

**STRATEGY  
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**NATO'S NEW STRATEGIC CONCEPT, KOSOVO AND THE  
IMPLICATIONS FOR INTELLIGENCE**

**BY**

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USAWC STRATEGY RESEARCH PROJECT

**NATO's New Strategic Concept, Kosovo and the Implications for Intelligence**

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## ABSTRACT

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This paper assesses the impact of NATO's new strategic concept adopted in April 1999 and NATO's Operation Allied Force in Kosovo on the future development of intelligence capabilities within the Alliance. The influence of non-article 5 missions, the Defense Capabilities Initiative and the European Security and Defense Identity in shaping intelligence requirements are considered. The paper also closely examines the intelligence doctrine and procedures used during Operation Allied Force and evaluates them in light of the requirements of modern, precision warfare. Finally, the paper recommends policy, force structure and doctrinal modifications in U.S. and European national intelligence capabilities to properly position NATO intelligence for future warfare.



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## NATO'S NEW STRATEGIC CONCEPT, KOSOVO AND THE IMPLICATIONS FOR INTELLIGENCE

Beyond collective defense NATO must be able to address crises wherever they evolve in order to prevent negative spillover effects on Alliance territory and Alliance security. Without seeking to establish a global intervention capability NATO must be prepared to act militarily beyond its Treaty area on a case-by-case basis and in full accordance with the purposes and principles of the UN charter. Such a crisis response capacity will supplement other important crisis prevention tools like the transfer of stability and wide-ranging partnership and cooperation.

— Rudolph Scharping, German Minister of Defense<sup>1</sup>

In the area of intelligence gathering, NATO which has few intelligence assets of its own and is already dependent on its member nations for intelligence contributions – must solicit its members for considerable more input than previously. This implies the acquisition of additional intelligence platforms to complement the concept of Alliance Ground Surveillance, which provides seamless in-depth surveillance at the strategic, operational and tactical levels.

— Admiral Guido Venturoni, Chairman of NATO's Military Committee<sup>2</sup>

During NATO's Washington Summit, 23-25 April 1999, the Alliance Heads of State approved a new Strategic Concept designed to prepare NATO for the challenges of the 21<sup>st</sup> century. There are three elements in the Strategic Concept which have implications for intelligence capabilities across the Alliance. They will affect both the United States and European partners. These elements, or vectors, encompass NATO's formal acknowledgement of non-Article 5<sup>3</sup> crisis response missions as an explicit Alliance function, the European Security and Defense Identity (ESDI) and the Defense Capabilities Initiative (DCI).

Concurrently with the intellectual development of the new strategy, NATO engaged in significant crisis response operations in the Balkans starting in 1995. U.S. Permanent Representative on the North Atlantic Council, Ambassador Alexander Vershbow, recently pointed out the clear connection between new Strategic Concept and Operation Allied Force in Kosovo. He stated, "The NATO for the 21<sup>st</sup> century that we had been planning to launch at the [Washington] Summit turned out to be exactly the NATO we needed to deal with the crisis in Kosovo now, in the last year of the 20<sup>th</sup> century..."<sup>4</sup> The air operations in Kosovo, Operation Allied Force, provide an excellent snapshot of the Alliance's intelligence capability; highlighting both strengths and weaknesses. The purpose of this paper is threefold - - an examination of the strategic vectors shaping NATO force structure, an assessment of current Alliance intelligence capabilities and a projection of how U.S. and European NATO members should develop their intelligence capabilities to successfully implement the new Strategic Concept.

## THE STRATEGIC ENVIRONMENT AND NON-ARTICLE 5 MISSIONS

The primary purpose for NATO remains deterring and defending against the threat of aggression against member nations, however, the new Strategic Concept has added an additional task for the Alliance – enhancing the security of the Euro-Atlantic area to include crisis response operations.<sup>5</sup> These operations are termed “non-Article 5” operations in the new strategy and comprise the first of three strategic vectors influencing intelligence in NATO today. In its post-Washington Summit report, NATO characterized non-Article 5 operations in the following manner,

In the event of crises which jeopardize Euro-Atlantic stability and could affect the security of Alliance members, the Alliance’s military forces may be called upon to conduct crisis response operations...In contributing to the management of crises through military operations, the Alliance’s forces will have to deal with a complex and diverse range of actors, risks, situations and demands, including humanitarian emergencies. Some non-Article 5 crisis response operations may be as demanding as some collective defense missions. Well-trained and well-equipped forces at adequate levels of readiness and in sufficient strength to meet the full range of contingencies as well as the appropriate support structures, planning tools and command and control capabilities are essential in providing efficient military contributions.<sup>6</sup>

This new tasking will be a central driver in future NATO deliberations regarding its best response to events in the turbulent world of the 21<sup>st</sup> century. U.S. Ambassador Vershbow noted, “The U.S. has long believed that one of the most important, new elements of the revised Strategic Concept must be a recognition that one of the fundamental tasks of the Alliance is to carry out so-called “non-Article 5” missions – operations in response to crises that go beyond defense of Allied territory.”<sup>7</sup> Likewise, former NATO Secretary-General Javier Solana announced at a press conference during the Washington Summit that the new strategy marks the transition of NATO, “...from an Alliance concerned mainly with collective defense to one which will be a guarantee of security in Europe and an upholder of democratic values both within and beyond our borders.”<sup>8</sup>

As noted by Mr. Solana, one of the essential characteristics of non-Article 5 operations is the explicit idea that the mission of “values defense” is on par with the traditional mission of collective defense. This view appears to be commonly accepted within the Alliance. For example, German Minister of Defense Rudolph Scharping, commenting on Kosovo, noted that, “...it also underscored more than anything else the fact that we need a strong military alliance that can deal, in full accordance with the principles and objectives of the UN Charter, with a broad spectrum of threats to our values, interests and territory... There the new NATO has moved beyond theory – we are seeing new members, new missions and new partnerships in action.”<sup>9</sup> U.S. Ambassador Vershbow described it in these words, “NATO is now in the business of defending common values and interests as well as the territory of its members. We are still getting some of the bugs out the new products, but the demand is tremendous, and the market is getting bigger and bigger.”<sup>10</sup>

In order to deal with post-Cold War security issues, NATO has transformed itself into an Alliance that is willing to project power in support of its interests and values throughout the world. Under the new

strategy, NATO does not depend upon the permission of the United Nations Security Council or any other outside body before it can act to protect its common values and interests.<sup>11</sup> NATO's security interests are diverse including European regional instability and crises affecting Euro-Atlantic stability resulting from ethnic and religious rivalry, territorial disputes, abuse of human rights and failed states. Additionally terrorism, sabotage, organized crime, disruption of the flow of vital resources and uncontrolled movements of large numbers of people are security concerns for NATO.<sup>12</sup>

The new Strategic Concept greatly increases the probability NATO will again choose to project military power while, at the same time, vastly expanding the potential geographic locations for these operations. Non-Article 5 operations, in a modern, precision warfare environment, require a steady flow of timely, accurate and actionable information between the strategic, operational and tactical levels. In a nutshell, NATO's success in the 21<sup>st</sup> century has become significantly more dependent on access to intelligence and the capability to disseminate it to operational forces when needed.

#### DEFENSE CAPABILITIES INITIATIVE

NATO's most recent non-Article 5 operation, Allied Force in Kosovo, clearly demonstrated the gap in military capability between the United States and every other Member Nation. This gap was evident well before Kosovo and was the genesis of the Defense Capabilities Initiative (DCI) proposed to NATO by U.S. Secretary of Defense William Cohen in June 1998. In its post-Washington Summit report, NATO summarized DCI in these words,

We have launched a Defense Capabilities Initiative to improve the defense capabilities of the Alliance to ensure the effectiveness of future multinational operations across the full spectrum of Alliance missions in the present and foreseeable security environment with a special focus on improving interoperability among Alliance forces (and where applicable also between Alliance and Partner forces). Defense capabilities will be increased through improvements in the deployability and mobility of Alliance forces, their sustainability and logistics, their survivability and effective engagement capability, and command and control and information systems... We have established a temporary High-Level Steering Group to oversee the implementation of the Defense Capabilities Initiative... Improvements in interoperability and critical capabilities should also strengthen the European pillar in NATO.<sup>13</sup>

In discussing force posture, the same document also points out that command, control, communications, intelligence and surveillance will serve as necessary force multipliers.<sup>14</sup>

In other words, DCI is an effort to ensure Alliance forces are structured for power projection, are sustainable and have precision and standoff weapons with supporting intelligence, surveillance and reconnaissance. Associated command, control and communications architectures will need to be interoperable, handle much greater volumes of data and extend to lower levels in the chain of command. The goal is to have military forces that can be used in support of precise objectives. For as former Secretary-General Solana pointed out, "...as we finalize our new Strategic Concept, the Alliance needs to recognize what the U.S. has known for some time: that NATO's increasing involvement in crisis management and peace support operations is going to require different types of forces than we had in the

days when territorial defense was our main, if not, sole mission.”<sup>15</sup> NATO’s present Secretary-General, George Robertson, fully supports DCI and recently stated, “I am committed to ensuring that DCI delivers and I’m going to be a thorn in some national flesh until it does.”<sup>16</sup>

DCI’s effectiveness in shaping European force structure will depend on more efficient European defense investments and eventually on increased defense budgets. Italian Prime Minister Massimo D’Alema is credited with having said, “Europe spends over 60 percent of what the U.S. spends on defense but gets only 10 percent as much.”<sup>17</sup> This is a result of duplicative weapons investments among nations, which reduce the overall return for each dollar allocated to defense. Secretary-General Robertson is focusing his efforts on the European return on investment rather than finding new funds.<sup>18</sup>

Furthermore, while the U.S. spends about 3.2 percent of its GDP on defense, European members of NATO, on average, invest only a 2.1 percent of GDP on defense. With a 1.5 percent of GDP investment, Germany, the largest and most wealthy European NATO member, invests the smallest amount of all the major NATO nations.<sup>19</sup> The investment disparity is clearly apparent in the area of research and development where Europe spends \$10 billion per year versus \$36 billion per year for the U.S.<sup>20</sup> All of which caused the WEU Chairman Lluís Maria de Puig to write in 1998 that, “Defence spending levels below three percent of GDP are not adequate for Europe to play an important role in a system of collective defence. A professional army, armaments modernisation and access to new technologies require this level of spending. Failing this, Europe will be incapable of carrying out any independent military operations.”<sup>21</sup> Secretary Cohen echoed this call in a December 1999 *Washington Post* opinion piece publicly exhorting the European members of the Alliance to spend more on defense.<sup>22</sup>

Assistant U.S. Secretary of Defense for International Security Affairs Franklin Kramer cogently described the relationship between the new Strategic Concept and DCI, “The Strategic Concept and the Defense Capabilities Initiative provide the political and military guidance for NATO defense planners – the blueprint – or, if you will, the theory. Kosovo provides a real-world example of NATO forces rising to the challenge of repression and inhumanity to secure peace, freedom, and democracy. Kosovo is an application of the Strategic Concept and the Defense Capabilities Initiative – or if you will, the practice.”<sup>23</sup> DCI, the second strategic vector influencing NATO, will have a significant impact on Alliance intelligence capabilities and the resources allocated to build them. As already noted, European investment in intelligence, surveillance and reconnaissance is required if the Alliance is to redress the power projection gap so evident during Operation Allied Force in Kosovo. National budgetary priorities reflecting the overall strategic concerns of individual nations will ultimately determine which intelligence investments occur in response to DCI but the third strategic vector, the European Security and Defense Identity (ESDI), will heavily influence this strategic debate.

#### EUROPEAN SECURITY AND DEFENSE IDENTITY

ESDI as a concept has existed through the Western European Union (WEU) since the late-1940s. However, ESDI in its current configuration traces its roots to the 1996 North Atlantic Council Ministerial

meeting in Berlin, Germany where the European Allies agreed that ESDI should be developed within NATO rather than as a separate capability. Although ESDI remains in the very early stages of implementation, the decisions of the Washington Summit and the December 1999 European Council meeting in Helsinki, Finland have established the key policies that will guide its development from a paper concept to reality. The Washington Summit report described ESDI in these words,

The European Allies have taken decisions to enable them to assume greater responsibilities in the security and defense field in order to enhance the peace and stability of the Euro-Atlantic area and thus the security of all Allies. On the basis of decisions taken by the Alliance, in Berlin in 1996 and subsequently, the European Security and Defense Identity will continue to be developed within NATO. This process will require close cooperation between NATO, the WEU and, if and when appropriate, the European Union. It will enable all European Allies to make a more coherent and effective contribution to the missions and activities of the Alliance as an expression of our shared responsibilities; it will reinforce the transatlantic partnership; and it will assist the European Allies to act by themselves as required through the readiness of the Alliance, on a case-by-case basis and by consensus, to make its assets and capabilities available for operations in which the Alliance is not engaged militarily under the political control and strategic direction either of the WEU or as otherwise agreed...<sup>24</sup>

Among the guiding principles are:

- reaffirmation that the allies will act through NATO wherever possible;
- recognition of the resolve of the European Union (EU) to develop the capacity for autonomous action in situations where the Alliance as a whole (read U.S.) is not engaged;
- agreement on the importance of strengthening European defense capabilities while avoiding unnecessary duplication;
- agreement to further develop the Berlin decisions – in particular the concept of “separable but not separate” assets for WEU-led operations;
- arrangements for the effective sharing of information, including intelligence, that NATO and the WEU would require in the context of WEU-led operations;
- NATO commitment to develop arrangements to facilitate “ready access” by the EU to NATO assets and capabilities.<sup>25</sup>

Ambassador Vershbow summed up ESDI in this way, “At present, the U.S. provides the lion’s share of the strategic lift, logistical support, intelligence assets, all-weather aircraft, and precision-guided munitions needed to sustain military operations beyond NATO territory, as we are seeing in Kosovo. If ESDI is to mean something in practice, it must address the question of capabilities.”<sup>26</sup>

Since the Washington Summit, Mr. Solana has resigned as NATO Secretary-General and been appointed as both the European Union’s High Representative for Common Foreign and Security Policy and the Secretary-General of the Western European Union. In these roles, Mr. Solana will oversee the development of ESDI. He is also responsible for the transfer to the EU of all WEU assets - - a planning cell, crisis management center and intelligence unit in Brussels, Belgium and a satellite imagery

exploitation center in Spain consisting of about 100 people.<sup>27</sup> As a result, the WEU is expected to disband within the year as part of a friendly takeover by the EU.<sup>28</sup>

The preeminent role of the EU in the development of ESDI was evident in December 1999 when the European Council meeting in Helsinki approved an Anglo-French proposal for an autonomous capability to conduct EU-led military operations. The plan calls for the EU, by 2003, to have a rapid reaction capability to deploy, and sustain for a year, 50-60,000 troops capable of humanitarian, rescue, peacekeeping and peacemaking tasks.<sup>29</sup> This EU force will include organic intelligence capability.<sup>30</sup> The Joint Declaration following the Anglo-French Summit in November 1999 also calls upon the EU to rapidly develop capability goals in intelligence, command & control and strategic lift.<sup>31</sup> In mid-February 2000, EU military capabilities continued to evolve when the EU foreign ministers approved the formation of an initial military planning staff of 10-15 officers with the intention of expanding the staff to 90 people.<sup>32</sup>

Up until the Helsinki Summit, there was a hard push by some EU members, led by France, to build a military capability that would be autonomous from NATO allowing the EU to be the option of first resort for crisis management rather than working decisions through NATO.<sup>33</sup> Frederick Bonnart, editorial director of *NATO's Nation's* - - an independent military journal - - described this trend, "...strong political elements in Continental Europe hanker after complete separation from the United States and see the new force as the beginning of Europe's independent defense."<sup>34</sup> This position fueled much U.S. concern that Europe intended to build its own army which eventually could result in decoupling of the Atlantic and European pillars of the Alliance. While such a development would have overwhelming influence on EU force structure decisions, much of this concern was allayed by the decisions taken in Helsinki.<sup>35</sup> The EU will only conduct military operations where NATO as a whole is not engaged which underscores ESDI as part of a larger transatlantic project.<sup>36</sup> Mr. Solana's recent comments make clear the current position of the EU,

In this new environment, our trans-Atlantic partners do not necessarily wish to intervene in every regional crisis on the Continent. There will be occasions when, after appropriate political consultations, they will be happy to see the Europeans take the lead... The aim is to contribute more effectively to international peace and security. It is not an ambition to set up a new military alliance in Europe that would compete with or replace NATO. It is a positive effort to play a more committed, responsible role... The EU's leaders decided that this project must be taken forward in close cooperation with NATO and with maximum transparency.<sup>37</sup>

U.S. Deputy Secretary of State Strobe Talbot publicly emphasized strong U.S. support for ESDI as expressed at Helsinki.<sup>38</sup>

ESDI is a powerful strategic vector in NATO today because it formally acknowledges a larger European role in its own security and defense that, at times, will operate outside of NATO command and control.<sup>39</sup> It also makes available NATO's assets, including intelligence, surveillance and reconnaissance resources, to the EU for their operations under the concept of

"separable rather than separate" capabilities. There is an inherent tension between the Alliance's desire for a stronger European pillar and the potential it will result in an inefficient expenditure of resources for duplicative command structures and capabilities, or worse, that it will result in a degree of European autonomy that threatens the cohesion of the transatlantic bond. How individual European nations ultimately perceive their relationships to the EU and NATO will affect how they align the priorities of their defense budgets. Nations looking for a higher degree of autonomy under EU auspices will have to devote more to intelligence, surveillance and reconnaissance in addition to their other force structure investments, while nations intending to use NATO as its primary security and defense structure can depend on assured access to U.S. intelligence resources.<sup>40</sup>

### **INTELLIGENCE AND OPERATION ALLIED FORCE**

It is commonly accepted among NATO policy makers, defense intellectuals and the media that the crises in Bosnia and Kosovo during the 1990s accurately presage one sort of non-article 5 challenge the Alliance must be structured to manage in the 21<sup>st</sup> century. Admiral James O. Ellis, Commander of NATO's Allied Forces Southern Europe and U.S. Joint Task Force Noble Anvil during Operation Allied Force (OAF), maintained that Kosovo was a glimpse of urban warfare and asserted that target areas in future campaigns will be more like Belgrade than the Iraqi desert.<sup>41</sup> In a separate post-war brief, the USCINCEUR J3 echoed this assessment.<sup>42</sup> Accordingly, NATO's operations in the Balkans are instructive about the Alliance's military preparedness to conduct crisis management at the beginning of the new century. This paper will take advantage of OAF, the largest combat operation in NATO history, to describe how intelligence operations are presently organized within the Alliance and as a yardstick to judge their effectiveness to support NATO's new strategic concept.

NATO's dependency on U.S. intelligence is widely reported in the press.<sup>43</sup> In fact, U.S. Senator William V. Roth called European intelligence capabilities a glaring shortfall in OAF.<sup>44</sup> However, in order to postulate what direction DCI and ESDI should push European intelligence capabilities, it is important to examine in detail how NATO's intelligence structure actually worked during OAF and discover where the notable European contributions occurred. As such, this section of the paper will look at how NATO accomplished four intelligence functions - - target development, battle damage assessment (BDA), surveillance & reconnaissance and situational awareness.

NATO's intelligence doctrine is revealing and is a good place to start this examination, "In peacetime, NATO commanders' have to rely largely on Member Nations for the intelligence they need. In wartime, the majority of NATO commanders' intelligence may still come from the member nations; however, they will also acquire intelligence from many different sources and agencies such as assigned combat units, reconnaissance units and aircraft."<sup>45</sup> In simple terms, NATO the organization, at the strategic level, is a consumer of intelligence not a collector or producer of intelligence. NATO doesn't

conduct intelligence operations. There is no NATO intelligence fusion center. In 1991 British Colonel John Hughes-Wilson, Chief of Basic Branch, Intelligence Division, Supreme Headquarters Allied Powers Europe (SHAPE), used these words to describe the situation,

NATO Intelligence arguably does not exist. What we have today is an amalgam of intelligence, released by the nations to various parts of the Alliance. NATO, to follow the classic process of intelligence, neither collects nor processes raw intelligence. While NATO's military headquarters undeniably collate and disseminate intelligence, this is merely the pre-digested product released by other, national, intelligence agencies.<sup>46</sup>

NATO today operates essentially the same way according to Colonel William G. Fillman, J2 at SHAPE's Joint Operations Center.<sup>47</sup> NATO identifies broad intelligence requirements to Member Nations and hopes answers will be forthcoming. Alliance nations provide finished intelligence in return, normally in the form of summaries, to the NATO headquarters in Mons, Belgium and to major NATO operational commands. Under this architecture, the information shared is not timely; often more than a week old. During OAF, this process was streamlined on occasion by bringing civilian national intelligence representatives together at SHAPE headquarters to trade intelligence directly. This yielded important dividends because most Member Nations have highly developed human intelligence (HUMINT) capabilities within Europe so a true exchange of unique intelligence was possible using this method. The challenge for most NATO nations, however, is the provision of timely, actionable operational intelligence to military commanders and their forces.<sup>48</sup>

Individual countries retain responsibility for providing operational intelligence to their national forces even when serving under NATO command and control. One long time participant in NATO planning couched it this way, "In NATO planning... Intelligence seems to be an afterthought. 'NATIONS WILL PROVIDE INTELLIGENCE SUPPORT TO THE OPERATION.'"<sup>49</sup> The point is that modern warfare is centrally planned, complex and executed very quickly on a decentralized basis which makes a common understanding of the battlespace critically important. As such, if intelligence is to keep pace with operations, pre-execution planning must be deliberate and robust.

In light of NATO's doctrine, it is not surprising there is no policy on intelligence collection management – e.g. a methodology at the strategic and operational levels for matching collection tools to information requirements resulting from operational planning or execution. At the operational and tactical levels, there are no NATO tactics, techniques and procedures for integrating different collection platforms to develop situational awareness.<sup>50</sup> As a result, collection management responsibilities in support of NATO operations devolve to the U.S. because the U.S. controls robust collection capabilities and has the practical experience in operational management. Contrasting NATO intelligence doctrine and practice against NATO's demonstrated preference for precision warfare, the mismatch between intelligence ends, ways and means is stark. The sheer size of the intelligence effort which supported OAF is not only very impressive but also resource intensive.

Admiral Ellis noted OAF was the most precise and lowest collateral damage air campaign in military history.<sup>51</sup> Of the more than 9,400 designated target aim points, over 70% were struck by

precision munitions, including 329 cruise missiles, with only 20 of 23,000 weapons going astray.<sup>52</sup> Planning for a precision campaign of this scale required extensive target intelligence which was almost exclusively an American effort. After the accidental attack on the Chinese Embassy in early May, SACEUR pressed all nations to nominate targets and "No-Strike targets" to SHAPE's target cell; however, only the United Kingdom and France submitted offensive target nominations lists. Conversely, many Member Nations responded to the call for "No-Strike targets." A small number of Allied nominations also flowed directly to SACEUR via phone during the course of the war.<sup>53</sup> There are no statistics on how many Allied nominations survived the target review and scrubbing process to become missions on the Air Tasking Order.

#### INTELLIGENCE AND PRECISION TARGETING

Target development is an "all source" intelligence process using imagery, signals intelligence (SIGINT) and HUMINT to conduct target system analysis, installation identification and functional review, verify aim point location, and build a collateral damage risk assessment. Assigned the lead on this mission, the U.S. theater intelligence center, Joint Analysis Center (JAC) worked very closely with the Defense Intelligence Agency and the nine other U.S. commands comprising the intelligence and targeting community in a federated process. JAC dedicated 85% of its 1200-person effort (as augmented during the war) to OAF. At the same time, it retained other important combat support responsibilities for Operation Northern Watch in Iraq and SFOR in Bosnia.<sup>54</sup> In terms of gauging JAC's total effort, it provided over 22,000 intelligence products to NATO from February 1, 1999 - - just after the Racak massacre sparked the crisis which led to OAF - - to February 1, 2000. By war's end, JAC also had four U.S. liaison officers working at NATO's Combined Air Operations Center (CAOC) in Vincenza, Italy to smooth and tailor the flow of information to the operational level.<sup>55</sup> Although 15-20 Allied personnel work in the JAC's Multi-National Intelligence Coordination Cell, they were not a part of the targeting process.<sup>56</sup>

The option of using Allied personnel to work targeting issues was never considered as tensions and planning efforts increased prior to OAF largely because of SACEUR's concern about the potential of the target list leaking to Serbia.<sup>57</sup> In fact, the target materials used by pilots for mission planning were not posted to the NATO computer server, Linked Operations and Intelligence Centers Europe (LOCE), until specifically authorized by General Clark. Recent NATO experiences in Bosnia and Kosovo had proven operational security concerns were a legitimate issue. In 1997 a French officer in Bosnia reportedly passed NATO plans for the capture of former Bosnian-Serb leader Radovan Karadzic directly to him and in October 1998, during the first Kosovo crisis, a draft NATO target list allegedly had been given to Yugoslav President Slobodan Milosevic by a French officer working at SHAPE headquarters. Greek nationals were also suspected of passing information to Milosevic.<sup>58</sup> Even if the security policy issue had been resolved, the Allies at JAC lacked the technical skills of imagery interpretation, weaponeering, mobile targeting and knowledge of precision weapons required to make meaningful contributions to the

targeting process.<sup>59</sup> Interestingly, the Allies apparently weren't interested in using their people at JAC as conduits into the targeting process because no target intelligence was passed to JAC via this channel.<sup>60</sup>

The size and complexity of the federated targeting process reveals a lot about the hidden up front costs of modern precision warfare. At the start of the war, NATO had 169 targets identified and the war ended 78 days later with 976 targets in the Master Target File. Through the use of collaborative planning tools the target development process was yielding 25 new targets per day at war's end -- up from five a day when OAF commenced.<sup>61</sup>

One JAC targeting officer characterized precision engagement with modern weapons as, "very non-linear in that it has a hugely disproportionate front-end intelligence requirement."<sup>62</sup> This is partly because the concept of effects-based targeting requiring extensive target systems analysis. General John P. Jumper, Commander of U.S. Air Forces in Europe, described the essence of effects-based targeting as a sophisticated target analysis that ties destruction of targets and critical nodes to desired outcomes measurable in hours, days and weeks.<sup>63</sup> This sophisticated target analysis was conducted entirely by the U.S. intelligence and targeting communities with finished target folders released to NATO via LOCE. The overall U.S. target production process used in the European theater for OAF is shown in the following flow chart.<sup>64</sup>

### EUCOM FIXED TARGET PRODUCTION PROCESS

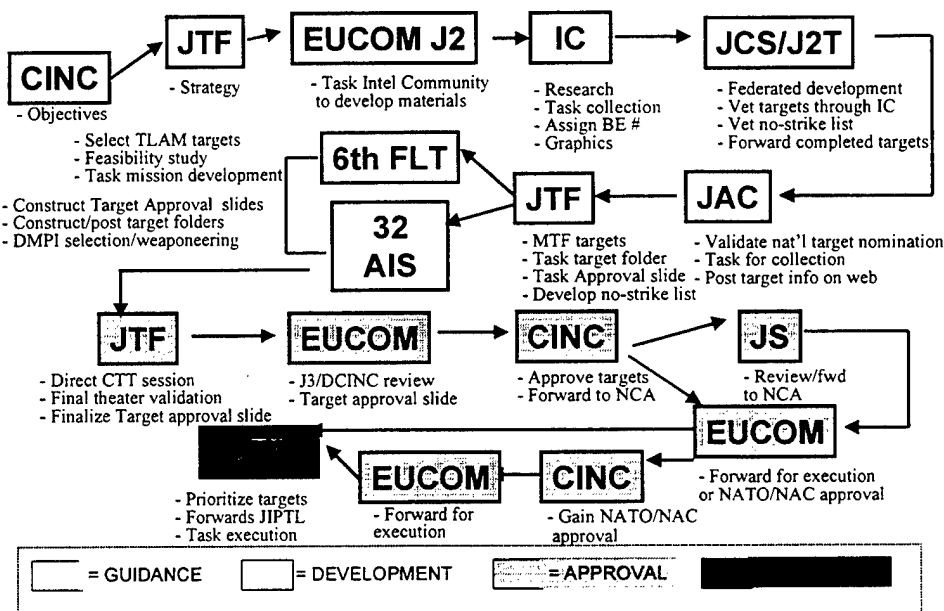


FIGURE 1, EUCOM FIXED TARGET PRODUCTION PROCESS

This next chart is an example of how the process applies to a specific weapon, in this case the Tomahawk Land Attack Cruise Missile.<sup>65</sup>

## ALLIED FORCE TLAM PROCESS

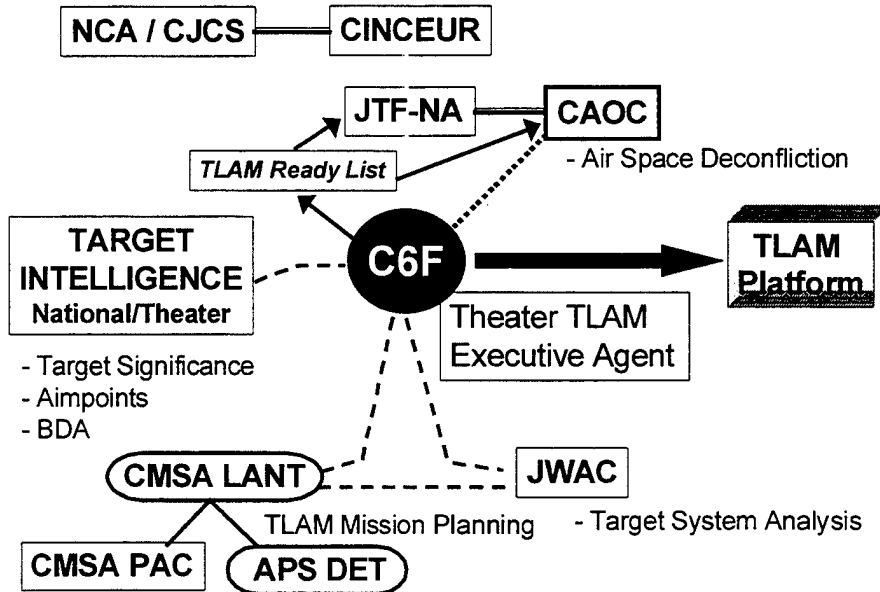


FIGURE 2, COMSIXTHFLT TLAM MISSION PLANNING PROCESS

A good example of effects-based targeting against fixed installations would be the Allied strikes against Serbia's electrical power grid. As reported in the *Washington Post*, "The United States proposed a strike on transmission lines that would take days or even weeks to repair. The French called that unacceptable. So the Americans offered up a top-secret weapon, the CBU-94, which would turn the electricity off for just a few hours."<sup>66</sup> This strike briefly knocked out power to 70% of Yugoslavia. Later, when NATO desired a different effect, they struck different electrical targets using laser guided bombs and disabled 70% of Yugoslavia's commercial electrical production.<sup>67</sup>

The most frequent task in precision targeting is determining where weapon impact should occur in order to achieve the desired level of target damage while avoiding collateral damage. During OAF politically sensitive targets, or those in urban areas, were accompanied with an analysis of the expected collateral damage, an estimate for the number of enemy casualties and an estimate for the number of unintended civilian deaths which would result from the strike.<sup>68</sup> In an effort to control casualties, General Clark insisted NATO re-plan, with different aim points or weapon angles of attack, all targets where unintended civilian deaths were estimated above 20.<sup>69</sup> In this environment, intelligence was repeatedly asked to answer questions like, "How many people live in those houses, what's their ethnic/political

background, when are they home? Or, If bad organization X operates on the second floor [of a building], what is on the first and third floors? Or, If we re-weaponeer that [weapon] attack angle so the blast pattern hits those other buildings, what is in them?"<sup>70</sup> The predictive collateral damage modeling done by the Joint Warfare Analysis Center was validated repeatedly in OAF and is an important tool for decision-makers to draw upon.<sup>71</sup> This *Washington Post* vignette tells the story very well as General Clark prepared then Secretary-General Solana for debate within the North Atlantic Council on his request to expand the bombing campaign to Belgrade,

On March 28, Clark's black Mercedes drew up to NATO Secretary General Javier Solana's home in Brussels. In the dining room, the general gave the Spanish diplomat a detailed lesson in targeting. He explained the blast radius of various weapons. He talked about picking "aim points" - - crossbeams, key stones or baseboards that could be struck to make a building collapse inward, upon itself. NATO planners, he said, could calculate how far shattered glass would fly and whether it would simply graze or embed in a person's skin. If they changed the warhead or angle of impact, they could determine whether concrete would be blown one block away, or three.<sup>72</sup>

The value of this kind of precise analysis and planning cannot be overstated in alliance and coalition warfare where poor target selection or mistakes in execution can potentially undercut alliance cohesion; the NATO center of gravity. The accidental strike on the Chinese Embassy is an excellent example of the non-linear diplomatic and political fallout that can occur when the targeting process breaks down. As the USCINCUER J3 pointed out, Kosovo was a strategic environment where there was "not any war-winning target but there were plenty of war-losing targets."<sup>73</sup> The target intelligence which allowed NATO to operate successfully in this constrained strategic environment is the end product of a permanent, professional intelligence collection and analytical structure staffed with dedicated personnel. European nations in the future will need access to this very precise operational intelligence whether operating under NATO or EU leadership but, today, only the U.S. has the capacity to provide it.

#### BATTLE DAMAGE ASSESSMENT

According to U.S. Joint Doctrine, battle damage assessment or BDA is primarily an intelligence function that estimates the damage resulting from the application of military force. The BDA assessment is composed of physical damage assessment, functional damage assessment and target system damage assessment.<sup>74</sup> Essentially, BDA is the "all source" analytical process used to determine the progress of the air campaign in reaching its stated objectives. This entails estimating the effectiveness of each air strike against the assigned target and the functional system it supports. The results are then provided to the operational commander for inclusion in the overall campaign Combat Assessment.

In order to accomplish this mission, it is vital the assigned analysts have a complete understanding of the campaign plan, the desired effects, the targets and the weapons assigned against them. Therefore, it makes good sense that the organization tasked to conduct the precision targeting is the same one tasked with overall responsibility for BDA. It comes as no surprise that LTG Short, Commander of NATO Air Forces for OAF, depended on JAC for his BDA numbers.<sup>75</sup> The majority of the intelligence,

surveillance and reconnaissance (ISR) data collected for BDA purposes were collected by the U.S. However, Member Nations contributed raw inputs into the BDA process by providing cockpit in-flight reports, post-mission reports (MISREPS), manned photo-reconnaissance collection. British and French unmanned aerial vehicles (UAVs) contributed as well while German national policy prevented use of their UAV in a BDA role.<sup>76</sup> The single French reconnaissance satellite Helios 1A, jointly developed with Spain and Italy, provided French national BDA collection but none of this information was shared with NATO.<sup>77</sup> While JAC was the only organization which could publish official BDA, the raw intelligence provided by the U.S. and Allied tactical collectors was also compiled at the CAOC and used to help build the next day's Air Tasking Order (ATO) or to modify the existing ATO.<sup>78</sup>

The BDA demands in OAF in terms of scope and timeliness were greater than even the JAC could handle as a lone organization so other U.S. theater-level intelligence centers contributed BDA analysis in a federated architecture. Even the U.S. does not have all the personnel it needs for functions like targeting and intelligence analysis.<sup>79</sup> As with precision targeting, the U.S. is the only country with the professional analysts, tools and access to enough ISR data to build a fused BDA assessment. Looking to the future, accurate BDA goes hand-in-glove with precision targeting so European nations will need access to precision BDA products regardless of the command structure they are operating under if they expect to conduct modern campaigns.

#### INTELLIGENCE, SURVEILLANCE AND RECONNAISSANCE

At the operational level, CAOC was the place where mobile and flex-targeting decisions occurred. Obviously dynamic targeting is a function of knowing where the enemy is located and having the operational flexibility to react to new information. This section of the paper will focus on ISR assets in support of OAF and touch briefly upon who fused the information to build the picture at the CAOC.

ISR is an intelligence functional area where U.S. dominance within the Alliance is well documented. In OAF, the U.S. shouldered the preponderance of the operational burden with the commitment of vast resources. Reconnaissance satellites and U-2, RC-135, EP-3, P-3, JSTARS, F-14 TARPS, Predator UAV, Hunter UAV and Pioneer UAV comprised the powerful U.S. ISR network operated on behalf of NATO. Despite these capabilities, OAF placed a tremendous strain on U.S. ISR assets.<sup>80</sup> In fact, in their combined statement to the Senate Armed Services Committee, General Clark, Admiral Ellis and Lieutenant General Short commented on the shortage of U.S. ISR capability during OAF,

Another key lesson is the requirement for additional resources for low density, high demand mission areas. Of particular note are Intelligence, Surveillance, and Reconnaissance (ISR). ISR resources, both equipment and personnel, are essential to every aspect of modern warfare. Areas impacted by ISR include force protection, targeting, and bomb damage assessment...We presently do not have enough of these assets to meet our needs.<sup>81</sup>

Under-resourced or not, the U.S. multi-source collection network provided the basis for Allied situational awareness, threat warning, target development and bomb damage assessment. Germany, France,

Britain, Italy and the Netherlands contributed to the ISR network with manned and unmanned tactical photo-reconnaissance. A senior member of the CAOC C2 organization roughly estimated the ISR collection split between the U.S. (non-satellite) and Allies at about 90% - 10%, respectively.<sup>82</sup>

Threat warning was a resource intensive mission because Serbia's integrated air defenses, comprised of mainly older Russian systems, proved impossible to completely neutralize and remained a threat throughout OAF with 700 missiles fired at Allied planes. Many U.S. capabilities such as the RC-135 were committed to the suppression of Serbian air defenses. There was also some limited Allied SIGINT fed into the threat warning stream provided to OAF aircraft flying over the Federal Republic of Yugoslavia.<sup>83</sup> France, however, did not share SIGINT with NATO although they operated tactical collection sites in Macedonia.<sup>84</sup> As future adversaries buy the more technologically capable air defense systems available on the open market today, NATO's ISR assets will continue to be stressed by the suppression of enemy air defense mission.<sup>85</sup>

Monitoring of ethnic cleansing and supporting humanitarian missions was another NATO challenge. U.S. satellites and other ISR assets were used to monitor ethnic cleansing as the Alliance prepared for humanitarian operations.<sup>86</sup> During OAF the French Helios satellite was used for refugee monitoring and intelligence support to the WEU in addition to national BDA collection.<sup>87</sup> WEU-provided imagery products were unclassified and an important tool for supporting OSCE and NATO monitoring missions working in Kosovo as part of Operation Eagle Eye before OAF.<sup>88</sup> Additionally, AFSOUTH built a database using WEU imagery to support humanitarian missions by non-governmental organizations (NGOs) after OAF.<sup>89</sup> All recent NATO operations have involved humanitarian missions and close cooperation with NGOs. This trend will continue in the future so the EU/WEU capability to provide operational intelligence support to non-combat missions conducted with NGOs is growing in importance and should be maintained.

A unique U.S. ISR capability is sensor-to-shooter operations. In the words of General Jumper, "We had U-2's that allowed us to dynamically retask to take a picture of a reported SA-6, beam that picture to Beale AFB for a coordinate assessment within minutes, and have the results back to the F-15 as it turned to shoot an AGM-130...It wasn't all like that, but that is the capability we demonstrated more than once...When the amalgamation of these and the product of these sensors [U-2, UAV, ground and space-based sensors] are presented in a way that...is targetable, quality data, that is when ISR will have come of age."<sup>90</sup>

Dynamic targeting consumed a lot of U.S. ISR assets because collateral damage concerns drove multiple cross-cueing requirements and the same assets were also supporting immediate BDA requirements.

UAVs were used more extensively in OAF than in any previous U.S. or NATO operation and will continue to play an important role in future combat operations.<sup>91</sup> Designed to be expendable, they fly in areas that are too dangerous for manned aircraft either because of the enemy threat or low cloud cover.<sup>92</sup>

The U.S. flew three different systems during the war with the Predator being the most advanced.<sup>93</sup>

General Jumper assessed Predator's impact this way,

Before Allied Force, the Predator could transmit targeting imagery to its operator on the ground as part of the intelligence collection network. During the air campaign, we reviewed Predator video in real-time and immediately provided pilots with the location of mobile Serb targets. Toward the end of the war, we equipped the Predator with a laser so that it could place a beam on a target - - this identified it so a loitering strike aircraft could destroy it. We were able to successfully employ the Predator with laser only once before Allied Force ended, but in doing so, we developed a capability with great potential for rapid targeting.<sup>94</sup>

However, the Allies also conducted significant UAV operations to good effect during OAF. The British, French and Germans brought excellent UAV capabilities in the Phoenix, Horizon and Droner (CL-289), respectively.

The CAOC integrated UAVs as part of the overall tactical reconnaissance plan and used them for situational awareness, target development, BDA and for refugee verification.<sup>95</sup> French UAV data was linked to a national operations center in Macedonia and transmitted electronically to the French National Intelligence Cell (NIC) at the CAOC. The personnel at the NIC analyzed the pictures and passed their analysis to Military Intelligence Headquarters in Paris where rapid releasability determinations were made. The French were very timely in passing tip-offs of enemy activity directly to CAOC and data was also posted to LOCE.<sup>96</sup> Phoenix pictures were not provided to CAOC as a normal practice but the derived intelligence, rather than the picture, was the key so this level of cooperation worked effectively. The German CL-289 UAV battery (18 airframes) was also based in Macedonia. The CL-289 is primarily a wet film based system but the intelligence from these missions was disseminated very rapidly considering the sunk time cost for film development and analysis.<sup>97</sup> The Germans rapidly passed tip-offs of enemy activity to CAOC and routinely posted their imagery to the LOCE server. This process had been honed prior to OAF when the Germans participated in Operation Eagle Eye.<sup>98</sup> The experience NATO's three largest European nations have in UAV operations is an important foundation for the future as they consider force structure improvements as part of DCI.

CAOC's role in ISR data fusion is important because it was the nerve center for NATO's Air operation and the key node supporting Lieutenant General Michael Short, COMAIRSOUTH, the commander for NATO's air operations in OAF. Along with many other mission areas, CAOC was responsible for mobile targeting. The U.S. and Allies shared the personnel bill for the people involved in the intelligence fusion process at CAOC. During peace-time operations, the U.S. contributes about 60% of the people but that percentage rose to nearly 80% during OAF as U.S. augmentation flowed in.<sup>99</sup> This highlights an important issue in the way many Member Nations perceive intelligence; most have not made the investment in trained military intelligence analysts. For example, often the Allied personnel detailed to CAOC intelligence billets are grounded pilots or people with a secondary specialty in intelligence so their

ability to contribute to the analytical process varied by individual.<sup>100</sup> This self-imposed constraint in the field of military intelligence is a common weakness in the force structure of non-U.S. NATO Members.

#### SITUATIONAL AWARENESS

With its size, supporting communications and access to raw and finished U.S. intelligence, JAC dwarfs any other Member Nation's intelligence fusion capability so it is not surprising JAC acted as NATO's fusion center for OAF. In this capacity, JAC built and distributed to all NATO nations the situational awareness that provided a common understanding of enemy intentions and threats in the battlespace. JAC's ability to do this was as much function of the analytical expertise resident in its personnel as it was a result of its size. The value of the analyst to combat operations was well stated by then Vice Admiral Dennis C. Blair, formerly Associate Director of the Central Intelligence Agency for Military Support and now Commander U.S. Pacific Command,

But for all the utility of the stealthy, multi-sensor, long dwell systems that lead to DBA [Dominant Battlespace Awareness] and DBK [Dominant Battlespace Knowledge], these assets cannot supply all the intelligence that a commander needs. It is unlikely that even the best overhead systems, airbreathing platforms, or Unmanned Aerial Vehicles (UAVs) will provide good intelligence on an opponent's intent. This is the most difficult aspect of intelligence, and nowhere is the contribution of the intelligence analyst more critical. It is the rare case when human intelligence (HUMINT) or signals intelligence (SIGINT) reveals an opponent's intent. Instead, the really valuable insights are typically the result of hard work done by an analyst who has been studying the problem for a long time. A price tag cannot be placed on the value of the intelligence analyst that can "think like the enemy" and piece together the incomplete HUMINT or SIGINT pieces to shed light on the enemy's intent.<sup>101</sup>

JAC maintained a dedicated analytical task force to provide this support and published a NATO releasable summary every day in addition to a robust feed of spot reports via e-mail and record messages to SHAPE and operational units throughout the day. JAC's effectiveness in this role was greatly enhanced by the most liberal U.S. policy on release of intelligence to NATO yet seen.<sup>102</sup> However, the key to success in the analytical realm will always be sufficient, knowledgeable people to evaluate information and assess its meaning in terms of ongoing or anticipated operations. Even U.S. JTF Noble Anvil contributed with a daily NATO releasable Combat Assessment update which further assisted in the development of Allied situation awareness.<sup>103</sup>

In situational awareness, as in other functional areas of operational intelligence, the U.S. plays a preeminent role in NATO. OAF clearly showed that today U.S. intelligence capabilities are a baseline requirement for NATO to conduct combat operations. However, OAF also reflects some areas, such as ISR operations, where the European Allies have good expertise, if not great depth, that can be built upon as the Alliance thinks through DCI. In fact, reconnaissance and surveillance is one issue DCI is chartered to review with the goal of developing more robust and more capable ISR network for the Alliance. There are other areas where the Allies haven't traditionally placed much emphasis where they will need to grow in order to realize the maturation of ESDI.

## INFLUENCE ON FUTURE INTELLIGENCE CAPABILITIES

The foregoing sections of this paper looked at NATO's strategic environment and how intelligence functionally supported NATO's combat forces in OAF. This backdrop helps illuminate the way ahead for intelligence support within the Alliance. The final portion of this paper will synthesize the influences acting on NATO and project how intelligence within the Alliance should evolve to best serve military operations conducted by both the North American and European pillars of the Alliance. One fundamental truth is that NATO today is more reliant on intelligence than ever before in its fifty-year history and this dependence is growing quickly. The two most recent Chairmen of NATO's Military Committee, General Klaus Naumann and his successor Admiral Guido Venturoni, recognize this fact. Undoubtedly their experiences as Chairman during OAF shaped their views. In his farewell press conference in May 1999, General Naumann shared his future vision for NATO's armed forces and noted, among several important requirements, the need for mobile Command, Control and Communications and excellent intelligence.<sup>104</sup> Shortly after the end of OAF, *Aviation Week* reported,

Admiral Venturoni specifically highlighted the need for intelligence, both military and nonmilitary. He said NATO, which has few intelligence assets of its own, "must solicit from its members for considerably more than was previously the case if it wished to remain inside the decision-cycle of any potential adversary." This means both acquiring additional intelligence-gathering platforms, such as NATO's long-stalled Airborne Ground Surveillance program, and expanding and reorienting intelligence gathering into more nonmilitary realms.<sup>105</sup>

There is no debate over Javier Solana's January 2000 assertion, while wearing his EU & WEU hats, that Kosovo was a wake-up call for European leaders and their publics over the shortcomings of European national and collective military capabilities.<sup>106</sup> While intelligence is only one of several key deficiencies competing for attention, improvements to intelligence capabilities can be anticipated because the new Strategic Concept is unsupportable without a more balanced intelligence structure within NATO. NATO's embrace of non-article 5 missions and the EU's desire to engage in military crisis management using NATO's capabilities, portrays an interventionist future with North American and European forces committed to more military operations.

Despite the results of Helsinki, the tension will remain between ESDI as it is currently developing within NATO and the vision the French have of it being the first step toward European military autonomy.<sup>107</sup> This tension will color how different members of the Alliance perceive the correct capabilities mix for NATO as the Defense Capabilities Initiative takes form. The reality, however, is that Europe collectively cannot afford to replicate the full range of U.S. intelligence capabilities and still have sufficient resources to modernize and reorganize its operational forces. So the issue boils down to what organic capabilities should the European Members buy for their national forces and what services should they look to their Alliance partner to provide their forces when committed to NATO or EU operations.

## SPACE-BASED RECONNAISSANCE

German Minister of Defense Scharping is a strong public advocate of a European-controlled strategic air intelligence capability. He recently reemphasized this position in the *International Herald Tribune* and called for a capability that can serve both the EU and NATO.<sup>108</sup> Mr. Scharping's preferred solution for strategic reconnaissance has been a satellite-based system and Swiss press quoted him in June 1999 as saying, "Either we get full and unfiltered access to U.S. data or we will have to create our own satellite system."<sup>109</sup> However, this vision of a cooperative European reconnaissance satellite constellation appears fiscally unattainable given shrinking European defense budgets.<sup>110</sup>

France launched its first military imaging satellite (day-only capability), Helios 1A, in July 1995 and was scheduled to launch its second spacecraft, Helios 1B, in November 1999.<sup>111</sup> While France bears the lion's share of the financial burden for the Helios 1 project, Italy and Spain also contribute 14% and 7% of the funds, respectively. The WEU also receives Helios data for exploitation under a memorandum of understanding with the cooperating countries signed in 1993.<sup>112</sup> Unfortunately, at 1-to-5 meter resolution the quality of this imagery constrains its military usefulness for certain missions -- precision targeting being an example of where higher resolution images are required.

Two years ago Germany backed out of a bilateral deal with France to develop the \$2.4 billion Horus military imaging radar satellite (night/poor weather capability) for which Germany would have borne 60% of the costs.<sup>113</sup> The German decision ultimately forced France to cancel the project because they could not afford it without European partners.<sup>114</sup> Similarly, Germany backed out of a 10% commitment to the development costs of the \$2.3 billion Helios 2 military infrared imaging satellite (day/night capability) because of budgetary constraints. France is carrying the main financial burden for the two planned Helios 2 spacecraft although Spain is expected to commit to the project and negotiations are underway with Belgium and Italy.<sup>115</sup> Helios 2 satellites are scheduled for launch in 2003 and 2007 which would give France a day and night imaging capability.<sup>116</sup>

Since the Gulf War, French policy has been to acquire an independent near-real time space-based intelligence capability, available to the WEU, to reduce dependence on the U.S.<sup>117</sup> This behavior is consistent with French tradition of standing apart from NATO and their current anxiety about 'America the Hyper-power.' This attitude is not likely to change in the foreseeable future.<sup>118</sup> Other European nations should carefully consider whether their own national security interests are best served by participating in the French reconnaissance program. The French have yet to demonstrate the capacity to provide combat support to tactical and operational units with their Helios satellite and did not share their satellite reconnaissance results with NATO during OAF.

Furthermore, with the September 1999 launch of the Ikonos satellite by Space Imaging Inc, one-meter resolution imagery -- equivalent quality to Helios -- is now commercially available. The \$2,000 price for the best resolution Ikonos image is expected to fall over time as a more commercial satellites are launched in coming years with the global market in commercial imagery projected to reach \$5 billion by

2004.<sup>119</sup> Space Imaging's biggest customer today is the U.S. Department of Defense, confirming this imagery has some military applications.<sup>120</sup> The WEU Satellite Center, which has exploited commercial imagery, in addition to Helios data since it reached full operational capability in 1997 is well positioned to take advantage of the expanding availability of one-meter imagery. The WEU facility has several missions including support to humanitarian or non-combatant evacuation operations, peacekeeping operations, and combat force tasks needed for crisis management. However, it operates at the strategic level and is not configured to provide 24-hour operational intelligence support to combat operations.<sup>121</sup>

The focus of this organization is reflected by this description in a 1998 article in *NATO's Sixteen Nations*,

During the Great Lakes crisis, and more recently in Albania, the Centre was able to demonstrate its comprehensive savoir-faire at very short notice. In both cases, the first dossiers were on the [WEU] Council's table four days after the Planning Cell asked for them... These crises also provided an opportunity to appreciate the contribution of Helios imagery at its true value. Several special dossiers, all classified "WEU Secret", were taken by hand to Brussels and the data in them communicated to the Council via the Planning Cell.<sup>122</sup>

French and German fascination with organic satellite reconnaissance reflects a belief that an independent space-based capability, even one significantly less capable than the U.S., is a symbol of international prestige in much the same way that Germany viewed its battleship navy at the end of the 19<sup>th</sup> century.<sup>123</sup> One gets a palpable sense the French and Germans perceive ownership of a reconnaissance satellite as the ultimate intelligence "silver bullet" that confers respectability to a national intelligence program. However, reality is that collection of raw intelligence, regardless of the method, is only the first step in a long and expensive process to refine the data into useful information. The earlier discussion of the analytical underpinning of precision targeting is an excellent example of just one such process required to obtain actionable information from raw intelligence.

There is no question the EU, building on French experience, can successfully design and launch a state-of-the-art space-based reconnaissance system, if it spends enough money. By way of comparison, the U.S. is poised to embark on a 10-year, \$4.5 billion program to launch a new generation of reconnaissance satellites and has only recently discovered it will cost an additional \$1-2.8 billion to build a tasking, processing, exploitation and dissemination system to make the system useful to national policy makers and military operators.<sup>124</sup> Pursuing a first-class satellite system would be an expensive effort for European nations which, in the end, would largely duplicate a service the U.S. already contributes free of charge to the NATO alliance. It would divert scarce resources from other pressing operational requirements such as strategic lift, precision and standoff weapons, logistics and command, control, communications, computers and intelligence (C4I). In today's strategic environment, a major EU investment in satellite reconnaissance is not warranted when balanced against other competing defense requirements. This is particularly true when the existing WEU/EU Satellite Center can be relied upon to very effectively answer the EU's strategic intelligence questions using the commercial and French imagery it has today and the improved capabilities already programmed for tomorrow.

As NATO members, European nations should take advantage of the unique U.S. contribution of space-based intelligence and focus their intelligence investments in other areas where the Alliance needs help. After all, the enduring value of any alliance is the extent to which it brings together the complementary strengths of multiple nations and relieves individual states from the burden of fielding a full range of capabilities. Given that one of the guiding principles of ESDI is that NATO capabilities, including ISR, are available for EU-led operations, U.S. satellite intelligence will continue to be available for crisis management regardless of the command and control structure. The real issue is how to divide the intelligence burden by developing complementary national capabilities. DCI is the forum to integrate this effort across the Alliance.

#### INTELLIGENCE REQUIREMENTS EVIDENT IN THE WAKE OF OPERATION ALLIED FORCE

OAF provides the best framework for identifying the deficiencies of NATO's intelligence structure and showing where national investments and policy changes can have rapid payoff to the Alliance, and by extension, to the EU. As demonstrated earlier in this paper, ISR, the lack of a NATO intelligence center and a shortage of analytical manpower are areas that need attention. The lack of a state-of-the-art NATO C4I architecture is another important factor which affected intelligence operations during OAF.

General Clark reported shortfalls in both ISR platforms and personnel during OAF despite a large U.S. commitment of collection capabilities. The reasons for the high demand on ISR assets have been explained above and their impact will continue to be felt in the next war. General Clark commented on the crucial nature of ISR to modern military operations which is the same message delivered by the JTF Noble Anvil J2 when he said, "For ISR, more is better. Like [communications] bandwidth, there is never enough."<sup>125</sup> Additional NATO ISR capacity in the near term must come from Member Nations because the current allocation of U.S. defense spending will not alleviate the U.S. shortage of collection capability for another 8-10 years.<sup>126</sup>

Better and more robust ISR, coupled with the urgency of wartime intelligence and the detail of precision warfare, resulted in a significantly increased analytical workload during OAF compared to the crisis capacity which had been in place across the theater for several months. This bigger workload was compensated for in two ways - - substantial U.S. personnel augmentation at JAC and CAOC as well as federated U.S. targeting and BDA syndicates. The demands on analytical personnel in future wars will continue unabated because of the nature of modern war and NATO must plan to meet this inevitable surge requirement.

Analytical and ISR products are only relevant if they reach the warfighter in time to support operational planning and execution. The key to moving crucial information in a timely way is a modern C4I architecture. In this supporting function, OAF showed a great disparity between the U.S. and the rest of the Alliance. In the words of General Naumann, "There is an urgent need to close the two gaps which exist today between the U.S. and the European/Canadian allies: The technological gap in the field of C4I and the capability gap caused by the lack of investment in modern equipment."<sup>127</sup> NATO needs a C4I

architecture that extends to the operating forces and makes intelligence interoperable with the warfighter's command and control system. This would allow rapid exchange of information and support the kind of sensor-to-shooter operations described by General Jumper above and allow the passage of large targeting data files between levels in the chain of command. Messrs. John Deutch, Arnold Kanter and Brent Scowcroft recently asserted the vital role of C4I in an article in *Foreign Affairs*,

As the first Gulf War and more recently Kosovo showed, Western military commanders can now have near real-time information available about their foes. If this intelligence is coupled with modern precision weapons, victory can be achieved much faster and with far fewer casualties to soldiers and civilians than ever before... C3I is the brain of modern warfare, so to say that the United States, NATO and Europe will have separate C3I structures is a bit like saying one healthy body can have one, two or three heads. In principle, one can imagine three different systems communicating seamlessly in combined wartime operations, but in the real world, it would probably be ineffective, cumbersome and expensive.<sup>128</sup>

C4I is one of the core issues that DCI will address and the extent of that success will have a direct impact on the effectiveness of other initiatives across the Alliance to improve intelligence support to operational forces.

#### ACHIEVABLE PROGRESS FOR THE FUTURE

The bottom line question which NATO must answer is, given its new strategic concept and the experience of OAF, what concrete steps can the U.S., the European Pillar, and NATO agree upon to improve intelligence support to combat operations? Each entity has work ahead if the Alliance is to move forward. At the political level, expeditious decisions are needed by the EU and NATO to continue the development of ESDI to ensure it blossoms within NATO.<sup>129</sup> Another important way to achieve improvement is for the European Members to adopt a guiding principle that their intelligence investments will be focused toward their combat forces. They must resist the seduction of building a separate EU intelligence support structure that duplicates what is already available to them by virtue of NATO membership and ESDI. A separate structure will only swallow their defense money, reduce the funds available to improve warfighting capabilities, and not fundamentally improve the intelligence support to combat forces.

The first step, and the one with the greatest immediate impact, is for the European Members to expand their ISR capabilities. This should be accomplished by upgrading and modernizing existing programs and by funding additional capabilities. The Germans plan to upgrade the Navy's four Atlantique signals intelligence (SIGINT) aircraft, expand the Air Forces' Recce-Tornado aircraft from a strictly photo capability to a Photo-SIGINT capability and continue its UAV program.<sup>130</sup> In terms of new capabilities, France, Italy and the Netherlands are evaluating the Predator medium-altitude endurance UAV for acquisition by their air forces. General Atomics Aeronautical Systems, Inc, has technical agreements with Meteor Costruzioni Aeronutiche Ed Elettroniche SpA in Italy and SAGEM SA in France for foreign marketing and integration of their product. SAGEM will be offering the Predator UAV to the French and

Dutch Air Forces under the name of HORUS. These developments are consistent with the guiding principle established above and set a fine example for all the European Members to emulate.

While satellite reconnaissance is not recommended as a prudent use of scarce money, investment in a fleet of high-altitude endurance UAVs would provide a similar strategic air reconnaissance capability focused on operational and tactical support. The U.S.-developed Global Hawk UAV program is designed to provide 24 hours of on-station time and a choice of payloads - - electro-optical & infrared sensors or synthetic aperture radar with the capability for both satellite and line-of-site communication relays to the ground station.<sup>131</sup> Undoubtedly, a SIGINT payload could also be engineered if desired. Still in the test and evaluation phase, Global Hawk has achieved a total mission length of 17.2 hours of which 12 hours was on-station time. Compared to building a satellite system like the cancelled Horus at \$2.4 billion, long-dwell UAVs are very affordable in the \$14-to-15 million range and bring flexibility satellites will never match.<sup>132</sup> Europe collectively could buy 160 Global Hawks for the cost of the cancelled Horus satellite program. The point isn't that European Members necessarily need to buy Global Hawk, although they ought to consider it; but they definitely need to harness the technology it represents and ensure the resulting product is interoperable with U.S. systems.<sup>133</sup> Several European Allies operate tactical UAVs today so expansion of their fleet would represent evolutionary growth in capability and leverage their operational and doctrinal knowledge. Most importantly, it would provide a key tool for enhanced intelligence and development of sensor-to-shooter capabilities for the operational forces.

DCI is the right opportunity for the European Members to plan how to share the burden of military modernization. Frederick Bonnart stated most cogently in a recent opinion piece in the *International Herald Tribune*, "There is no fundamental justification for all of them [European nations] to have separate land, air, and naval forces, each with a full gamut of tasks with their costly superstructures. Specialization would allow large savings while simultaneously enhancing efficiency; it would also eradicate the fiction that each has an all-round defensive ability."<sup>134</sup> This principle could certainly be applied to the expensive ISR and personnel investments that Europe needs to program. Some nations could buy medium-altitude UAVs and some could purchase high-altitude platforms while others provided manned reconnaissance aircraft or specialized in providing professional intelligence analysts.

By virtue of increasing ISR capabilities in the European pillar, NATO will need to devise the doctrinal tactics, techniques and procedures to task and manage ISR across the entire Alliance. Today the U.S. does it out of necessity, but it is time for NATO to take responsibility for the ISR mission as it does with other mission areas.

Increasing ISR capability also means European Members need to develop a professional intelligence cadre to exploit the raw information, develop intelligence and support decisions at the tactical and operational levels of war. This is an urgent need and requires a long view because it takes time and experience to "grow" professional intelligence specialists. The French have recognized this need for a joint force operational intelligence capability and have a plan to achieve it. If they stay the course, France will have a small scale 24-hour operational intelligence capability in 5-10 years.<sup>135</sup> Allied intelligence

cadres should be sized to both sustain national operations and to contribute to NATO's needs. For example, Member Nations should be expected to detail experienced professional intelligence personnel to staff commands like the CAOC which are key users of the ISR data which European UAVs and aircraft collect.

Recent events clearly demonstrated that NATO needs a designated intelligence fusion center – the role that JAC played in OAF. This designation should accompany a change in doctrine acknowledging a NATO responsibility for provision of operational intelligence support to forces under its command in addition to intelligence received by combat units directly from their own countries. Not surprisingly, there are NATO proposals to establish an intelligence center but they focus on quicker sharing of information between Members rather than operational support. When an interviewer recently asked where the Europeans should focus their military technology or capability, General Clark responded,

Because the fundamental basis of managing any crisis has to be a common perception of what the crisis entails and what an acceptable strategy would be in dealing with it, I think it's important to strengthen intelligence-sharing within NATO. In the Kosovo operation, the majority of the intelligence came from the United States. We need a much broader-based intelligence process, and other nations need to contribute more to the common intelligence picture. That way we can build on that picture rapidly in an emergency.<sup>136</sup>

The concept is to post national intelligence representatives - - military and civilian - - to a common facility where they can bring their intelligence to the table and exchange it.<sup>137</sup> This concept would essentially formalize the crisis sharing arrangement used during OAF at SHAPE headquarters and reduce the timelines for normal release of information from weeks to days. This approach has much to recommend it, particularly since it has been proven to work. It was successful during OAF because General Clark routinely included European general officers in all U.S.-only daily VTCs regardless of classification which generated pressure for the Allies to reciprocate with more open intelligence sharing policies.<sup>138</sup>

An intelligence sharing center will require, however, a fundamental shift in European thinking regarding their intelligence release policies. They must accept that widespread sharing of data with their Alliance partners is a fair payback for the tremendous amounts of U.S. intelligence they have received for decades. Intelligence sharing at the strategic level would make two important contributions: it would leverage unique HUMINT access possessed by the Allies and provide a forum to ensure all Member Nations share a common view of the next crisis during its formative stages. Despite the very positive and useful developments which would result from this arrangement, it will not directly contribute to better combat intelligence for operating forces.

There are two potential solutions offered by the force and organizational structures in Europe today – vastly expand the roles, capabilities and mission of the WEU/EU Satellite Center or formally assign JAC the de facto mission it already has.

Enhancing the capability of the WEU/EU is, at first blush, an attractive European solution but it also needs to have definite limits. The WEU/EU facility should grow beyond its current staffing of 68 people, only about one third of whom are imagery analysts, so it can provide a steady stream of “all-

source” strategic intelligence and indications & warning to the EU. This would also provide one “home” for the new European military intelligence professionals where they could further develop their skills when not assigned to operational or tactical units. This measured, but important step, of sustaining a professional intelligence cadre cannot be over-stated. If the EU/WEU wants to have analysts that operate on the level described by Admiral Blair earlier in this paper, they are going to have to invest in their people. However, expanding the WEU/EU facility to make an EU capability similar to JAC would be costly, duplicative, and overlooks the fundamental fact that JAC is also a conduit to the entire U.S. intelligence community. In other words, while JAC is the primary intelligence support structure for the U.S. in Europe, it gets additional depth by drawing upon the national collection and analytical resources throughout the U.S. intelligence community. This was demonstrated during OAF by the federated targeting and BDA syndicates that supported NATO. The massive infusion of money which would be required to replicate JAC and its access to U.S. national capabilities should be directed to Europe’s operational forces if ESDI is going to have teeth. Europe needs to remember one underlying principle of ESDI is the avoidance of unnecessary duplication of capabilities that already exist in NATO.

In an OAF after action report, General Clark in his national role as Commander U.S. European Command, recommended to the Chairman of the Joint Chiefs of Staff that JAC be designated as the U.S. National Intelligence Center (USNIC) NATO. With this designation, JAC would have a formal mission to do what it already does today - - provide the same level of support to NATO commands such as the Allied Rapid Reaction Corps, KFOR, CAOC, etc as they provide to U.S. components.<sup>139</sup> The Department of Defense should implement this recommendation and relax its security policy to allow selected NATO intelligence personnel to work in the production and dissemination side of JAC’s operation. This would have the benefits of maintaining a single hub for all operational intelligence support to NATO, bring a multi-national perspective to JAC’s analysis, and provide a training ground for European intelligence professionals when they aren’t assigned at the tactical or operational level. This would not be the open pipe of U.S. satellite imagery that Mr. Scharping desires but a cooperative exploitation of the imagery relevant to official NATO or EU missions which JAC would exploit in the normal course of its mission.

In the post-Cold War world some technical sources and methods of intelligence are not as sensitive as they were when NATO faced-off against the Warsaw Pact. For example, the U.S. no longer conceals the fact it uses satellites to collect imagery and recent policy changes have spawned a private commercial imagery satellite venture that will make imagery available to anyone willing to pay for it. Therefore, it ought to be possible to find a level at which Allied personnel can exploit imagery at JAC in support of NATO and EU missions; this should not be simply a token representation of a few European faces. It should be possible to do this while safeguarding the truly sensitive issue of operational security during the contingency planning process when intelligence information is turned into potential targets. General Clark already opened the window to JAC’s true capabilities during the OAF VTCs and it’s going to be impossible to tell the Allies they can’t ever reenter the room. Recognizing that the U.S. would be assuming some risk with this policy change, the modalities to support this could be established with frank

discussion between the U.S. and the European Allies of risk, concerns, limits and quids. Even if the initial assignments were made on a bilateral basis, this would be a tremendous signal to the Alliance demonstrating U.S. commitment to ESDI and result in increased European confidence in NATO and the intelligence product they receive. Likewise, in the name of transparency, a few U.S. imagery interpreters should work at the EU/WEU facility.

The danger in continuing the status quo is that Europe will build its own JAC, thus diverting resources from other mission areas. In that scenario, France is likely to assume a leading role. Given the French position on an autonomous EU military capability and their current policy toward NATO of non-disclosure of Helios imagery and SIGINT, their leadership in a European intelligence center bearing NATO and EU responsibilities would only increase pressure on the trans-Atlantic bond.

In return for greater U.S. openness, every other aspect of the intelligence relationship across NATO, including access to European HUMINT and UAV data, could be greatly facilitated but would need to be included as part of the formal agreement. In the years to come, the European pillar of NATO will be a much greater contributor to Alliance intelligence and the U.S. will want access to this information at JAC. It is in the U.S. national interest to help ensure European personnel are trained in operational intelligence or the U.S. will, by default, have to provide the lion's share of operational intelligence support to EU operations and continue to provide the pool of bodies to staff operational commands like the CAOC.<sup>140</sup> When the operational tempo requires personnel augmentation at JAC because of NATO and EU missions, the U.S. ought to be looking to the Allies to provide some of the extra staff but they will only be able to do this if they have already been trained at JAC, share the operational intelligence culture and the capability has been exercised.

The final area that needs attention to posture NATO's intelligence structure for the future is a vastly improved C4I architecture at the operational and tactical levels. C4I is a much larger animal than simple delivery of intelligence, but without a modern capability to disseminate intelligence all the other recommended improvements to NATO's practices will be ineffective. The Alliance has a good set of tools today for coordination at the strategic level with CHRONOS, BICES and LOCE which are interoperable classified internet capabilities similar to the U.S. Secret Internet Protocol Router Network (SIPRNET). NATO also has a Secret level video-teleconferencing system which was heavily used by General Clark during OAF.<sup>141</sup> However, NATO needs to field a C4I system that takes advantage of the revolution in military affairs (RMA) which the ISR investments proposed herein would make possible.

European and U.S. C4I capabilities must be interoperable and complementary so a NATO "system of systems" – sensors, networks, databases, and weapons can develop as a result of DCI. Messrs. David C. Gompert, Richard L. Kugler and Martin C. Libicki addressed this need in Mind The Gap.

Created by the conjunction of sensors, networks, databases, and weapons lies what may be called the Grid: the virtual information system that ties these systems together, and makes them collectively accessible to operators [warfighters]. The Grid would be the means by which devices and databases could be accessed, and upon which services

and applications reside...In sum, if U.S. and allied forces are to fight together effectively, a NATO Grid, and nothing less, is imperative. Even if the United States alone contributes certain assets – space surveillance, long range UAVs, direct broadcast satellite connections – to the Grid, they would be operated on behalf of all. Put another way, if the Europeans are to adopt the U.S. emphasis on rapid operations and deep strike, they need to have access to information and networking capabilities that enable such operations to take place.<sup>142</sup>

With careful intelligence investments, Europe should have much valuable data to put on the NATO Grid from modern ISR sensors, operational intelligence analysis and JAC product which they will have participated in generating.

What NATO can't afford in the next war is to discover that European investment in UAVs and manned tactical reconnaissance is sub-optimized because there is no mechanism to move the intelligence to the operational commander fast enough for it to be used. Meanwhile, the U.S. may well have deployed a fully developed sensor-to-shooter architecture with supporting doctrine that precludes the use of valuable but time-late Allied intelligence. The creation of the NATO Grid is the way to prevent this problem from arising. It is also the venue for ensuring that NATO's best intelligence is available to the combat forces at the tactical and operational levels. The Grid would also be crucial for command and control of the complex, centrally planned operations that comprise modern warfare while, at the same time, providing for decentralized execution of massed effects against the operational objectives.

## **CONCLUSION**

The new Strategic Concept unveiled at the Washington Summit in April 1999 has increased NATO's reliance on intelligence and through DCI is forcing the Alliance to review how intelligence functions are burden shared across NATO. The development of ESDI provides further impetus to European investment in intelligence capability and ensures that U.S. intelligence capabilities are available to EU-led operations even if U.S. combat forces are not involved. As the world's only super power and the largest NATO partner, the U.S. is always going to play a major role in NATO intelligence and for the next decade will maintain its overwhelming dominance in this mission area. The balance between the U.S. and European pillars of NATO should be more even in the next decade after European investments bear fruit.

The European pillar needs to quickly ramp up its military intelligence capabilities but should not strive for an autonomous structure functioning apart from U.S. contributions. The unique space-based reconnaissance, in-depth analytical capabilities, and precision targeting processes the U.S. brings to NATO allow operations on a level unequaled, as recently demonstrated in Kosovo. In its leadership role, the U.S. needs to encourage NATO to officially designate JAC as its combat support agency and use it to train its European partners in the tactics, techniques and procedures of operational intelligence. This should include allowing European personnel to work at JAC side-by-side with U.S. personnel when supporting NATO and EU missions and exercises. This change in security policy would allow the WEU/EU Satellite Center to maintain its strategic mission in support of the EU Council rather than

expanding into operational intelligence which would swallow precious European defense funds needed elsewhere.

The European pillar of NATO must invest in aerial collection platforms so the ISR mission can be more evenly distributed among the Allies. As a super power with worldwide responsibilities, U.S. ISR resources may not always be available in the rich quantity seen during OAF. Additionally, ISR is a key enabling capability for sensor-to-shooter operations and Europe must contribute if it expects to conduct modern, information-based warfare. Equally important, Member Nations must grow professional intelligence cadres that underpin modern warfare. Qualified European personnel are needed within NATO to meet the surge augmentation requirements that result from contingency operations as evidenced at CAOC and JAC during OAF. The U.S. will continue to contribute analytical expertise but the talent pool is not unlimited and the potential for competing requirements means Europe must be a full partner in this important functional area.

Finally, NATO has to modify its doctrinal approach to intelligence because of the complex demands of modern warfare. NATO must take responsibility for provision of intelligence to the combat forces operating under its command. This means development of doctrine for ISR collection management, designation of an operational intelligence center to ensure unity of analytical effort and tactics, techniques and procedures for the provision of the wide array of operational intelligence required by combat forces. NATO must also field a C4I architecture that optimizes this increased intelligence capability and makes the revolution in military affairs a reality in the Alliance.

Word Count = 13,299



## ENDNOTES

<sup>1</sup> Rudolph Scharping, "NATO at 50—a successful alliance for the 21<sup>st</sup> century," Interavia, May 1999, 12 [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. 04319258.

<sup>2</sup> Admiral Guido Venturoni, "The Washington Summit Initiatives: Giving NATO the "tools" to do its job in the next century," NATO Review, Autumn 1999, 11. [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. INRV-2015-5.

<sup>3</sup> Article 5 of the Washington Treaty which established NATO deals with collective defense and states in part, "The Parties agree that an armed attack against one or more of them in Europe or North America shall be considered an attack against them all, and consequently they agree that, if such an armed attack occurs, each of them, in exercise of the right of individual or collective self-defense recognised by Article 51 of the Charter of the United Nations, will assist the Party or Parties so attacked by taking forthwith, individually, and in concert with the other Parties, such action as it deems necessary, including the use of armed force, to restore and maintain the security of the North Atlantic area." See NATO Office of Information and Press, THE NATO HANDBOOK 50<sup>th</sup> Anniversary Edition (Brussels: NATO Office of Information and Press, 1998), 396. Non-article 5 issues deal with the security and stability in the Euro-Atlantic area encompassing crisis management and partnership. This entails contributing to effective conflict prevention and engaging actively in crisis management, including crisis response operations. See NATO Office of Information and Press, THE READER'S GUIDE TO THE NATO SUMMIT IN WASHINGTON 23-25 APRIL 1999 (Brussels: NATO Office of Information and Press, 1999), 47.

<sup>4</sup> Vershbow, A. (1999, June 4). U.S. Ambassador to NATO on NATO in the 21<sup>st</sup> Century [Transcript of speech]. U.S. Mission to NATO: Security Issues Digest 107, 7 pages. Available from <<http://usa.grmbl.com/s19990604m.html>>; Internet; Accessed 24 October 1999.

<sup>5</sup> NATO., The Reader's Guide To The NATO Summit In Washington, 14.

<sup>6</sup> *ibid.*, 56.

<sup>7</sup> Vershbow, A. (1999, March 16). New Challenges for the Transatlantic Alliance: A U.S. Perspective [Transcript of speech]. U.S. Mission to NATO, 8 pages. Available from <<http://www.nato.int/usa/ambassador/s990316a.htm>>; Internet; Accessed 24 October 1999.

<sup>8</sup> Solana, J. (1999, April 24). Statement [Transcript of speech] 3 pages. Available from <http://www.nato.int/docu/speech/1999/s990424a.htm>; Internet; Accessed October 1999.

<sup>9</sup> Scharping., 12.

<sup>10</sup> Vershbow, A. (1999, June 30). Ambassador Vershbow Speech on NATO After Kosovo [Transcript of speech]. U.S. Mission to NATO: Security Issues Digest 06/30/99, 6 pages. Available from <<http://usa.grmbl.com/s19990630d.html>>; Internet; Accessed 24 October 1999.

<sup>11</sup> Walter B. Slocombe, U.S. Under Secretary of Defense for Policy, "Statement to the Senate Armed Services Committee Hearing on the Military Implications of NATO's Strategic Concept," 28 October 1999.

<sup>12</sup> NATO., 50.

<sup>13</sup> *ibid.*, 17.

<sup>14</sup> Ibid., 57.

<sup>15</sup> Solana, J. (1999, March 15). NATO: Ready to Meet the Challenges Ahead [Transcript of speech] 6 pages. Available from <http://www.nato.int/docu/speech/1999/s990315a.htm>; Internet; Accessed 25 October 1999.

<sup>16</sup> Ann Roosevelt, "Interoperability Important For Improved NATO Forces," BMD Monitor, 4 February 2000, p. 1.

<sup>17</sup> William S. Cohen, "Europe Must Spend More On Defense," Washington Post, 6 December 1999, p. 27.

<sup>18</sup> Roosevelt, p. 1.

<sup>19</sup> William Drozdiak, "Cohen Criticizes German Arms Cuts," Washington Post, 2 December 1999, p. 29.

<sup>20</sup> Jeffrey Gedmin, "A Yawning Gap On Defense," Washington Times, 8 December 1999, p. 15.

<sup>21</sup> Lluís Maria de Puig, "The European security and defence identity within NATO," NATO Review, Summer 1998, p. 8 [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. INRV-2009-5.

<sup>22</sup> Cohen., 27.

<sup>23</sup> Franklin Kramer, "Testimony to Senate Foreign Relations Committee On Military Goals of the NATO Summit," 21 April 1999, p. 3, Available from <<http://www.arc.org.tw/usia/www.usia.gov/topical/pol/eap/kramer21.htm>>; Internet; Accessed 20 October 1999.

<sup>24</sup> NATO., 52.

<sup>25</sup> Vershbow, A. (1999, May 11). NATO's Next 50 Years [Transcript of speech]. News from the USIA Washington File, 6 pages. Available from <<http://209.207.236.112/man/nato/news/1999/990506-nato-usia01.htm>>; Internet; Accessed 22 October 1999. Also see NATO., 65.

<sup>26</sup> Ibid., 6.

<sup>27</sup> Kori Schake, Amaya Bloch-Laine, Charles Grant, "Building a European defence capability," Survival 41 (Spring 1999): 6, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. 04207462.

<sup>28</sup> Frederick Bonnard, "Europe Takes First Steps To Create A NATO-Less Defense Strategy," International Herald Tribune, 19 November 1999, p. 1 and Vershbow, A. (2000, February 1). ESDI: Strengthening The Transatlantic Partnership [Transcript of speech]. 4 pages. Received by e-mail 7 February 2000 and "In Defense of Europe," Economist, 26 February 2000, p. 25.

<sup>29</sup> Blair, A. (1999 December 13) Statement in the House Of Commons [Transcript of speech]. Britain in the USA. Available from <http://www.fco.gov.uk>; Internet; Accessed 19 December 1999.

<sup>30</sup> Frederick Bonnard, "Europe Has Set Itself a Tough Military Challenge," International Herald Tribune, 13 January 2000, p. 8.

<sup>31</sup> Joint Declaration By The British and French Governments On European Defence, Anglo-French Summit, London, 25 November 1999, Foreign & Commonwealth Office – News, 4 pages. Available from <http://www.fco.gov.uk/news/newstext.asp?3040>; Internet; Accessed 19 December 1999.

<sup>32</sup> Anonymous, "Brussels Approves Military Staff," London Daily Telegraph, 15 February 2000.

<sup>33</sup> Vershbow, A (1999 December 17) U.S. Ambassador to NATO Next Steps on European Security and Defense: A U.S. View [Transcript of speech]. Department of State Washington File, 9 pages. Available from <http://www.usembassy.org.uk/nato98.html>; Internet; Accessed 17 January 2000 and Costas Simitis, untitled article, NATO Review 50th Anniversary Commemorative Edition (1999): 33, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. INRV-2013-12. Simitis is Prime Minister of Greece and discusses ESDI in context of desire for greater European autonomy in security and defense. Also see Congress, Senate, Senator Roth of Delaware proposing Resolution 208 -- Expressing The Sense Of The Senate Regarding United States Policy Toward The North Atlantic Treaty Organization And The European Union, In Light Of The Alliance's April 1999 Washington Summit and the European Union's June 1999 Cologne Summit, 106th Cong., 1st sess. Congressional Record Online (28 October 1999): S13430-13431. Accessed 1 November 1999 via GPO Access <http://www.gpo.ucop.edu/cgi-bin>.

<sup>34</sup> Bonnard., 8.

<sup>35</sup> The French are worried about the lack of a counterweight to U.S. economic, technological and military power and our propensity for unilateral action. In response to this anxiety, President Chirac lashed out against the U.S. in November 1999 and urged the EU to strengthen its institutions and work for a multi-polar world to contain U.S. power. Chirac's comments reflect a visceral concern that will keep France pushing the EU to develop autonomous military capabilities outside of NATO despite the decisions at the December 1999 EU Summit. He has also been a huge proponent of European defense industry consolidation such as the merger of Germany's Daimler Chrysler Aerospace with France's Aerospatiale Mantra. See Joseph Fitchett, "Chirac's Attack on Congress Has a Bigger Target," International Herald Tribune, 9 November 1999, p. 2 and Michael Gonzalez, "Can America Trust The French," Wall Street Journal, 23 November 1999 and Craig R. Whitney, "Anxious French Mutter as U.S. Envoy Tries to Sell Globalism," New York Times, 2 December 1999.

<sup>36</sup> Vershbow, Next Steps on European Security.

<sup>37</sup> Javier Solana, "Decisions to Ensure a More Responsible Europe," International Herald Tribune, 14 January 2000, p. 8. See also opinion piece by British Ambassador to the U.S. for emphasis on European commitment to full consultation, cooperation and transparency with NATO and the need for European autonomous decision-making arrangements vice autonomous military capability. Sir Christopher Meyer, "Europe Isn't Jumping NATO Ship," Wall Street Journal, 15 February 2000.

<sup>38</sup> Talbot, S. (1999, December 15). The State Of The Alliance: An American Perspective [Transcript of Speech]. Department of State File, 8 pages. Available from <http://www.usembassy.org.uk/nato97.html>. Accessed 19 December 1999 and Blair.

<sup>39</sup> NATO's decision to accede to British, French and German desire to allow the commander and headquarters of Eurocorps, a pseudo-EU force, to command NATO's Kosovo Force (KFOR) for six months starting in April 2000 reflects the strong undercurrent that fuels ESDI. See Joseph Fitchett,

"Eurocorps To Command Peacekeepers In Kosovo," International Herald Tribune, 29-30 January 2000, p.1.

<sup>40</sup> Vershbow., Remarks on European Security.

<sup>41</sup> Admiral James O. Ellis, US Navy, "A View From The Top," briefing slides, Commander, Allied Forces Southern Europe and Commander Joint Task Force Noble Anvil, undated, p. 12, received via e-mail 03 September 1999. JTF Noble Anvil was the U.S. command structure established to control assets supporting OAF that were not placed under NATO command such as B2, F-117 and TLAM. See also Venturoni. He made the point that the traditional concept of inter-state conflict between nations is giving way to more urbanized, intrastate aggression.

<sup>42</sup> Major General Ron Keys, US Air Force, "Future War...and the lessons of Kosovo," briefing slides, USCINCEUR J3, undated, p. 2, received via e-mail 14 January 2000.

<sup>43</sup> Peter Ford, "EU Readies For Wars Without US," Christian Science Monitor, 9 December 1999, p. 1. and John-Thor Dahlburg, "Plan For Europe Strike Force Worries U.S.," Los Angeles Times, 6 December 1999, p. 1.

<sup>44</sup> Congress, Senate, Senator Roth of Delaware speaking about Operation Allied Force: Lessons Relearned to the Committee on Armed Services, 106th Cong., 1st sess. Congressional Record Online (16 September 1999): S11020. Accessed 1 November 1999 via GPO Access <http://www.gpo.ucop.edu/cgi-bin/>.

<sup>45</sup> Larry K. Wentz, "Intelligence Operations," from: Lessons From Bosnia: The IFOR Experience, ed. Larry K. Wentz (Washington D.C.: National Defense University, 1997), 62.

<sup>46</sup> John Hughes-Wilson, "Battlefield Intelligence For The Future," NATO's Sixteen Nations, December 1991, p. 41.

<sup>47</sup> COL William G. Fillman, US Army, MI, J2, SHAPE Joint Operations Center, interviewed by author, 20 December 1999.

<sup>48</sup> Ibid and Joint Task Force Noble Anvil J2 (0-6's name withheld at individual's request for counter terrorism purposes), interview by author, 12 and 17 December 1999. JTF J2 noted importance of Allied HUMINT in NATO operations.

<sup>49</sup> Lt Col Ralph Park, US Air Force, Combined Air Operations Center C2, interviewed by author, 21 December 1999 and 7 February 2000.

<sup>50</sup> Fillman interview.

<sup>51</sup> Ellis., 3.

<sup>52</sup> John A. Tirpak, "The NATO Way of War," Air Force Magazine, December 1999, 6 and General Wesley K. Clark, US Army, "The United States and NATO: The Way Ahead," Parameters 4 (Winter 1999-2000): 10.

<sup>53</sup> Fillman interview and CAPT Charles P. Mott, US Navy, USCINCEUR Deputy J2, interviewed by author, 3 December 1999 and Joint Task Force Noble Anvil and CDR Paul Becker, US Navy, Assistant U.S. Naval Attaché to France, interviewed by author, 31 January and 4 February 2000 and Dana Priest,

"Target Selection Was A Long Process," Washington Post, 20 September 1999, sec. A, p. 11. With respect to the UK, their recent acquisition of the Tomahawk Land Attack Cruise Missile, and the strike operations by the HMS SPLENDID, allowed the British to make a small contribution to Allied precision targeting that was on par with the U.S. in terms of its quality. It was clear from comments received from several personnel in the European Theater that Priest's series of articles on OAF were extraordinarily accurate.

<sup>54</sup> LCDR David R. Garvey, US Navy, Deputy Targeting Division Chief, Joint Analysis Center, interviewed by author, 20-21 December 1999, 11 January 2000 and 1, 16, 17, 22 February 2000. Of interest, CAPT Mott, USCINCEUR Deputy J2, reported that in November 1999 62% of JAC's resources were focused on support to all NATO military operations in the Balkans. This represents a huge long term U.S. intelligence commitment to the NATO mission.

<sup>55</sup> Ibid.

<sup>56</sup> Ibid.

<sup>57</sup> Ibid.

<sup>58</sup> Tim Weiner, "Leak Caused NATO to Drop Bosnia Effort On Fugitives," New York Times, 24 April 1998, p. 8, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. NYT-2763-239 and Richard J. Newman, "A French spy inside NATO," U.S. News & World Report, 16 November 1998, 52, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. GUNW-2152-28. Security remains an important issue today as ESDI takes form. The EU must transform its culture to deal with the security demands of defense planning. The Justus Lipsius building in Brussels which houses the EU council of ministers has very little physical security and no classified computer networks for processing classified information. One EU official said giving the EU council a classified document today is about the same thing as giving it to CNN. See Ian Black, "Security Lapses in Brussels HQ cast doubt on EU defense plans," The Guardian (London), 19 February 2000, p, 16.

<sup>59</sup> LCDR Michael Scheiber, US Navy, Strategy and Initiatives Branch, Joint Analysis Center, interviewed by author, 1 February 2000.

<sup>60</sup> Garvey and Becker interviews. CDR Becker noted that the French representative to JAC is either an Army or Air Force mid-grade NCO and a bone of contention is the fact he inputs nothing into the product of the multi-national product. France is paranoid about the inclusion of their national source derived information into a NATO shared environment. No thought was given by France to augmenting their presence at JAC with either an officer or an additional NCO for OAF.

<sup>61</sup> Priest., "Target Selection Was A Long Process," 11.

<sup>62</sup> Garvey interview.

<sup>63</sup> James A. Kitfield, "Another Look At The Air War That Was," Air Force Magazine, October 1999, 5, Available from <http://www.afa.org/magazine/1099eaker.html> accessed on 7 November 1999.

<sup>64</sup> Garvey interview.

<sup>65</sup> CDR Tony Cothron, U.S. Navy, Assistant Chief of Staff for Intelligence, U.S. Sixth Fleet, interviewed by author, 16 November 1999.

<sup>66</sup> Dana Priest, "France Acted As Group Skeptic," Washington Post, 20 September 1999, sec. A, p. 1. The proper designation for the warhead may actually be CBU-102(V)2/B according to the munitions recovered by the Yugoslav military. The initial strike knocked out power for about 15 hours. See David A. Fulghum, "Russians Analyze U.S. Blackout Bomb," Aviation Week, 14 February 2000, p. 59.

<sup>67</sup> Ibid.

<sup>68</sup> Priest., "France Acted As Group Skeptic," 1. The Keys brief makes the point that unintended civilian casualty estimates were a "new event" in OAF.

<sup>69</sup> Priest., "Target Selection Was A Long Process," 11.

<sup>70</sup> Garvey interview.

<sup>71</sup> Ellis., 4 and Keys., 6.

<sup>72</sup> Dana Priest, "Tension Grew With Divide Over Strategy," Washington Post, 21 September 1999, sec. A, p. 1.

<sup>73</sup> Keys., 2.

<sup>74</sup> Department of Defense, Dictionary of Military and Associated Terms, Joint Pub 1-02, 10 June 1998.

<sup>75</sup> John A. Tirpak, "Short View of the Air Campaign," Air Force Magazine, September 1999, 6. Available from <http://www.afa.org/magazine/099watch.htm>. Internet. Accessed on 7 November 1999.

<sup>76</sup> JTF Noble Anvil J2 interview.

<sup>77</sup> Pierre Sparaco, "French Satellite Details Air Strike Damages," Aviation Week, 12 April 1999, 26, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. 01804462 and Becker interview. CDR Becker noted the French still have a "no disclosure" policy toward the U.S. on Helios imagery data.

<sup>78</sup> Park interview.

<sup>79</sup> William S. Cohen and General Henry H. Shelton, US Army, "Joint Statement on the Kosovo After Action Review to the Senate Armed Services Committee," 14 October 1999, 13.

<sup>80</sup> Tirpak, "The NATO Way of War," and Keys., 4.

<sup>81</sup> General Wesley Clark, US Army, Admiral James Ellis, Jr., US Navy, and Lieutenant General Michael Short, US Air Force, "Combined Prepared Statement of the United States European Command before the Senate Armed Services Committee," 106<sup>th</sup> Cong., 1<sup>st</sup> sess., 21 October 1999, p. 5-6.

<sup>82</sup> Park Interview.

<sup>83</sup> Ibid.

<sup>84</sup> Becker interview.

<sup>85</sup> Cohen and Shelton, 15.

<sup>86</sup> Craig Covault, "Recon, GPS Operations Critical to NATO Strikes," Aviation Week, 26 April 1999, 35, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. 01845561 and 04353922 and Vernon Loeb, "From Above, Satellites Track Refugees and Atrocities," Washington Post, 6 April 1999, sec. A, p. 18, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. 05487846.

<sup>87</sup> Pierre Sparaco, "French Satellite Details Air Strike Damages," Aviation Week, 12 April 1999, 26, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. 01804462 and 04249972.

<sup>88</sup> Michael A. Taverna, "Helios 2 Award Goes to MNS," Aviation Week, 15 November 1999, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. AWS-2207-71 and Fillman interview.

<sup>89</sup> Fillman interview.

<sup>90</sup> Kitfield., 6-7.

<sup>91</sup> Cohen and Shelton, 19.

<sup>92</sup> Ibid. 15 UAVs were lost during Kosovo with most losses attributable to hostile fire.

<sup>93</sup> Thomas E. Ricks and Anne Marie Squeo, "The Price Of Power - - Sticking To Its Guns; Why the Pentagon Is Often Slow to Pursue Promising Weapons - - Resistance and Neglect Kept Drones From Soaring, Despite Their Advantages - - The 'Arsenal Ship' Torpedoed," Wall Street Journal, 12 October 1999, p. 1. This article provides a history of the evolution of UAVs in the Department of Defense including Pioneer, Hunter, Predator; the three U.S. UAVs employed in Kosovo. It is clear from this article that Predator is the most modern and capable of UAV in the U.S. inventory. Pioneer is an Israeli UAV system the Navy bought in the mid-1980s and the Hunter program was an early 1990s designed UAV killed by DoD in mid-decade prior program maturation. The resulting aircraft were either in storage or used for general UAV flight training until pushed over to Kosovo.

<sup>94</sup> General John P. Jumper, US Air Force, "Statement Before The House Armed Services Committee," 106<sup>th</sup> Cong., 1<sup>st</sup> sess., 26 October 1999, p. 4; available from <http://www.house.gov/hasc/testimony/106thcongress/99-10-26jumper.htm>; Internet; accessed 9 November 1999.

<sup>95</sup> JTF Noble Anvil J2 and Park interviews. German policy limited the Droner UAV tasking to humanitarian monitoring and would not permit its use for BDA missions.

<sup>96</sup> Becker and Park interviews. There are five national intelligence cells (NIC) at CAOC representing the U.S. Italy, Germany, France and Canada. Per Park and Mott interviews: In terms of relative contribution, the U.S. cell provided about 95% of the intelligence that arrived at CAOC via a NIC. Park noted when presented with a question or requirement the French were among the most responsive of the NATO Allies in providing answers.

<sup>97</sup> JTF J2 interview and Anonymous, "German UAVs Join Air War," Aviation Week, 3 May 1999, p. 18, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. AWS-2172-45.

<sup>98</sup> Park interview.

<sup>99</sup> Ibid.

<sup>100</sup> Park and Garvey interviews and CDR Thomas P. Meek, US Navy, Assistant U.S. Naval Attache to Germany 1996-1999, interviewed by author, 13 January 2000.

<sup>101</sup> Blair, D. (1997, June 27). Intelligence Support to Military Operations [Transcript of speech]. 13 pages. Available in Joint Military Intelligence College Conference Proceedings, "Intelligence In Partnership."

<sup>102</sup> Mott interview.

<sup>103</sup> JTF Noble Anvil J2 interview.

<sup>104</sup> Congress, Senate, Senator Roth of Delaware speaking about Operation Allied Force: Lessons Relearned to the Committee on Armed Services., S11023. General Naumann's press conference remarks were made part of the Congressional Record by Senator Roth during his comments to the committee.

<sup>105</sup> David A. Fulghum and Robert Wall, "Weapons, Intelligence Targeted In Probe," Aviation Week, 26 July 1999, p. 73, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. 01872917 and 04437684.

<sup>106</sup> Solana, "Decisions to Ensure a More Responsible Europe," p.8.

<sup>107</sup> "Chirac Pushes European Defense," Washington Times, 27 February 2000, sec C, p. 12.

<sup>108</sup> Rudolf Scharping, "One Germany In A Unifying Europe Alongside America," International Herald Tribune, 9 November 1999, p. 8 and Scharping, "NATO At 50 - a successful alliance for the 21st century," p. 3. The German Air Force has long had a vision including space-based reconnaissance. See Lieutenant General Bernhard Mende, "Command and Control - Reconnaissance and Surveillance," NATO's Sixteen Nations, Special Issue 1996-1997., p. 33.

<sup>109</sup> Alexander Szandar, "Scharping: German forces stretched to the limit," Interavia, June 1999, p. 19, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. 04355579 and Alexander Szandar, "So much for the Kosovo effect," Interavia, September 1999, p. 4, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. 04486481 and Kramer., 2.

<sup>110</sup> Szandar, "So much for the Kosovo effect," 4 and Anonymous, "France's defense budget in 2000 will decrease by 0.7%," Aviation Week, 20 September 1999, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. AWS-2193-44 and Vershbow, "ESDI: Strengthening The Transatlantic Partnership." Vershbow stated, "Excluding the new Alliance members and France (which doesn't participate in Alliance defense planning), Allied economies have grown by more than 18% overall since 1990. During the same period, their defense expenditures have decreased by more than 29%."

<sup>111</sup> Christian Lardier, "Helios 1, Spot's military derivative," Interavia, June 1999, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. FINT-29-32.

<sup>112</sup> Ibid and Bernard Molard, "The WEU Satellite Centre...just five years on," NATO's Sixteen Nations, Special Issue 2 (1998): 20.

<sup>113</sup> William Drozdiak, "War Showed U.S.-Allied Inequality; Arms Gap May Alter Roles of NATO States," Washington Post, 28 June 1999, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. 05603067 and Pierre Sparaco, "France Cancels Horus Radar Satellite," Aviation Week, 20 April 1998, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. 01615448 and 03695162 and Meek interview.

<sup>114</sup> Sparaco, "France Cancels Horus Radar Satellite."

<sup>115</sup> Ibid., and Taverna.

<sup>116</sup> Ibid.

<sup>117</sup> Sparaco, "France Cancels Horus Radar Satellite."

<sup>118</sup> Joseph Fitchett, "Chirac's Attack on Congress Has a Bigger Target" and Gonzalez and Whitney.

<sup>119</sup> Bjorn Willum, "From Kosovo To Chechnya, Selling Images From Above," Christian Science Monitor, 30 November 1999, p. 7 and William J. Broad, "We're Ready for Our Close-ups Now," New York Times, 16 January 2000, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. NYT-3396-259.

<sup>120</sup> Ibid.

<sup>121</sup> Molard, 20.

<sup>122</sup> Ibid., 21.

<sup>123</sup> Theodore Ropp, "The Years of Uneasy Peace (1871-1914)," in War In The Modern World (New York: Collier Macmillan Publishers, 1962) as reprinted in The U.S. Army War College Advanced Strategic Arts Program Selected Readings page 588.

<sup>124</sup> Vernon Loeb and Walter Pincus, "New Spy Satellites at Risk Because Funding is Uncertain, Pentagon Told," Washington Post, 12 November 1999, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. TWP-3083-89.

<sup>125</sup> JTF Noble Anvil J2 interview.

<sup>126</sup> David A. Fulghum, "U.S. Urges European Spending While Neglecting Own Forces," Aviation Week, 10 January 2000, p. 41, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. AWS-2211-101.

<sup>127</sup> General Klaus Naumann (Ret), German Army, "Statement on Kosovo After-Action Review to the Senate Armed Services Committee," 3 November 1999, 7.

<sup>128</sup> John Deutch, Arnold Kanter and Brent Scowcroft, "Saving NATO's foundation," Foreign Affairs, 78 (Nov/Dec 1999): 58, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication no. FAFG-2024-8. While the authors use the term command, control, communications and

intelligence (C3I), this term has largely been superceded by the use of C4I - - the addition of computers to the acronym.

<sup>129</sup> The institutional ties between the EU and NATO must still be worked out including the mechanisms for sharing capabilities. The principle of capabilities sharing is agreed to but how to do it on practical basis is a challenge yet to be worked through. U.S. Ambassador to NATO Vershbow put it this way, "We are still not convinced that there are reasons for the EU to postpone institutional cooperation with NATO until after the EU has put all the final touches on its own internal committee structures... Sometimes one suspects that there are fears on the part of some members of the EU - Regis de Benelet (French MFA Strategic Affairs Director) may want to comment on this - that if the NATO-EU connection were established too soon, the United States would somehow pollute or contaminate the EU's internal workings. It's as if the United States were some kind of computer virus that, once let in the door, would cause a complete meltdown of the EU's ability to make decisions... Indeed a good question is: Why would the European Union want to fully separate its nations' military capabilities from NATO? The Alliance is a proven and effective tool for crisis management. As I mentioned, we have offered to allow the European Union to use NATO planning, command and control, military assets, airlift, intelligence - - to provide all kinds of support, if needed - on a very generous basis. This would contribute to the efficiency and effectiveness of EU operations. Therefore, it is worth developing the NATO-EU mechanisms to make this happen as quickly as possible. See Vershbow., Remarks on European Security and also see Ambrose Evans-Pritchard, "Paris Fury As Solana Boosts Nato Role," London Daily Telegraph, 6 March 2000, p. 12.

<sup>130</sup> Szandar, "German forces stretched to the limit.," p. 18.

<sup>131</sup> Ibid., and Thomas M. Strat, "AVS Study Objectives Brief," dated 28 October 1998. Available from <<http://www.darpa.mil/iso/avs/reference/avsconc3/sld011.htm>>; Internet; Accessed 21 January 2000. " This brief contains information on Conventional HAE UAV Global Hawk.

<sup>132</sup> Robert Wall, "USAF Maps Out Future Of Global Hawk UAV," Aviation Week & Space Technology, 12 July 1999, 53, [database on-line]; available from UMI ProQuest Direct, Bell & Howell, UMI publication nos. 01861818 and 04399967.

<sup>133</sup> The issue of trans-Atlantic technology sharing is a topic worthy of its own strategic research project. See Deutch, Kanter and Scowcroft for thorough treatment of this issue and its present negative impact on NATO cohesion. The U.S. needs to protect certain, key advanced technologies yet should also adopt a more cooperative policy toward the Alliance in the technology sharing arena. In short, the U.S. needs to accept some risk but also must be ready to crack down on the inappropriate sale of advanced weapons & technology by NATO members to third countries. U.S. and European firms should form joint enterprises in some segments of the defense industry with ISR being one area that is particularly well suited for this cooperation. The practical difficulties in technology sharing are highlighted by the current battle over where Britain will buy air-to-air missiles (AAM) for use on its Eurofighters. A European consortium selling the Meteor AAM is competing with Raytheon, a U.S. company offering ERAAMplus - an improved AAMRAM missile. See Tome Buerkle, "A New 'Battle of Britain' Involves Air-to-Air Missile," International Herald Tribune, 10 February 2000, p. 2.

<sup>134</sup> Bonnard., 8.

<sup>135</sup> Becker interview.

<sup>136</sup> James Kitfield, "Wesley Clark Looks Back," National Journal, 32, no. 9 (2000): 612.

<sup>137</sup> Fillman interview.

<sup>138</sup> Fillman and JTF J2 interviews.

<sup>139</sup> Garvey interview based upon USCINCEUR VAIHINGEN GE 161713Z AUG 99 - Operation Allied Force Lessons Learned.

<sup>140</sup> The U.S. will be committed to making ESDI a success whenever its first operation should occur. By way of example, when the Italian-led, U.N.-sponsored, peacekeeping mission of six European nations entered Albania to restore order in 1997, USCINCEUR, General Joulwan, directed his J2 not to allow this venture to fail for lack of intelligence. In other words, even before the ESDI debate became hot (1999), U.S. assets were allocated to support a European effort because European success was in the U.S. national interest. Mott interview.

<sup>141</sup> Fillman interview.

<sup>142</sup> David C. Gompert, Richard L. Kugler and Martin C. Libicki, Mind The Gap – Promoting A Transatlantic Revolution In Military Affairs (Washington D.C.: NDU Press, 1999), p. 49-51. NATO C4I is another potential strategic research project but it does bear directly on the effectiveness of intelligence within the Alliance so is touched upon briefly in this paper. Mind The Gap provides an in-depth study of why RMA is important to the Alliance and what NATO's future vision for its C4I structure should include.



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