europe, it is primarily focused on the Central Region, where West Germany borders East Germany and Czechoslovakia. When first proposed by NATO's Supreme Allied Commander, Europe (SACEUR), it was envisioned that attacks would take place from just beyond the engaged troops to hundreds of kilometers into enemy territory. SACEUR also suggested that implementing FOFA would require an increase in national defense budgets beyond the 3 percent real growth to which the nations had at that time committed themselves. Consensus has been building for several years; clearly, although very deep attack may remain an attractive long-term goal, current interest is focusing primarily on shorter ranges. Rather than committing themselves to additional funding, the member nations are primarily redirecting existing conventional force modernization programs to support the concept, as well as the applications for which they were otherwise intended. This includes the United States, which has many more FOFA-related efforts underway than the others.

The controversy that surrounded the adoption of the concept arose in part because it fit neatly with systems under development in the United States which had no European counterparts. Europeans saw this as requiring them to spend large amounts of money on American systems. This controversy has diminished as the concept has been further developed to de-

fine much of what the Europeans are producing as FOFA systems, and as cooperative arrangements for developing and producing other systems have been worked out.

Most of the systems needed for an effective FOFA capability either exist or are in various stages—mostly the later stages—of development. There are still important engineering problems to be solved, and important pieces may yet fail to materialize. But by and large the issue is not one of starting new programs

to fulfill identified needs, but rather one of keeping the necessary programs alive both technically and financially. However, when these programs move from development to procurement, the budget requests will almost certainly increase, and Congress will face the question of how to finance them. Choices will have to be made among programs that are relevant for FOFA, and probably between FOFA and other areas as well.

HOW DOES FOFA CONTRIBUTE TO NATO'S DEFENSE POSTURE?

FOFA is one of a handful of key mission concepts for NATO's conventional forces, all of which are considered vital to a successful defense. It must be viewed not in isolation, but rather within the context of all the others, such as fighting the close battle against Warsaw Pact ground forces, establishing and maintaining control of the air, and safeguarding rear areas. For example, successfully attacking follow-on forces could improve the outcome of the close battle, and control of the air would facilitate attacking follow-on forces.

Many of the systems being considered to support FOFA would not be limited to that role, but would have applications to other mission concepts. Many of the U.S. systems would also have roles beyond NATO Europe. Furthermore, some surveillance systems that might be used to find and target follow-on forces could also aid in detection and assessment of Warsaw Pact activities prior to a conflict.

FOFA was conceived as a way to exploit technology to counter two fundamental aspects of Soviet strategy: their use of follow-on forces; and their ability to use a strategically mobile offense against a much less mobile defense. Soviet doctrine suggests that a Warsaw Pact offensive would probably include a substantial number of follow-on ground forces, i.e., ground forces not involved in the initial assault. These would either be moving forward to join or exploit the attack, or pre-

paring to do so. By attacking these follow-on forces, NATO would hope to decrease their ability to affect the war; and by "metering" their arrival at the close battle, NATO would be better positioned to defeat them and not be overwhelmed by successive attacks. Soviet doctrine suggests that the Warsaw Pact would concentrate its ground forces, probably against NATO's weaker sectors, and have substantial freedom to move and redirect its main efforts. NATO, by contrast, would be very constrained in its ability to move ground forces laterally along the front in response. A FOFA capability could be used to compensate for this by redirecting the firepower of long-range weapons and interdiction aircraft along the front.

If the follow-on forces are very important to Soviet strategy (and if they can be found and attacked effectively), FOFA could be enormously effective. However, if the follow-on forces play a less important role, FOFA would be less valuable (although the weapons and other systems might not necessarily be any less useful). Evidence suggests that Soviet strategic, operational, and tactical planning is flexible and that the Soviets could reduce their dependence on the follow-on forces or the exposure of those forces to attack. The extent to which they could do so is subject to debate, as is the cost to them of taking these steps: on the one hand, they had reasons for adopting their current strategy; on the other, they may be "outgrowing" it for reasons not directly related to FOFA.

HOW MIGHT THE SOVIETS RESPOND?

Soviet writings suggest a wide range of political as well as military responses to both the FOFA concept and its implementing systems. Soviet military writings focus on: 1) adjusting strategy and operations (e.g., by deemphasizing the role of the follow-on forces, intermingling their forces with NATO's early in a conflict, and increasing protection of their rear areas); 2) developing operational and technical countermeasures to weapons and targeting systems; 3) adjusting their command and control to compensate for quick-acting FOFA systems; and 4) developing similar systems, but not necessarily for similar uses. Some So-

viet responses could present NATO with opportunities. For example, moving more forces forward before attacking could provide NATO with longer warning which NATO could exploit. Keeping more forces closer to the close battle could make them easier to engage.

On the political level, the Soviets apparently have already been trying to influence European public opinion to inhibit the successful implementation of FOFA, and to exploit European concerns about FOFA to cause friction within the Alliance.

WHAT ARE THE ATTITUDES OF OUR ALLIES?

Our NATO Allies endorsed the concept in a very general form in November 1984; the definition of what has been agreed to and how it should be implemented is still evolving. The Europeans have been slower to accept the specifics than the United States has. This is due partly to the long lead times in their defense planning cycles, and partly to economic factors including an expectation that their defense budgets are likely to remain constant or to decline over the next few years. The Europeans expect that a significant FOFA capability will be expensive, and are concerned about it requiring increases in their defense burdens or decreases in their ability to perform other missions.

The Europeans are most interested in approaches to FOFA that incorporate what they have already been doing. Hence, they are most interested in enhancing the role of artillery and the new Multiple Launch Rocket System (MLRS), some forms of aircraft interdiction (but not all of those under discussion), remotely piloted vehicles, and command and control systems. They are wary of FOFA as a source of pressure to buy U.S. technology, and have been cautiously negotiating memoranda of under-

standing for multilateral development and production programs, some of which include the United States and some of which do not. The Europeans have recently expressed a willingness to consider cooperative ventures on systems capable of striking as deep as 150 kilometers, but it is still too early to judge the significance of this development.

Increasingly, the Europeans are coming to insist that cooperative programs not only result in spending for European production, but also invest in European technological development. As yet, the United States has not found formal European support for two major programs, Joint STARS and the Army's Tactical Missile System (ATACMS), but this does not mean that our Allies will never be interested in those programs. Indeed, informal interest appears to be growing. Several European systems with important implications for FOFA are under development.

Many in Europe hold a different view than the United States does of the proper balance between nuclear and conventional forces, and are less enthusiastic about conventional defense improvements. Furthermore, they are

concerned that FOFA not draw resources from the close battle between opposing ground forces, which they see as having the highest priority. '

FOFA has evolved from a major political issue within the Alliance in 1984 to quiet negotiations among armaments experts in 1987. While the movement has been in the direction of consensus, FOFA has failed to generate much enthusiasm for increased spending. FOFA is no longer a threat to Alliance cohesion, even though the major opposition parties in Germany and the United Kingdom have declared themselves against the concept. These parties have more fundamental and trouble-

'SACEUR'S position is that all the mission concepts are necessary and that priorities cannot be established among them. Some NATO governments have suggested that just such a prioritization should take place.

some objections to NATO defense policy, particularly the objection of the British Labour Party to nuclear weapons. However, Labour has suggested that by eliminating nuclear weapons it would spend much more on conventional defense.

From the perspective of early 1987, FOFA appears to be a modest success story in the history of NATO. When the concept was first proposed, it evoked skepticism, misunderstanding, and political friction. But a rough mutual understanding has now developed. In the process, FOFA stimulated NATO's "conceptual military framework" process, which promises to be useful in coordinating military . planning over the full range of NATO missions. It has also served to provide an agenda for increasingly ambitious explorations in the area of armaments cooperation.

WHAT IS THE STATUS OF RELEVANT TECHNOLOGY AND DEVELOPMENTS?

A great deal of what is needed for FOFA is already in the field or in production. Most of the technology for the rest already exists and could result in fielded systems over the next decade. Engineering problems remain to be solved, and some important advanced systems have not been completely demonstrated, but there is less concern about being able to make the systems work than there is about the performance of combinations of systems in realistic countermeasure environments. There may be value in getting systems into the field so that the problems of integration can be worked out and unrecognized problems and benefits can be discovered.

Although discussion has tended to focus on those developments that are primarily American,² our Allies have developed and are devel-

²The United States leads, but does not necessarily dominate, in major areas such as broad area surveillance and targeting systems, data analysis and dissemination systems, smart sub-

oping systems that could be used for FOFA: the Tornado aircraft with its MW-1 dispenser; remotely piloted vehicles and drones; some surveillance systems; and various munitions. They are co-developing the Terminally Guided Warhead for the Multiple Launch Rocket System (MLRS/TGW). Their technology is, in many cases, equal to U.S. technology.

This focus on U.S. technology has raised a major political problem: how to balance a desire to buy the best capability most efficiently with growing allied pressure for a more equitable "two-way street" for NATO weapons procurement.

munitions, and ground-launched missiles. This does not necessarily mean that the United States will successfully field more (or better) systems than the Europeans.

WHAT ARE THE ADVANTAGES AND DISADVANTAGES OF DIFFERENT APPROACHES?

There are several different approaches to attacking follow-on forces, with many having several variations. Implementing any single approach will require a complete package of several systems, including: systems to find and locate the targets; systems to deliver the weapons; the munitions; and supporting systems (e.g., for defense suppression and electronic warfare). If it were possible to fund everything, it would make military sense to procure the systems to support a range of approaches. But funding constraints are likely, and will limit choices. It will therefore be important to fund systems consistently so that the result is one or more complete packages, and not pieces of several incomplete ones, and perhaps to fund systems that offer the most flexibility. Some systems could contribute to many packages, but others have only specific applications. While choosing preferred operational concepts is a job for the military, Congress' funding decisions will determine which concepts are supported, and how well.

Different approaches to FOFA are primarily distinguished by what targets to attack, and the means to attack them. Attacks can be against moving combat units, supplies, command posts and other high-value units, or to create chokepoints in the transportation system by destroying bridges or laying mines. These attacks could be conducted with ground-launched weapons or by interdiction aircraft carrying a variety of weapons including air-launched missiles.

Analysis shows that directly attacking combat units could be very effective in slowing and reducing Pact forces. But it is not clear whether NATO will have both the means to target them effectively, and the weapons to kill the tanks. Although the tanks are a major worry, all the other armored combat vehicles are also needed by the Soviets for a combined arms offensive, and they are vulnerable to munitions now being procured. Opinions differ over the value of attacking supplies, which could be done with

a variety of munitions. While supplies are necessary for an offensive, some analysts believe that the Soviets could lose a large number of supply trucks before combat capability would be degraded. Combat vehicles go into battle with significant amounts of fuel and ammunition on board. But small combat units such as battalions have little excess supply, and resupply is essential if an offensive is to be continued.

Advancing forces can be delayed by creating choke points (e.g., by destroying a bridge just as a unit is about to cross it, or by sowing a mine field). Analyses differ on whether sufficiently long delays could be produced. The ability of the Pact commanders to employ their forces could be disrupted by attacking command posts. These, however, would be difficult targets to find and attack, and the effect of doing so is difficult to gauge.

In general, the deeper into enemy territory an attack takes place, the less will be its direct effect on the battle and the greater will be both the Warsaw Pact ability to compensate and NATO's opportunities to continue the attack to produce the desired effects.

Ground-launched weapons like artillery, MLRS, and the ATACMS missile are generally simpler to operate than tactical aircraft, but would be more dependent on close coordination with sophisticated external surveillance and targeting systems. NATO forces are upgrading artillery and buying MLRS. But these weapons lack the flexibility of the longer range ATACMS to be redirected over long distances, and waiting until the targets are close creates a risk that NATO forces will be overwhelmed as the targets dash forward. Missiles like ATACMS could be used by one corps to support another and to concentrate firepower across a wide segment of the front. If the United States is to preserve the option to deploy ATACMS, it will have to exercise care in arms control negotiations.

Aircraft have the advantage of a man on board, providing flexibility to compensate for shortcomings in targeting information and to respond to unforeseen circumstances. Air power generally allows for more flexible employment across the entire Central Region than ground-launched missiles do. Penetrating Warsaw Pact air defenses with acceptably low attrition requires sophisticated aircraft which are generally expensive and must be equipped with advanced navigation and target acquisition capability, electronic warfare systems, IFF (identification friend or foe) systems, and stand-off weapons. The U.S. employment concept calls for the use of large “packages” of attack aircraft, fighter escorts, jammers, defense suppression, etc. Planning such large packages requires several hours, although there is flexibility to alter plans almost up to takeoff. These sophisticated aircraft are likely to continue to be in short supply and to be called on for other urgent missions. It is not likely (but possible) that interdiction aircraft—such as F-16, F-15E, F-4, F-111, or Tornado—would be available in great numbers to attack follow-on forces during the first day or two of a war. But there are

likely to be many high-value targets on day three and beyond.

The Air Force is now considering using B-52 bombers flying from bases in the United States to launch long-range cruise missiles over NATO territory to attack the Warsaw Pact rail transportation system.³ This has the advantages of using an existing asset, the B-52s, in combination with a yet-to-be-developed variant of a new or existing cruise missile and of avoiding Pact air defenses. If successful, it could produce long delays in the arrival of the second Soviet strategic echelon, or produce greater warning for NATO by inducing the Soviets to move those forces forward through the rail network prior to the war beginning. However, the cruise missile variant has yet to be demonstrated, and—depending on the outcome of the negotiations currently under way—there may be serious arms control problems to solve.

³Applications of B-52s with cruise missiles in other theaters are also possible.

WHAT IS THE LIKELIHOOD THAT PLAUSIBLE COMBINATIONS OF SYSTEMS WILL BE EFFECTIVE?

Plausible combinations of systems that could perform the tasks that fall under FOFA have been identified, but many of the components are still being developed. In order for any one concept to work, each piece must work (because each individual function is necessary), and they must be able to coordinate and interface.

Programs now under way are designed to overcome deficiencies in NATO ability to attack follow-on forces, now primarily limited to: aircraft attacking fixed targets like bridges, as well as targets that, while mobile, don't spend much of their time moving;⁴ and possibly

⁴For example, command posts, surface-to-surface missile launchers, surface-to-air missile (SAM) batteries, resupply

aircraft flying along roads looking for columns of vehicles. Capability will improve as each deficiency is corrected, although all deficiencies need not be corrected to have a useful capability.

As each of these improvements comes on line, FOFA capability will increase incrementally.

points, and communications links. These targets are difficult to locate and target: when broad-area moving target indicator systems—like Joint STARS—become available, these will be more difficult targets than moving units. The fact that these targets “dwell” for long periods of time can be used to NATO's advantage to piece together information from a variety of existing systems. The munitions exist to attack these targets effectively, if they can be located.

Deficiency

1. Lack of ground-launched missiles
2. Little ability to operate aircraft at night and in bad weather
3. Little ability to destroy masses of armored vehicles
4. Little ability to rapidly target moving combat units
5. Little ability for Army corps to support adjacent corps
6. Enemy air defenses threaten both interdiction aircraft and surveillance aircraft
7. No capability to attack very deep

⁵Low Altitude Navigation and Targeting Infrared for Night. A system to aid aircraft in finding targets.

⁶These are not aircraft systems, but they can operate at night and in bad weather.

⁷Combined Effects Munition.

⁸Dual Purpose Improved Conventional Munition.

⁹Tactical Munitions Dispenser. The dispenser part of the CEM; the munition itself is the CEB (Combined Effects Bomblet).

¹⁰Modular Stand-off Weapon.

¹¹Remotely Piloted Vehicle.

Corrective Measures/Status

MLRS—in production
 ATACMS—in full scale development
 LANTIRN⁵—in limited procurement
 F-15E—in procurement (MLRS, ATACMS)
 CEM⁷, DPICM⁸—in procurement (effective against all but heavily armored tanks)
 Smart anti-armor submunitions (sensor-fuzed weapons and terminally guided submunitions)—in development
 TMD⁹—in procurement
 NATO MSOW¹⁰—in development
 Joint STARS—in full scale development
 Aquila RPV¹¹—in full scale development
 other RPVs—various stages
 Joint Tactical Fusion Program—in full scale development
 ATACMS—in full scale development
 Various air defense suppression and avoidance programs in various stages
 Various RPV programs in various stages
 B-52s carrying cruise missiles—no development yet

WHAT ARE THE OUTSTANDING ISSUES BEFORE CONGRESS?

Several FOFA-related issues are likely to be matters of controversy in Congress in the next few years. These are: the Joint STARS program; the recently severely scaled-down PLSS program; Aquila and other remotely piloted vehicles (or unmanned aerial vehicles) programs; advanced anti-armor submunitions; and co-development and co-production with our European Allies.

Joint STARS

This program has been a matter of controversy between House and Senate for the past few years. By providing an ability to locate, track, and target groups of moving vehicles, Joint STARS is supposed to contribute to the commanders' awareness of the battlefield and to target engagement, which are central to many concepts for FOFA and prob-

ably very important if FOFA is to be successful. Such a capability would also be very important for identifying and analyzing the main thrusts of a Soviet offensive, and for obtaining warning of suspicious movements prior to hostilities. FOFA could be done without a system like Joint STARS, but not nearly as well.

At the heart of the controversy is the question of how survivable the E-8A (modified 707) aircraft would be in a realistic combat environment. Critics contend that to be adequately survivable it would have to be operated so far from the FLOT¹³ as to be virtually useless. Supporters argue that flying in protected NATO airspace with many other surveillance aircraft, benefiting from suppression of enemy air defenses, and protected by NATO fighters and

¹³Forward Line of own Troops. The farthest line NATO troops occupy.

SAMs,¹⁴ it would be “survivable but not immortal.”

It is likely that even with all this protection, Joint STARS would have to operate farther from the FLOT than originally envisioned in order to reduce its vulnerability. But its value would degrade slowly as it moves back, and it should be able to provide frequent coverage of broad areas out to final assembly areas, and perhaps somewhat beyond. This is the area in which frequent coverage is most needed because events will develop rapidly there. Deeper areas would be seen less frequently. This would provide a great improvement over current capabilities in area covered, frequency of coverage, timeliness, and accuracy. However, it is less than the nominal coverage usually assumed for the system. Prior to hostilities, the E-8A could operate up to the FLOT and provide much deeper coverage for indications and warning of attack.

Alternative systems that would be less detectable are possible; if operated so as to evade detection, they would also be limited in coverage, but the limitations would be different from those of the E-8A. Less area would be masked by terrain and vegetation if the platform were higher or closer to the FLOT. In combination with E-8As they might provide nearly complete coverage. *If* the alternative or complementary system were to operate in the same frequency band, it could probably use most of the radar hardware and software developed for the E-8A. As far as OTA is aware, no detailed operations analysis that compares the FOFA capability using the E-8A Joint STARS, alternative systems, and combinations of the two has been done. If this remains an issue, such a study probably should be done, but it ought not to delay Joint STARS development. That analysis should consider the possibility of reactive Soviet jammer development. In some cases, “customized” jammers could severely handicap either type of system, but the likelihood and practicality of such jammers needs further study.

¹⁴Surface to Air Missiles.

OTA has not had access to other than general information on possible alternative systems, and cannot comment on their status. Any decision to cancel Joint STARS and begin another program should also take into account when the alternative might become available, and whether that alternative would be suitable for peacetime deployments and deployments outside Europe.

Continuation of, or Successor to, PLSS

This year Congress and the Air Force decided not to fund procurement of the PLSS and to return it to a relatively low-level developmental program. PLSS was designed to satisfy a need to quickly and accurately locate and target emitters such as the radars of modern air defense systems that would pose a threat to NATO interdiction aircraft and to surveillance systems like Joint STARS. The system was cut partly because of technical problems, and partly because the Air Force believed it was no longer worth the cost. At the time of the decision it had not achieved the specified system reliability or emitter location accuracy; however, both have now reportedly improved to near specified values. Its demonstrated target location accuracy, reporting rate, and timeliness are unsurpassed by other tactical electronic intelligence systems, but it sometimes reports one emitting target as several.

Some within the Air Force argue that other assets are adequate to do the job of locating the targets. Others argue that there are important tasks that PLSS was supposed to do that no other system can. OTA knows of no other system that can locate emitters as quickly and accurately as PLSS. Congress will have to face the question of whether a system like PLSS is needed, and, if so, whether it should be obtained by continuing PLSS or starting another program.

RPV/TADARS

The Target Acquisition/Designation Aerial Reconnaissance System (TADARS), which employs the Aquila RPV, is currently in full-scale development. Major problems that held

the system up appear to have been solved. This system lacks the broad area, continuous deep coverage of Joint STARS, but could provide dedicated targeting for Army systems. TADARS can perform accurate target location as well as laser designation for artillery and laser-guided bombs. Some have proposed procuring another RPV in place of Aquila, but procuring another RPV and equipping it with Aquila's capabilities would take longer and cost more than completing TADARS development. Several types of RPVs are currently operational and under development in Belgium, Canada, France, Germany, Italy, the United Kingdom, and Israel. The U.S. Army is developing a family of advanced unmanned air vehicles, of which Aquila is the most mature, and the Navy and Air Force also have RPV programs.

Advanced Anti-Armor Submunitions

Smart anti-armor submunitions with advanced warheads—such as Skeet,¹⁵ SADARM,¹⁶ and MLRS/TGW¹⁷—may be a key to FOFA: they are the only means of killing modern tanks in significant numbers beyond the close battle.^{*8} But major uncertainties surround them, particularly the questions of whether technical and operational countermeasures could defeat their seekers and warheads. It will be necessary to keep a close watch on these development programs. One very valuable tool is the Chicken Little series of joint tests of munitions and munition concepts. OTA believes that this series, and others like it, ought to be supported and the results given serious consideration.

Defense Cooperation

Many of our Allies initially reacted cautiously to FOFA in part because it looked like another excuse to induce them to buy U.S. high-tech-

nology systems. They have a long-standing concern that the “two-way street” of NATO procurement favors the United States by a large margin. In recent years, Europeans have shown themselves willing to pay more for less capability to get equipment made at home. However, as the recent British decision to cancel the NIMROD and buy the AWACS demonstrates, they will not necessarily take this position to the extreme.

In the past year, the U.S. Department of Defense has been working to resolve this problem by encouraging the Europeans to identify systems they are developing and buying that could be used to support FOFA, negotiating agreements to explore co-development and co-production of U.S. systems, and encouraging the Europeans to form consortia among themselves to develop and produce FOFA-related equipment. One particular vehicle for this effort has been the 1985 Nunn Amendment authorizing funding of cooperative development projects. The European members of NATO, including France, reacted very favorably to the principle of this amendment, and to the concept of joint development of new military systems. However, it is clear that before such joint development can take place, there will have to be some major changes in existing ways of doing business. The European Allies recognize the difficulty of “harmonizing” the specific interests of the various partners in cooperative ventures. They are somewhat skeptical about the ability of the U.S. armed services to do so and about Congress committing itself to programs years in advance. However, the Europeans are increasingly unwilling to simply “buy American” systems or technologies, and indeed there are some European developments in FOFA-related technologies which the United States could profit from not having to re-invent.

This may ultimately pose a dilemma for the United States. Cooperative programs usually cost more and take longer than projects pursued solely in the United States. And, of course, sharing production or buying European systems will cost U.S. jobs. Congress will have to deal with these programs one at a time as

¹⁵Smart anti-armor munition that fires a self-forging slug.

¹⁶Search and Destroy Armor: Smart artillery submunition that fires a self-forging slug.

¹⁷Terminally Guided Weapon for the MLRS: A smart submunition that carries a shaped charge warhead.

¹⁸Other existing and developmental munitions can destroy other armored and unarmored vehicles and have some effectiveness against tanks. Scatterable mines can delay the movement of tank units.

they come up, but it might be wise to develop an overall approach to striking a balance among accommodating the desires of the Euro-

peans, funding U.S. companies, obtaining the best systems, and obtaining the most efficient production.