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The Information Merchant Bank™

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18 August 1997

Concept Paper:
Creating a "Bare Bones" Capability for
Open Source Support to Defense Intelligence Analysts

EXECUTIVE SUMMARY

This paper proposes a Defense Open Source Intelligence Program (DOSIP) to address deficiencies noted by the Commission on Intelligence and other reviews. It provides all defense intelligence analysts, including theater and tactical analysts, with rapid, low-cost, and operationally secure access to open sources, systems, and services pertinent to their all-source defense intelligence responsibilities. The DOSIP limits internal Defense Intelligence Agency (DIA) organizational requirements to six new positions through which DIA can manage a scalable and flexible program to exploit international multi-lingual and multi-media open sources, systems, and services. Existing defense intelligence and military library positions can be integrated into the DOSIP.

The DOSIP builds on the existing Open Source Information System (OSIS) as its technical foundation, but dramatically improves the functional and topical utility of OSIS by offering the analyst a menu of clearly-identifiable sources, systems, and services within OSIS, and by providing the analyst with a secure pathway to a range of private sector value-added intermediaries through whom all external assistance can be provided in a **"just enough, just in time"** fashion. The analyst is provided with eight primary and secondary open source support functions directly at their classified terminal:

DEFENSE OPEN SOURCE INTELLIGENCE PROGRAM	
Primary Analysis Functions	**Analysis Support Functions**
• Strategic Forecasting	• Commercial Imagery Sources
• Experts on Demand	• NRT Internet & Broadcast Monitoring
• Online Search Help Desk	• Analyst Tool-Kit
• *Open Source Early Bird*	• Online Training & Support
DOSIP Voice: (703) 693-9570 DOSIP Fax: (703) 693-9557 DOSIP Email: DOSIP@dia.mil	

Finally, the DOSIP provides for the establishment of open source doctrine and training through case studies, workshops, and the eventual development of an open source handbook for analysts.

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1.0   PREFACE

1.1   Report Purpose

This report outlines a specific proposed process that DIA can use to meet the needs of individual analysts throughout the defense intelligence community, for gaining access to open sources, systems, and services. At the same time, mindful of the recommendations of the Commission on Intelligence, the proposed program is explicitly designed to permit future extensions of service to defense intelligence consumers desiring to use the program's capabilities to help themselves, at their own expense.[1]

1.2   Defense Open Source Intelligence Program (DOSIP)

The program is tentatively titled the Defense Open Source Intelligence Program (DOSIP). A separate funding line within the Joint Military Intelligence Program is recommended.

1.3   DIA Objective

The DIA objective is to correct deficiencies identified by various formal reviews with respect to the exploitation of open sources, systems, and services available from the international private sector, while simultaneously avoiding any major investments in personnel or fixed assets, and also taking due care in ensuring that this program does not have a negative impact on operational security or compromise in any way the range of classified sources and methods which contribute to the all-source defense intelligence product. In correcting these deficiencies, DIA will build on the established Open Source Information System (OSIS) sponsored by the Community Open Source Program Office (COSPO), and will create a process which can be expanded or extended by others to include theater Joint Intelligence Centers (JIC), Joint Task Forces (JTF), tactical commands, coalition partners, and the full range of defense intelligence consumers including coalition partners and non-governmental organizations.

1.4   Proprietary, Copyright, and Implementation Terms

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[1]   "The Commission believes that intelligence agencies should not satisfy requests for analysis when such analysis could be readily accomplished using publicly available sources, unless for some reason the results of such analysis would require confidentiality or the specific expertise of the analyst would add significantly to the analysis of the open source material." *Preparing for the 21st Century: An Appraisal of U.S. Intelligence* (Report of the Commission on the Roles and Capabilities of the United States Intelligence Community, 1 March 1996),, p. 17, see also pp. 16, 87-88. Henceforth cited as COI Report.

1.5   Definitions

The proposed process is based on advanced research[2] about both the needs of the defense intelligence analyst, and the capabilities of the international private sector to provide open source information (OSIF) and open source intelligence (OSINT). The process recognizes that defense intelligence analysts and their consumers often require information and intelligence that is not classified. For the purpose of this report and the proposed process, the following definitions are provided:

1.5.1   Data

Raw material, in the form of hard-copy or digital text, signals (e.g. oral interviews or radio broadcasts), or images (e.g. commercial satellite imagery or hand-held imagery).

1.5.2   Information

Multi-media and multi-lingual raw material, which has been processed to produced a generic informative product of interest to multiple readers.

1.5.3   Intelligence

Multi-media and multi-lingual information which has been processed to support a specific decision by a specific defense intelligence analyst or consumer at a specific time and place. Generally known in the private sector as "decision-support". Intelligence as used in this definition is explicitly not synonymous with secrecy or classification.

1.5.4   Open Source Information (OSIF)

Information processed by private sector parties and available through legal and ethical means. The fact of U.S. government interest in the information may be classified, but the information in isolation from that fact is unclassified and available to anyone.

1.5.5   Open Source Intelligence (OSINT)

Decision-support (intelligence) produced from OSIF, either by private sector parties applying the methods and technologies of the intelligence analysis process to OSIF, or by government analysts, without recourse to classified source information.

1.5.6   Validated OSINT (OSINT-V)

OSINT explicitly created by or validated by government analysts with full access to classified information and classified intelligence. This term can be used to distinguish private sector OSINT from that OSINT which is shared with coalition partners or used in other ways where the imprimatur of the all-source process is desired, without risking the exposure of classified sources and methods.

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[2]   References are provided in section 10.0.

2.0   OVERVIEW

2.1   Limitations of Existing Process

The existing defense intelligence process for obtaining access to open sources, systems, and services—to the extent that it exists—relies heavily on either very narrow access available through classified systems and consisting almost entirely of Foreign Broadcast Information System (FBIS) reports; or large contracts with single private sector institutions which serve as proxies for major external research & analysis (ER&A).

Some progress has been made with the establishment of COSPO, the creation of OSIS, the installation of 140 workstations across DIA (mainly in the dial-in mode), the provision of initial training in the use of OSIS, and security initiatives aimed at increasing access to external experts. However, both internal and external reviews have determined that OSIS as it now exists is either not used by the majority of analysts, or if it is used, is used as an Internet Service Provider (ISP) rather than as a research tool.

The classified intelligence community process, while "free" to the defense intelligence consumer, is inadequate because the U.S. intelligence community does not adequately acquire open source information collected and collated by others using legal and ethical methods, against General Military Intelligence (GMI) or defense Science & Technology Intelligence (S&TI). The classified process is largely unable to exploit open sources of information, and especially multi-lingual international open sources in a foreign language and available only in limited edition hard-copy publications.[3]

At the same time, the "beltway" contract research process imposes on the DIA consumer a very expensive overhead cost, with man-years costing between $175,000 to $220,000 (while the "expert" employees only receive salaries in the range of $45,000 to $75,000), yet offers very little in the way of current intelligence and in-depth analysis which exploits the full range of multi-lingual open sources, systems, and services available world-wide.[4]

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[3]   This is a paraphrased statement by Ms. Ellen Siedman, Special Assistant to the President and Director to the National Economic Council: "The U.S. intelligence community does not meet my needs for unclassified statistics and analysis about domestic economic conditions; and at the same time, those elements of the U.S. government which do have a responsibility for domestic information acquisition are not organized to provide intelligence–fused analysis." Reported in *OSS NOTICES* 94-001, 21 February 1994. The Commission on Intelligence examined U.S. intelligence community access to open sources, and concluded that the community has been "inexplicably slow" to afford its analysts access to open sources, that this is a "critical deficiency", and that it should be a "top priority for DCI attention, and a top priority for funding". The Commission also concluded, however, that the individual Departmental consumers rather than the intelligence community should address those intelligence requirements that can be met predominantly through the acquisition and analysis of open sources. COI Report, p. 17, see also p. 88.

[4]   A leading director of a major think-tank, and the director of research for a major OSINT provider, have confirmed the general practice: the "beltway bandits" use in-house personnel and in-house or local libraries to create an "acceptable" product, and they very specifically do not budget for doing the kinds of primary research and technologies mapping, and follow-on subcontracting, which fully exploits multi-lingual databases and distributed international expertise.

The DIA vendors of information technology "solutions" offering a "better bigger bang" have historically done so with the objective of developing proprietary and ideally classified technology at DIA expense and in order to secure a niche market they can protect from incursions by others. This problem is not unique to the defense intelligence community—in fact, DOSIP—if extended in the future to the defense community— offers major advantages for defense intelligence consumers who have not been able to get the open source intelligence they need to properly evaluate vendor offerings in mobility, weapons, and command & control systems. A classic example is that of the DoD International and Commercial Programs Office, which has an urgent requirement for open source intelligence to identify and evaluate critical commercial technologies so as to develop spending plans for defense research, which do not duplicate private sector investments which are assured.

2.2   Summary of Proposed Process

The proposed process provides a *flexible* program with a single *centralized* DOSIP requirements and acquisition management cell which can be *expanded* or *extended* to the service and command levels as appropriate, and which leverages distributed international private sector sources, systems, and services. The process can also be *enhanced* by DIA to meet the needs of defense intelligence consumers who can utilize the fixed-cost elements of DOSIP while also allocating funds to the DOSIP contract to pay for their own direct access to international private sector open sources, systems, and services.

The DOSIP process differs significantly from the existing process in that it gives the defense intelligence analyst one screen with eight icons through which the entire range of open sources, systems, and services can be harnessed; while also avoiding almost entirely the overhead costs associated with "beltway" research. Typical open source research support costs drop down to the $5,000 to $25,000 range for **"just enough, just in time"** support from genuine world-class experts, rather than the now current costs of $250,000 or more for dedicated man-years from "beltway" contract research organizations whose employees are not world-class subject matter experts.

The concept of distributed private sector expertise is very important for it simultaneously affords DIA analysts access to "world class" experts able to produce intelligence (tailored decision-support knowledge) on any defense intelligence topic or regional area, while dramatically cutting the cost of such access. The cost is reduced because the expertise of the experts has been developed and is maintained at the expense of external private sector organizations, and DIA will pay only for **"just enough, just in time"** expertise—essentially, for the cost of a few days writing or consulting which in fact represents decades of cumulative experience. This process has been tested by a DoD consumer, the International and Commercial Programs Office, which has an urgent requirement to review over 100 critical commercial technologies in order to evaluate major savings to all DoD acquisition programs. Under the DOSIP concept, the cost for this task alone would be around $2.5M—one tenth of the traditional way's cost.[5]

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[5]   COTR Mr. Richard Mirsky, (703) 681-3722.

The process also provides for the inter-connection if not the integration of existing government libraries and centers of expertise, including service capabilities such as represented by the Army War College Strategic Studies Institute and the U.S. Navy's Naval Postgraduate School; and capabilities such as the Foreign Military Studies Office (FMSO), the George C. Marshall European Center for Security Studies, and the Institute for National Strategic Studies at the National Defense University.

The process, which relies solely on open source information (OSIF) to produce open source intelligence (OSINT) can be augmented when necessary with all-source intelligence from the U.S. intelligence community, but in general will fulfill 50% of the DIA requirements for intelligence pertinent to strategic, operational, tactical, and technical intelligence, and 75% of DoD consumer requirements for intelligence, without recourse to classified sources—this will permit the focusing of classified capabilities on only those problems and targets which cannot adequately be addressed by OSINT.[6]

2.2.1   The Open Source Community

This process is the embodiment of the idea of a "open source intelligence community". Although the Internet can be very useful in supporting the creation and nurturing of an "open source intelligence community", it is vital that all concerned remember that roughly 80% of knowledge is either not in written form or is in hard-copy rather than digital form; that it is not in English; and that it is "someplace else" and must be discovered, discriminated, distilled, and delivered in order to be useful. Human beings who are skilled in specific subject matter areas including foreign language and foreign area skills, are the foundation of the "open source intelligence" community. How they communicate is much less important that the fact that they can and do communicate. **Nurturing *distributed* centers of human expertise is the heart of "open source intelligence".** The proposed DOSIP process creates a means by which DIA analysts and

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[6]   For a summary of the utility of open source information and intelligence to the military, see "Open Source Intelligence: What Is It? Why Is It Important to the Military", published as Appendix A in *Open Source Intelligence: Professional Handbook* (Joint Military Intelligence Training Center, October 1996). "Intelligence analysts concede that 95% of the analysis on economic topics now comes from open sources." COI Report, p. 22. While DIA is not in the business of economic intelligence except in-so-far as it impacts on the planning and execution of military operations, including humanitarian assistance operations, this percentage is also applicable to military maps (only 10% of the world is mapped at the 1:50,000 level while 90% of the world is available from commercial imagery suitable for making 1:50,000 maps) and other areas of interest including Third World (Tier III/Tier IV) orders of battle, logistics, and environmental conditions. Both the Director-General of the Canadian Security Intelligence Service (CSIS) and the Director of the Non-Proliferation Center have stated publicly that 80% of their finished all-source product comes from open sources. According to Dr. Joseph Markowitz, Director of the Community Open Source Program Office (COSPO), speaking at the Fourth International Symposium on "Global Security & Global Competitiveness: Open Source Solutions", 7-9 November 1995, the generally accepted average contribution of open sources to the finished all-source product is 40%, at a cost of 1% of the National Foreign Intelligence Program (NFIP). NOTE: Since roughly 90% of the total U.S. intelligence budget is controlled by DoD, it would make a great deal of sense for DIA to raise the obvious question: if $1 billion a year can be realigned from classified intelligence programs to a DoD-wide OSINT program which includes OSINT in direct support of the missions of each of CINCs and each of the Assistant Secretaries, would DoD not be the major beneficiary and reap a very significant return on this OSINT investment? DOSIP will not come to pass without DoD-wide acceptance of this proposition, and endorsement by the Senate and House Committees responsible for oversight of the armed services vice intelligence alone.

DoD consumers of defense intelligence can "harness" the distributed expertise available in the "open source intelligence community". Following is an illustration of the "information archipelago" upon which this community can be established.[7]
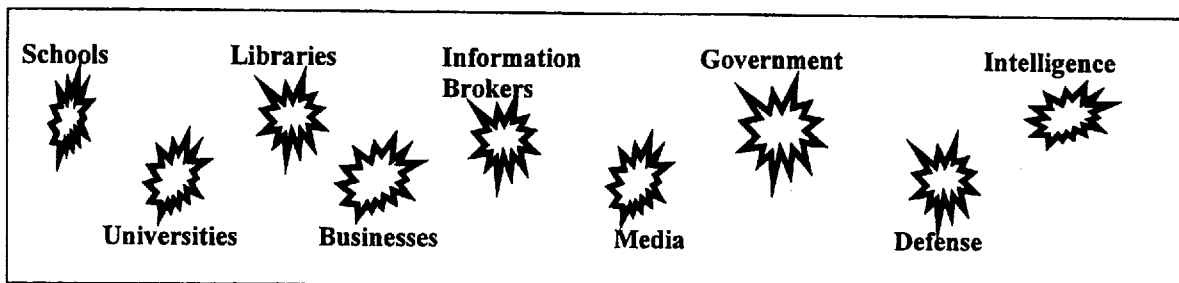

Figure 1: The Information Archipelago

Today this archipelago is limited in its ability to share access to existing databases or to transfer expertise across organizational and national boundaries, in large part because of the financial costs and the security risks associated with permitting increased access by outsiders to internal databases and resources which are unclassified. A new industry is emerging, the industry of *information merchant banking*™, which will provide valuable services related to navigating the archipelago and mining the data and expertise available in each sector.[8]

2.2.2 Four Levels of DOSIP Capability

	Strategic Forecasting (Including Technology)	10% of the open source support at 40% of the cost ($25,000 per project)
	Primary Research (Experts on Demand)	20% of the open source support at 30% of the cost ($5,000 per expert input)
	Help Desk (Online Search & Retrieval)	30% of the open source support at 20% of the cost ($100-$250 per search)
	Open Source Early Bird (Periodic Awareness Service)	40% of the open source support at 10% of the cost ($100 per profile per year)

Figure 2: Four Levels of DOSIP[9]

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[7]   Cf. "Virtual Intelligence: Conflict Avoidance and Resolution Through Information Peacekeeping", available at <http://www.oss.net/VIRTUAL>.

[8]   OSS Group, the operational arm of OSS Inc., is the prototype of this new industry service, and has trademarked the definitive term describing the new industry of *information merchant banking*™.

[9]   This pyramid and the relative satisfaction/cost ratios was devised by OSS Inc. Partner Mr. Jan Herring, who retired from the national intelligence community in 1983 from his position as National Intelligence Officer for Science & Technology, and then went on to create the business intelligence community in the United States, personally establishing the first business intelligence units for Motorola,

The OSINT process recommended in this report permits the DIA analyst to receive four levels of both on-going and "as required" defense open source intelligence support which are illustrated above and described below.[10]

-- DOSIP *Open Source Early Bird.* Similar to the existing DoD *Open Source Early Bird,* but providing daily GMI and S&T alerts and current information about specific policy, operational, regional, and technical intelligence areas of interest— individually tailored to the specific analyst's interests and directly related to the existing defense goals;

-- DOSIP Help Desk. Analogous to a reference librarian, but with intelligence skills including requirements analysis and global multi-lingual acquisition management knowledge, this element is able to carry out rapid low-cost searches of international multi-lingual commercial online databases including patent databases, and able to acquire specific documents on demand;

-- DOSIP Primary Research. This coordination element permits the rapid identification of international experts—"Experts on Demand"—in specific defense intelligence areas who can provide **"just enough, just in time"** expertise at critical points in the program—by identifying "world class" experts who might be able to provide a critical element of information directly over the telephone (including secure telephone cut-outs); and by contracting for *hours or days* of their expertise; this element affords DIA a substantially greater return on investment than the existing practice of contracting for major studies from organizations, where DIA loses control of both overhead costs and actual expertise of key contractor personnel; and

-- DOSIP Strategic Forecasting. This program element provides both a GMI and an S&T mapping and forecasting element applicable to every aspect of DoD policy and operational planning, and with special value for DoD Research, Development, and Engineering (RD&E). Additional and very substantial cost savings can be achieved here over the existing process because the GMI and S&T topics can be examined and mapped at wholesale rates and in slices responsive to individual DIA analyst needs.

In addition to the four basic levels of access and service above, four additional icon-driven capabilities are recommended for the DOSIP:

-- DOSIP Commercial Imagery Sources. This program support element will use existing commercial databases to rapidly identify for the analyst available commercial imagery from a wide variety of sources (LANDSAT, Radarsat, SPOT, Indian 5 meter, emerging U.S. one meter), together with cost and a sample look on screen.

Ford, Phillips Petroleum, Nutrasweet, General Dynamics, Southwestern Bell, and Monsanto.

[10]   This report focuses on the immediate needs of the defense intelligence analyst. However, the DoD consumer (DIA, OSD, CINCs, major commands, inter-agency working groups, supported coalition organizations) would benefit very significantly from access to this program, and could use existing military librarians as intermediaries and command support experts for those key encyclopedic and other recurring information and intelligence requirements which do not require all-source access and all-source analysis expertise.

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-- **DOSIP Near-Real-Time Internet & Broadcast Monitoring.** This program support element will allow the analyst to use existing commercial technologies (developed with intelligence community support) to monitor Internet postings as well as publicly available transcripts of both radio and television broadcasts, in near-real-time.[11]

-- **DOSIP Analysis Toolkit.** This program support element would provide the analyst with a menu of useful tools ranging from selected decision-support programs to automated rolodexes and object-oriented filing systems permitting the analyst to store and manipulate a wide variety of multi-media and multi-lingual data elements.

-- **DOSIP Online Training and Support.** This program support element would provide the analyst with direct access to the eight DIA Open Source Intelligence Lessons funded by the Joint Military Intelligence Training Center (JMITC), to the OSINT Handbook created for JMITC, to the OSINT Reader, and to a range of other emerging open source training resources. This element could also provide direct access to an internal or external advisory capability, at the SI/TK level, able to guide the analyst in considering open source acquisition versus classified acquisition tasking alternatives.

Below is a depiction of the DOSIP screen recommended for establishment as the DIA OSIS home page.

DEFENSE OPEN SOURCE INTELLIGENCE PROGRAM	
Primary Analysis Functions	**Analysis Support Functions**
• Strategic Forecasting	• Commercial Imagery Sources
• Experts on Demand	• NRT Internet & Broadcast Monitoring
• Online Search Help Desk	• Analyst Tool-Kit
• Open Source Open Source Early Bird	• Online Training & Support
Do Not Send A Spy Where A Schoolboy Can Go	
DOSIP Voice: (703) 693-9570 DOSIP Fax: (703) 693-9557 DOSIP Email: DOSIP@dia.mil	

Figure 3: DOSIP Screen – the DIA Home Page in OSIS

2.2.3   Concepts, Doctrine, Organization, Training, and Funding

The intent of the DOSIP would be to provide direct open source support to the defense intelligence analyst without requiring any additional training in terms of question forming, online research methods, the arcane commands and idiosyncrasies of various online file directories, and so on. DOSIP would allow analysts to use natural language profiles and natural language queries, with humans very much in the support loop (e.g. on the Help Desk, and as individual experts on demand). The online training portion of the DOSIP, building on the existing eight lesson plans already funded by the JMITC, could

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[11]   While direct delivery of CNN and other broadcasts is feasible, and could even include real-time or archival delivery of regional radio broadcasts to the respective desk analysts, this is an expensive and perhaps unproductive proposition. Instead, full-text transcripts and alerts in text boxes on screen are proposed.

be expanded over time to provide analysts with menu-driven orientations to open sources, systems, and services tailored to their subject matter areas.

The DOSIP would benefit from the development of a follow-on *Open Source Intelligence: Professional Handbook 2.0*, which provides the conceptual, doctrinal, organizational, training, and funding information needed for the defense intelligence community to use DOSIP.[12] The appendix to that new publication could be an "Analyst's Guide to Open Sources, Systems, and Services" which is organized in direct correspondence to DIA analysis desks, and which includes detailed information on how to exploit such sources, systems, and services, either directly through OSIS, or through supporting private sector intermediaries reachable through OSIS.

The bottom line on this process is that the defense intelligence analyst (or the defense intelligence consumer) will be able to exploit all available open sources, systems, and services through their existing classified workstation and an existing DOSIP contract, and they will not need additional technology, procurement, security, or manpower investments in order to harness open sources in support of their mission.

3.0   OPEN SOURCE INFORMATION & INTELLIGENCE

3.1   Open Source Information

Open source information (OSIF) includes the Internet, commercial online services, overt human experts providing verbal or written knowledge[13], and a wide variety of multi-media sources with value-added processing services including complex knowledge base visualizations, commercial imagery, hard-copy limited edition documents from scientific & technical conferences, and foreign language document acquisition and translation. This report focuses on those sources that pertain to defense intelligence monitoring and forecasting, and the creation of OSINT in support of the DIA mission in support of all DoD consumers.

The appendix provides a concise directory of selected international open sources and services. It is essential to stress that much of the knowledge needed to properly monitor and forecast defense intelligence topics has not been published and cannot be accessed through directories or online services, most of which tend to be somewhat out of

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[12]   *Open Source Intelligence: Professional Handbook 1.1* was published by the Joint Military Intelligence Training Center in October 1996, and is based on six of the eight open source intelligence lessons funded by JMITC. While this will remain a basic reference, a follow-on handbook which directly addresses open sources, systems, and services pertinent to each DIA "desk" would be very valuable.

[13]   Overt human experts have three major advantages over clandestine sources and technical intelligence, when properly harnessed: they are much cheaper; their expertise includes contextual understanding of all multi-lingual aspects of their area of expertise; and they can be contracted for using only legal and ethical means which are both impervious to criticism, and which permit the sharing of the information with others. Contrary to the standard objection of those who believe only in secret and controlled sources, they are also capable of being extremely discreet--in the expectation of future earnings--and can sign non-disclosure or confidentiality agreements, as well as work quietly without knowing the identity of the DIA client or even the ultimate purpose of the DIA client's program.

date and incomplete when published.[14] The appendix is a selective listing of a much broader range of sources, systems, and services pertinent to defense intelligence. In combination, the Internet, commercial online services including foreign databases, professional associations and their member experts, and the wide variety of "best in class" private sector information collectors and intelligence producers represent an "open source intelligence community" that is immediately responsive to DIA and DoD consumers through the DOSIP and which can in fact produce open source information and intelligence that is not now available from the U.S. Intelligence Community; or would be prohibitively expensive if specified and procured through a "beltway" contract research organization (and also likely to be incomplete and without recourse to true international expertise).

The process described in this report is unique and much advanced over existing U.S. intelligence community, "beltway" research organizations, and DIA vendor open source acquisition processes because it invents the concept of an *information merchant bank*™ which is able to do "whatever it takes" to mix and match open sources, systems, and services on behalf of a major client. This can be accomplished at roughly 50% of the established man-year costs in normal DoD contracting because it eliminates most of the overhead costs associated with major contracts to single established vendors.

This report focuses on sources and services, but systems (or tools) are also understood and exploited as part of the process--Internet knowledge robots and macro-searches, cutting edge search & retrieval as well as object mapping and visualization technologies are representative of additional value-added aspects of the process, and can be included in the analyst's toolkit proposed as part of the DOSIP.

To illustrate by example, there are two major sources of information which provide exceptional breadth and depth of coverage with high relevance to the production of OSINT of value to DIA and to DoD as a whole:

-- **Individual Inc.** Individual Inc. is the best of the daily "current awareness" services, and combines best prices with best practices that include the only human editorial staff and the only pre-built topical dictionaries which significantly enhance the effectiveness of the user-profiles. While it is strongest in the business intelligence arena, OSS Inc. is working with this organization to expand its sources in the military arena, and to develop defense intelligence profiles that correspond to each DIA analysis desk.

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[14]   DIA has contracted for the wholesale transfer of all OSS Conference Proceedings and all past and current issues of *OSS NOTICES* into OSIS—this provides analysts with a wealth of information about open sources, systems, and services. It includes an Intelligence Mall which can have both regional, functional, and technical filters set to facilitate rapid retrieval of open sources, systems, and services pertinent, for example, to military analysts interested in Chinese sources. All past publications are available free at <http://www.oss.net> while present year publications are available at that site by subscription. A new training section, available at the direct URL of <http://www.oss.net/TRAINING> provides quick free access to abridged versions of the OSINT Handbook, the OSINT Reader, seven of eight DIA OSINT Lessons, and other training materials. The DIA OSINT Lessons represent the only formal OSINT training program known to exist, just as the Joint Military Intelligence Training Center publication *Open Source Intelligence: Professional Handbook* (October 1996) is the only formal training publication in this area.

-- **Institute of Scientific Information (ISI).** The ISI citation databases, covering both science and social science, are a unique investigative resource, which is all the more valuable because most governments and corporations are not aware of this resource.[15] The Topical Citation Report (TCR) is a complete inventory of papers in a specific field of the sciences or social sciences published in ISI-indexed journals between 1981 and 1996. The TCR can be mapped using proprietary ISI software, to reveal "core" papers, specific intellectual leaders, centers of excellence, and--most importantly--both emerging areas of scientific & technical development, as well as gaps in coverage.

The DOSIP improves on the existing process in three ways: 1) by dramatically increasing analyst access to open sources, as recommended by the Commission on Intelligence; 2) by significantly lowering the cost of open source intelligence research, moving away from the expensive and often less than world-class offerings of contracted research, and toward lower-cost and yet higher value **"just enough, just in time"** expertise on demand; and 3) by making it possible for analysts to satisfy consumers with open source intelligence (tailored information) and in this way reducing the demands on classified resources—thus permitting classified resources to focus only on "the hard stuff" that is not available through open sources.

3.2 Open Source Intelligence

Open source intelligence (OSINT) is the full integration of legally and ethically available open sources, systems, and services in order to produce tailored decision-support to the individual policy-maker, commander, or action officer. Properly executed, an OSINT acquisition and production task includes the discovery, discrimination, distillation, and rapid delivery of multi-lingual and multi-media materials. OSINT is distinguished from OSIF by the application of proven intelligence methods in the acquisition, processing, analysis, and dissemination (including visualization and presentation) to the information, in order to provide tailored actionable intelligence to the analyst or consumer.

OSINT is related to all-source intelligence in two ways: it serves as a foundation for the all-source acquisition management process, and provides a context within which to appreciate more selective classified intelligence reports; and it serves as a "good enough" means of satisfying requirements which do not require classified acquisition and analysis, but which represent valid needs for tailored information (intelligence) in support of defense policymaking, defense acquisition, and defense operations.[16]

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[15] A very senior intelligence leader, discussing science & technology forecasting in the mid-1990's, revealed that he was completely unaware of this capability, which has been a staple of science & technology research in academic and selected corporate circles since the 1970's. A knowledeable source informed me privately that the beltway bandits do not budget for ISI research, and instead prefer to "make do" with what they have in hand in their local libraries. In the private sector, only the pharmaceutical industry, and a few major corporations in selected other areas, are fully exploiting this resource.

[16] Dr. Joseph Nye, while serving as the Chairman of the National Intelligence Council, made reference on many occasions to the intelligence jig-saw puzzle, and identified open sources as the outer pieces of the puzzle, without which the all-source analysis process can neither begin nor be completed. The

Below are listed the "niche" aspects or functions of the normal private sector information industry—no organization in existence today focuses on ensuring that "best in class" providers of each niche service are identified, at the lowest possible relative cost, and their contributions fully integrated into an OSINT process that applies proven intelligence methodologies including requirements analysis, acquisition management, source validation, analysis methods, and report visualization.

- Employee Observation and Debriefing
- Current Awareness Services
- Commercial Online Searching
- Document Acquisition
- Document Translation
- Experts on Demand
- Multi-Expert Research Studies
- Primary Research (Telephone Surveys)
- Market Research
- Technology Forecasting
- Political, Economic, and Cultural Forecasting
- Reverse Engineering[17]

The essence of OSINT, as it can be applied on behalf of the proposed Defense Open Source Intelligence Program (DOSIP), comes down to four "arts":

1. *Discovery* of most pertinent multi-lingual, multi-media information;

2. *Discrimination* between good and bad, pertinent and less pertinent;

3. *Distillation* of masses of multi-lingual and multi-media information into tightly-organized and highly pertinent English-language decision-support products (tailored intelligence); and

4. *Delivery* of unclassified defense intelligence to exactly the right person, at the right time, in the right form (often hard-copy) for optimal impact.

It merits emphasis that properly managed OSINT does *not* burden the DIA analyst or consumer with masses of unevaluated, untranslated, and unprocessed information—

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more precious inner pieces of the puzzle are provided by the traditional classified intelligence acquisition disciplines. It merits comment that humanitarian assistance operations, coalition operations, and missions in Tier III/Tier IV countries often rely almost exclusively on open sources.

[17] Illegal and unethical practices are not included in this listing. Directed penetrations of commercial competitors and the general practice of industrial espionage, are very high-cost and high-risk activities which show a very poor return on investment when compared with properly managed OSIF and OSINT. There is a disturbing trend in false advertising and fraud within the open source world; it is incumbent on the DOSIP to maintain very high standards and to ensure that it contracts only with those committed to providing both legal and ethical open source support, and to harnessing the full range of expertise available internationally, rather than to simply repurposing existing employees that do not have the requisite world-class expertise.

nor does it burden the DIA consumer with large volumes of organized, processed, translated information which the consumer then has to digest. Instead, OSINT focuses on providing the DIA analyst or consumer with **"just enough, just in time"** tailored decision-support products which reflect both world-class inputs and world-class OSINT "art" as—the end result is a highly productive and highly cost-effective defense open source intelligence program which allows DIA to leverage the private sector to the fullest possible extent, and which could also allow DIA consumers to leverage the private sector—at their own expense but using the DIA process so DIA keeps current with consumer needs—for intelligence requirements that do not require scarce all-source analysis talent.

3.3   The Burundi Exercise

Late on the afternoon of 3 August 1995 (a Thursday), the Commission on Intelligence, at the instigation of General Lew Allen, USAF (Ret.), conducted an impromptu benchmark exercise of open sources versus classified sources, using Burundi as the test case. Here is what the Commission on Intelligence is understood to have received by the deadline, 1000 Monday 7 August 1995:

1. From LEXIS-NEXIS, the names of the *top journalists* reporting on Burundi over the past two years, presumably available for debriefing;

2. From the Institute of Scientific Information, the names of the *top academics* writing on Burundi over time, including lists of major publications and contact information;

3. From Oxford Analytica, established by Dr. David Young (he served on the National Security Council with Dr. Henry Kissinger), a series of two-page *executive briefs* on Burundi which had been prepared by Oxford Analytica's distributed world-class experts on Burundi, for the guidance of the World Bank and Chief Executive Officers with major African investments;

4. From Jane's Information Group, a map of the Burundi/Rwanda region clearly showing the *tribal* areas of influence, an *order of battle* for the *tribes* involved, and a one paragraph precis of each article about Burundi published in any Jane's publication over the past two years;

5. From East View Publications, a detailed listing of all immediately-available Russian (Soviet) *military topographical maps* at the 1:100,000 level; and

6. Belatedly, but no less importantly, from SPOT Image Corporation, confirmation that *10-meter resolution commercial imagery* for 100% of Burundi was available, cloud-free, in commercial imagery archives, and could be used to produce 1:50,000 combat charts with contour lines, precision-munitions guidance packages; and nap of the earth (NOE) and transport/fighter interactive mission rehearsal programs.

The U.S. intelligence community had relatively little to offer, not because it was incapable of collecting against Burundi, but because its priorities are such that only Tier I and Tier II targets (e.g. Russia, China) really receive full attention—exactly the same situation exists against global economic and cultural targets, as with Burundi. This impromptu exercise was a significant factor in determining the force of the Commission on Intelligence recommendations regarding open sources, and these are summarized here:

-- The U.S. Intelligence Community has been "inexplicably slow" in providing its analysts with access to open source information, this is a "critical deficiency", and it should be a "top priority for DCI attention and a top priority for funding".

-- The U.S. Intelligence Community should *not* accept intelligence requirements which can be met predominantly through the use of open sources of information--it is incumbent on the government consumer to exploit open sources on their own behalf.

This process seeks to empower the DIA analyst by giving them direct access to multi-lingual and multi-media (i.e. including commercial source imagery tailored to their needs) open sources, systems, and services; while simultaneously liberating the DIA analyst from those requirements that can be satisfied by DoD consumers—at the DoD consumer's own expense—through direct access by the consumer to international private sector open sources, systems, and services.[18]

3.4   Open Source Security

The most common concern that has been expressed by numerous intelligence organizations world-wide[19] has been both obvious and important: that of policy security or operational security. *It is important to note that OSINT can be developed with varying degrees of confidentiality about the consumer, the context, and the timing of the program--exploiting OSINT does not require disclosure of classified DIA or DoD interests, nor even of unclassified but sensitive interests.*

OSIF can be acquired, and OSINT produced, without compromising the identity, interests, strategic investment directions, or other key elements of program security that must be protected. At the most elementary level, the OSINT provider can work within Secret, Top Secret, or Sensitive Compartmented Information (SCI) parameters, and serve as a cut-out for the government consumer. At more sophisticated levels, the acquisition

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[18]   On balance, it is the consumer that should make the determination that open source is "good enough" for their needs, just as the consumer has the prerogative of specifying the time available for meeting their requirement, the highest level of classification that is acceptable, and the desired length (or brevity) and format of the intelligence report. The analyst needs to keep track of what the consumer is receiving from open sources—much of which will be unevaluated and often flawed in nature; to alert the consumer when all-source products would be significantly superior; and to recommend open sources when they can satisfy a consumer while avoiding a drain on scarce and expensive classified resources.

[19]   Direct consultations with representatives from the national and/or military intelligence organizations of the following countries are included in this number: Australia, Austria, Belgium, Canada, France, Germany, Israel, Italy, Singapore, Sweden, The Netherlands, United Kingdom, United States of America; other conversations have taken place with representatives from over thirty countries, attending the annual international open source conference.

and analysis can be managed in such a way as to actively cover the research and make its various elements appear to be motivated by student, small business, or other research needs. Especially important sources such as the Institute of Scientific Information are capable of doing searches on a non-disclosure/confidential basis, and no one outside of a single research director at ISI will know of the existence and delivery of the specific search. In the primary research arena, where telephone and personal surveys are conducted to develop new knowledge not yet published, there are established methods for dividing the research project up and asking selected individuals selected questions so that no one individual or group of individuals is aware that a major study is underway. This can all be done legally and ethically, without misrepresentation.

Apart from direct control by the DOSIP Cell and its private sector counterpart(s), it is important to note that professional discretion is closely associated with world-class expertise—professional discipline and the more mundane expectation of future revenue, as well as legally binding non-disclosure or confidentiality agreements, all permit OSINT to be produced securely.

3.5   Open Source Timeliness

The table below provides a timeline for various types of open source acquisition and production tasks. For these informed but speculative judgements, it is assumed that the requirement pertains to a Tier III or Tier IV Country and the requirement does not have the personal interest of a Cabinet official…..this is *routine* timeliness.

TASK	OPEN SOURCE
Direction	Immediate (Hours)
Human Acquisition	2-12 Hours
Signals Acquisition	1-2 Days to Activate, Immediate Reporting
Imagery Acquisition	1-3 Hours from Archive 2-3 Days New Acquisition
Processing	Hours to Days
Analysis	Immediate (Hours-Days)
Delivery	Immediate (Hours-Days)

Figure 4: Open Source Timeliness

4.0   WAYS TO APPROACH OPEN SOURCES

4.1   OSINT Coordination Options

For the purposes of providing OSINT to DIA analysts, the following generic process is proposed and applies to direct support to DIA only--it could easily be expanded in size, extended to DoD consumers, and also enhanced by selectively refining private sector capabilities highly pertinent to DIA needs.

-- *Centralized* DOSIP. By having a single program manager and funding channel (to which services and other consumers can transfer modest funds), DOSIP can obtain the benefits of volume discounts from the major private sector providers of open sources and services, while also avoiding redundant requirements and inefficient acquisition management. The DOSIP OSINT Cell serves as the "hub" of the DOSIP "wheel".

-- *Expanded* DOSIP. Requirements and Acquisition Management points of contact (POC) at each major consumer site can provide a network which is highly responsive to the needs of the individual DoD consumers, while still optimizing requirements and acquisition management through the single DOSIP OSINT Cell.

-- *Extended* DOSIP. OSINT Cells can be created at each service and/or in each major consumer area. This offers a significant advantage in terms of organizational acceptance of the DOSIP capability, and the likelihood that greater utilization will be made of DOSIP if it is perceived to be part of the in-house policy, operational planning, or acquisition process. Initially there will be a knowledge transfer challenge, and the DOSIP OSINT Cell will need a dedicated "mobile training team" or liaison element to ensure that the various DOSIP cells are not wasting resources or overlooking critical OSIF/OSINT opportunities for defense open source intelligence support.

Further discussion of these three options is provided in section 7.0.

4.2   DOSIP Technical and Contracting Options

This proposed process assumes a strong commitment to existing installed technical architectures, and no new investments in technology. It also assumes a commitment to rapidly correcting the open source deficiencies by using existing contract vehicles or rapid-response sole source contracts in modest amounts.

4.2.1 DOSIP Technical Options

Over the course of five years various technical options have been examined for delivering open source information and intelligence into the all-source environment, and only two have really shown themselves to be competitive options:

- **Open Source Information System (OSIS).** This is a viable system, which appears to suffer at this time from a lack of focus on simplicity and functionality. According to many of its users, its sole use at this time is as an Internet Service Provider (ISP), rather than its intended purpose: as a central repository of imported unclassified data, and as a value-added support structure for analysts.

- **Classified Cut-Outs.** This option utilizes the existing Sensitive Compartmented Information Facilities (SCIF) maintained by selected private sector vendors, and places the DOSIP Cell completely within a classified environment—a cell inside DIA serves as the over-all requirements manager

and in-house central expertise, while a cell outside DIA, using a contract SCIF, serves as the external acquisition manager and fusion center. Under this concept, analysts and DoD consumers never leave the classified environment—they use classified channels to communicate unclassified questions to the SCIF OSINT Support Cell(s), which in turn provide an air-gap and a cover gap. The major advantage of this system is that is eliminates all requirements for investing in new hardware and software, avoids confusing or burdening the analysts or DoD consumers with the need to learn a new system, and leave the "learning curve" for following open sources, systems, and services in the private sector. The major disadvantage of this system is that it does not afford the analysts or DoD consumers an opportunity to interact directly with the considerable amount of unclassified data, and to exchange direct electronic messages with private sector experts and observers who do not have clearances.

It merits emphasis that one of the approaches that has *not* worked is the liberal provision of direct Internet access to analysts, or of direct access to commercial online services. Internet searching and commercial online searching are skills sets that are distinct from analysis skill sets, and most organizations that have tried this approach have found that their personnel either get hopelessly lost in cyberspace, or become addicted to wandering in cyberspace and are less productive. The best approach has been the one used by the Dutch intelligence service—**centralized discovery, decentralized exploitation**—in which analysts use a central cell of experienced searchers to discover key Internet sites and lists or key commercial online files, and to develop automated standard queries. Then the analyst can exploit these clearly identified sources in structured ways, and optimize the integration of analyst knowledge with pre-identified open sources.

The recommended technical approach for DOSIP is a combination of the two validated options above. A DOSIP Home Page—a single Home Page screen—which shows the analyst something along the lines of Figure 3, should dramatically increase analyst interest in and exploitation of open sources. At the same time, by using the Home Page to guide analyst and DoD consumer requirements for open sources, systems, and services to the DOSIP Cell and through the DOSIP Cell to an outside provider able to serve as an expert out-sourcing support coordinator as well as a cover gap[20], DOSIP users will be able to get anything they need from the open source world without entering into new security or procurement or technical arrangements.

This approach will permit the fullest possible exploitation of existing investments in technology, as well as the introduction of training & education technology as part of the day-to-day analytical process. It will also permit a centralized database of frequently

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[20]   It is very easy to provide legal and ethical "cover" for open source inquiries from all-source intelligence analysts. The external provider, serving all manner of global clients from across all government and business sectors, disconnects the identity of the client (DIA) from the question, and if appropriate can go a step further and sub-contract the inquiry to a graduate student or professional information broker whose endeavor will completely obscure DoD/DIA equities in the inquiry.

asked questions and frequently used sources to be established, which will lead to more cost savings and an enhanced DOSIP as "lessons learned" are integrated into the system rather than lost from one generation of analysts to the next.

4.2.2   DOSIP Contracting Options

Contracting options include sole source contracts under $100,000 for specific niche capabilities; a sole source contract for open source clearinghouse support; channeling funds through existing DoD and USG contracts; and competing a new general support DOSIP Contract which provides for content, systems, and service support.

- **Sole Source.** The world of open sources, systems, and services is a world of niche capabilities. Unlike the traditional beltway vending world, where a number of very large players are generally equal and offer a full range of technical services, the real open source world outside the beltway (and 99% of the knowledge *is* outside the beltway) generally boils down to a few individual experts for any given topic, or small companies with 3-5 employees that have carved out a special niche. East View Publications, with its unique access to military topographic maps for the Third World, created by the former Soviet military, is an example. The DOSIP Cell, therefore, will have the option of using sole source contracts in very modest amounts to obtain niche support on a **"just enough, just in time"** basis. Sole source could also be used to fund a clearinghouse support contract which provides the DOSIP Cell with help in discovering, discriminating, distilling, and delivering open source information and intelligence, or in identifying niche capabilities which can be contracted directly.

- **Existing Contracts.** Within DoD, the most promising umbrella contract is the DoD IC4I Contract administered by the Electronic Systems Command at Hanscom AFB.[21] The National Technical Information Service (NTIS) and the Defense Technical Information Center (DTIC), as well as the Federal Research Division (FRD) of the Library of Congress, offer other alternatives.

- **New Contract.** Over the long-term a good solution would be a new contract which is designed to meet the needs of DoD across the board, including not only the needs of DIA for direct support to analysts but also the needs for DoD intelligence consumers which should be met by themselves in those instances when open sources can address their intelligence requirements without recourse to classified sources. Such a contract would benefit from a thorough understanding of the diversity of sources, systems, and services

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[21] Integration for Command, Control Communication, Computers, and Intelligence (Contract Number F19628-96-D-0004), has a ceiling of over $900 million dollars, and includes as a prime the Systems Research & Analysis Corporation, the OSS Inc. technology partner. It appears able to accept funds from intelligence acquisition including civilian elements of the U.S. Intelligence Community; intelligence producers including the theater JICs, and intelligence. The Program Manager is Ms. Linda Jean at (617) 271-2461.

available from the private sector, and could be funded by DoD as a means of both reducing acquisition costs as well as reducing the burden on the expensive classified intelligence community whose funding is predominantly controlled by DoD.

- **Treaty Obligations.** There are some benefits to establishing a treaty obligation to protect a defense open source intelligence architecture and a minimal level of service. For instance, DIA could volunteer to serve as the Executive Agent for a North Atlantic Treaty Organization (NATO) Partners for Peace Open C4I Architecture, and have this confirmed as an obligation within NATO, effectively fencing the money over time. This could also allow DIA to coordinate international investments—the Joint Analysis Center (JAC) at Molesworth, for instance, could become the joint US-UK cell in support of NATO and the Partners for Peace, with a strong open source imagery and mapping element focused on the Eastern European area.

4.3   DOSIP *Open Source Early Bird*

For any given individual analyst or decision-maker, or for any given policy, operations, or acquisition topic of interest to multiple individuals, a daily OSINT report can be prepared using existing automated private sector services. Each profile, costing around $1,000 per year, but with very significant discounts—as much as 50% to 90% are achievable if DOSIP orders 500 to 5,000 profiles or more—will provide via Intranet, email, or fax a listing of international media and industry press headlines and lead sentences, and a rapid means for obtaining the full text of those stories of immediate interest. These daily DOSIP *Open Source Early Bird* reports can also be archived for up to 180 days, and searched electronically. It is important to stress that each individual analyst will be able to have at least one and if appropriate more than one personalized profile—the DOSIP *Open Source Early Bird* will be unique to each recipient.

> *DOSIP EXAMPLE: Using the existing technology and online sourcing developed by Individual, Inc., a tailored Defense Intelligence Open Source Early Bird on chemical weapons, consisting of one page with ten headlines and lead sentences, can be automatically delivered each morning to all policy-makers and operational commanders concerned with chemical weapons monitoring and development. An identification number or icon next to each article would allow rapid receipt of the full text of the article.*

4.4   DOSIP Help Desk

Day to day DoD OSINT needs can be met through a Defense Intelligence Help Desk which is able to rapidly evaluate the opportunities and likely cost of discovering, discriminating, distilling, and disseminating specific DOSIP products, including

background documentation. A quick search of the Internet and commercial online services to answer a single specific questions could be as inexpensive as $250, or as much as $2,500 if multi-lingual databases and some translation are required. The DOSIP Help Desk, by using interactive electronic mail to develop queries, and by providing the **centralized discovery, decentralized exploitation** element of the DOSIP, will assure both very high quality control on searches, and also significant cost reductions. Existing librarians and existing online capabilities from the U.S. government such as the Defense Gateway Information System (DGIS) can be important contributors to this element.

The Help Desk will also serve as a means of ensuring that analysts are making full use of OSIS, and that requirements are not levied on external sources which can be met from the already funded OSIS offerings.

> *DOSIP EXAMPLE: a DoD consumer involved in the upgrade of an Army helicopter—avionics improvements and more maintainable structural members—requests a quick survey by DIA of commercial developments that might be used to meet system needs. Working directly with Jane's Information Group on a confidential basis, an extremely detailed report on global commercial developments in both areas is prepared, together with confidential comments from Jane's military and commercial sources which could not be published for source protection, but which have very high relevance to DIA consideration of defense in this area.*

4.5   DOSIP Primary Research

For any given problem or area of inquiry important to DoD, it is possible to identify world-class experts who have an understanding of both works in progress and emerging trends which have not been documented publicly, and to obtain from these experts **"just enough, just in time"** OSINT to support specific DoD decisions or recommendations to DoD policy makers and Service chiefs. Generally speaking, the identification of a slate of experts can be accomplished for between $3,000 and $10,000, and for an additional $3,000 to $10,000 selected pre-screened experts can be contracted to produce concise tailored OSINT for roughly the same amount.[22] This contrasts very

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[22]   There are three alternate paths to identifying experts in a comprehensive manner. The most superficial is through commercial online searching to identify experts who are either self-promoting through publications and speeches, or selected by the press as being newsworthy or photogenic. The next is through professional associations, and is a time-consuming process that relies heavily on the inherent biases and limitations of the staff and others interviewed. The most comprehensive is through citation analysis, which has the unique advantage of showing in tangible documented terms, whether the experts are in fact recognized by their international peers, and having an effect on the development of their respective discipline. A citation analysis search costs $3,000 or more, depending on the number of citations involved. Generally a world-class expert can be hired for $3,000 a day. While often experts can be persuaded to provide *pro bono* presentations or to write a short expert opinion for a modest honorarium, this proposal suggests that the DOSIP process be run on a business basis and avoid trying to rely on "free rides" that may bias the outcome. This process also by-passes the special relationships between program managers and vendors, and avoids automatically turning to

dramatically with the hundreds of thousands of dollars, and the months or years, normally required to obtain equivalent OSINT through the existing process, if it is obtained at all.

> *DOSIP EXAMPLE: A DoD program under review appears to have a specific problem in an obscure technical area dealing with electronic performance under certain arctic conditions. The vendor has not been able to satisfy the DIA consumer. Within two days, primary research commissioned by the DIA analyst can identify the top two or three communications experts who have been conducting related research in the Arctic, conduct preliminary interviews with each, and put the DoD consumer in direct touch with the one best able to suggest an approach to the problem and possible timing and cost of resolution.*

4.6 DOSIP Strategic Forecasting

For any given GMI or S&T area, it is possible to develop, at a cost of under $50,000 and sometimes as little as $20,000, a comprehensive "map" of specific sub-disciplines which can be used to forecast trends, identify gaps in military knowledge or commercial RD&E, and identify key individuals and institutions in the private sector (as well as some government-sponsored laboratories) where critical mass has been funded by others and can be leveraged for DIA or DoD consumer purposes.[23]

> *DOSIP EXAMPLE: ASD(C^3I), a strong proponent of the DOSIP program, has asked for the identification of gaps in defense intelligence pertinent to military communications. A complete S&T map delivered within a few weeks shows that the major gaps deal with optical scanning (both weight reduction for field use, and non-trivial challenges of scanning wet, crumpled documents taken from prisoners); imposition of time and space tags on multi-media information to permit geo-spatially based all-source fusion; digitization and translation of foreign languages for field use; linkages between commercial remote sensing data and military weapons systems already loaded on aircraft; and data integrity assurance programs which can resist electromagnetic attacks as well as virus attacks..[24]*

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the "beltway bandit" experts who have a vested interest in the issue being evaluated.

[23] A very current description of the state of the art by one of the top experts in the world at this process is available on request.

[24] For this specific example, a detailed description of the actual process including financial estimates is provided to further demonstrate the nature of the DOSIP strategic forecasting process.

STEP ONE: Requirements Analysis. ASD(C^3I) action officers are interviewed by DOSIP requirements officer(s) trained in the reference interview, to ensure that specific communications areas of interest are explicitly identified (e.g. extra-low frequency bandwidth, multi-use antennas, and etcetera). At this

5.0   DOSIP CELL

The DOSIP Cell, which serves as the core of the proposed Defense Open Source Intelligence Program (DOSIP), consists of a total of six "players".   It serves as the "gatekeeper" and facilitator between the defense intelligence analysts and the external open source intelligence community. This coordination cell is conceptualized as either an in-house or as an out-sourced capability that does not impact on government employee manning. An in-house central cell, with out-sourced cells for supporting different types of DoD consumers, is recommended.
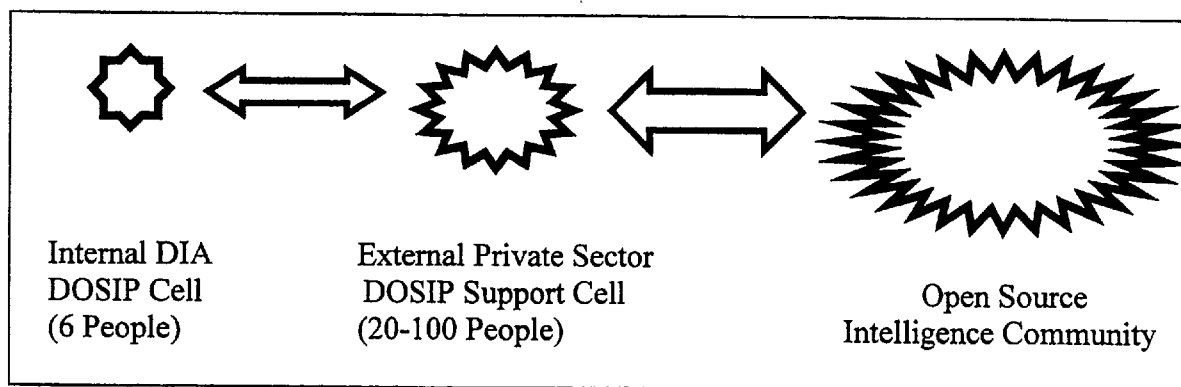
Internal DIA
DOSIP Cell
(6 People)

External Private Sector
DOSIP Support Cell
(20-100 People)

Open Source
Intelligence Community

Figure 5: DOSIP Cell and the Open Source Intelligence Community

point a level of effort in terms of dollars authorized, calendar time allowed, and DIA manpower time available (for interactive review and refinement of the final report) are established. Cost Estimate: $0 if part of larger on-going contract, $1,000 if a one time trial.

STEP TWO: Acquisition Management. A two-part approach would be followed in the first phrase. Part One would utilize the science citation analysis database maintained by the Institute of Scientific Information, and would identify the core papers and personalities, the "disruptive" institutions where major gains are being made in the discipline, and the general map of communications technologies. As part of this effort, selected articles and documents would be acquired based on a prior understanding of ASD(C^{3}I) needs and documented valuation of the articles as very influential by the citation analysis method. Part Two would engage in primary research, and systematically interview key experts over the telephone or via correspondence, seeking to identify gaps—areas where there is a clear military need, but the experts can explain why commercial technologies are not likely to be developed. NOTE: The experts are *not* identified in advance, with the exception of those selected for participation in the DIA Intelligence Reserve. The heart of this approach is that DIA avoids both the cost of retainers, and the risk of having to rely on pre-selected individuals whose knowledge is not an exact fit with the requirement (e.g. a North African expert rather than a Somali expert)). Cost Estimate: $10,000 for the citation analysis (discounted to $5,000 if part of a year-long contract in which at least 20 searches are guaranteed); $5,000 for the primary research., plus an additional $5,000 for selected honorariums to cover expert time in composing written evaluations tailored to DIA needs.

STEP THREE: Analysis. At this point the DoD consumer can be presented with the intermediate results which comprise a "quick and dirty" but very authoritative estimate of the situation. The DoD consumer would now have the option of requesting that a round-table of private sector experts be brought together on a non-disclosure basis (similar to the kind of work that the National Research Council performs, but less expensive and more *ad hoc*), and that selected experts from the round-table then be asked to draft a concise report for ASD(C^{3}I) covering the two area of interest: key emerging commercial technologies directly applicable to DoD needs, and key gaps where the private sector is highly unlikely to develop technologies required by DoD. Cost estimate: $20,000 to bring together 5 key experts for the round-table, $20,000 for a final report integrating results of round table and new work by selected experts (on the order of one day's writing by each of 5 experts, at $3,000 per day per expert).
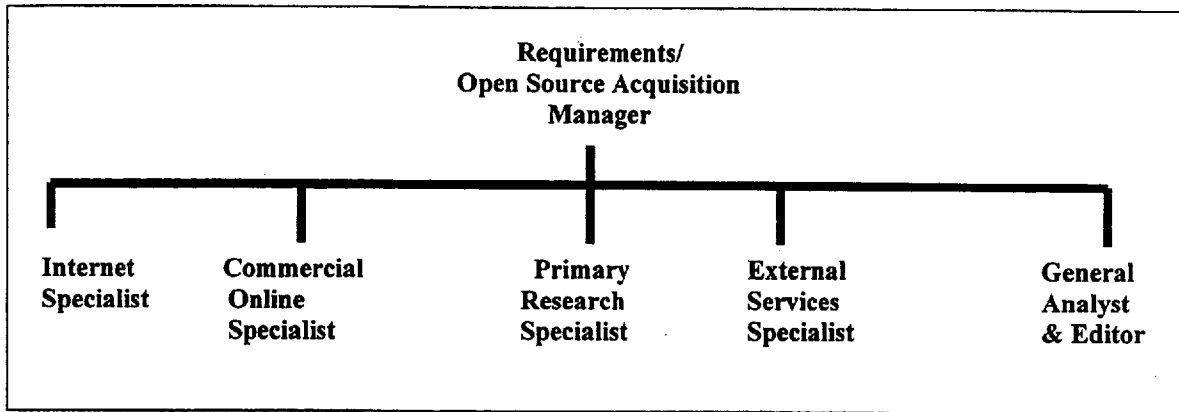
Figure 6: Core DOSIP Cell

5.1 DOSIP Requirements Officer/Acquisition Manager (RO/AM)

This individual works with the analyst or consumer and if appropriate the COTR to establish the level of effort authorized under the contract, and the fine details of what is needed by the DIA analyst or consumer. This individual then prepares and broadcasts to the four OSINT Specialists the requirement to which they will respond with anticipated results of their endeavors and a cost estimate. The RO/AM then obtains explicit approval from the consumer or the COTR, for execution. [NOTE: The estimates can be provided at a flat fixed fee rate if there is an existing contract with a an established fund which can be charged for approved DOSIP products—the idea here is to give the consumer and the COTR an assurance in advance—at a minimal cost—that their requirements can be met in a particular time frame and within a specified "not to exceed" cost range.]

This is the position, which can be duplicated in various DoD consumer offices and at the theater and tactical levels as part of an intermediate process of creating a larger DOSIP capability throughout DoD.

5.2 DOSIP Internet Specialist

This individual can search the Internet directly, but as the effort scales up instead serves as the estimator of Internet utility, and the coordinator of Internet searches distributed to other Internet search specialists for execution. It merits emphasis that the Internet is a bottomless pit into which unskilled searchers can vanish, and from which products of greatly varying quality can be obtained. The Internet's value to a comprehensive OSINT endeavor can be significant only if very highly-skilled specialists are used—such specialists must combine Internet knowledge with subject-matter expertise to be fully effective.

5.3 DOSIP Commercial Online Specialist

This individual is fully familiar with the strengths and weaknesses of the major online services (not just LEXIS-NEXIS and DIALOG, but STN, Questel/Orbit, and others) and can work with the *Burwell World Directory of Information Brokers* to

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identify multi-lingual experts who are familiar with and can access specific country or region-unique electronic databases not normally accessed by the U.S.—including Japanese and German patent databases. Most consumers and research organizations make the fundamental mistake of relying on specific information brokers who by their nature have chosen one or the other of the primary U.S. online services (LEXIS-NEXIS or DIALOG) and who are not necessarily familiar with either foreign databases, specific topical areas, or indeed the foreign language necessary to evaluate foreign language citations. The *Burwell Directory* has, in addition to a subject matter index allowing the identification of brokers with expertise in specific S&T disciplines, a new foreign language and foreign database familiarity index implemented in 1995. It is now possible to identify an information broker who not only has the necessary online database access and the subject matter expertise, but also the foreign language qualifications needed to conduct the best possible search on behalf of the DIA analyst.

5.4   DOSIP Primary Research Specialist

This individual uses the *Encyclopedia of Associations* (Gale Research) and other leadership directories to rapidly identify subject-matter experts who may provide expert information at no cost over the telephone (or who can, after screening and approval by the consumer, be contracted for a day's work); this individual is also able to conduct both "quick and dirty" and sophisticated telephone surveys with industrial, academic, and government experts, using only legal and ethical methods. Two distinct skills are combined in this specialist: a deep knowledge of international directories and how to rapidly identify "who knows"; and an ability to conduct remote interviews and extract information ethically and courteously while observing whatever security constraints the DIA consumer may specify.

5.5   DOSIP External Services Specialist

This individual is fully familiar with the wide variety of open sources, systems, and services offered by U.S. and international companies, and is able to provide cost-benefit judgement as well as time-benefit judgement to the selection of specific external services. This individual is especially skilled at knowing what is available from the internal databases of the external service providers, that is not normally published (Janes Information Group, for example, only publishes 20% of what it knows, but can provide the other 80%, or tailored new knowledge about emerging weapons, mobility, and C^3I systems, on a confidential basis).

5.6   DOSIP Analyst/Presentation Manager

This individual, a trained all-source analyst, ensures that each product has the same "look and feel" that the general analyst being supported is expecting, and ensures that in-house expectations regarding style, brevity, and general presentation are fully satisfied. This individual is very important in terms of ensuring that the materials collected are *distilled* into the briefest possible decision-support product, while also ensuring that supporting materials are readily presentable, and the consumer's requests

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for clarification and elaboration are rapidly answered. On balance we recommend that this individual be located on site with the RO/AM, and that the minimal number of individuals in any extended DOSIP Cell be two.

6.0 DOD INTELLIGENCE CONSUMERS

6.1 Strategic Consumers

At the strategic level, DoD consumers include executive and congressional oversight authorities including the President, committee members and staff, and the National Security Council; the Secretary of Defense and other Cabinet officials with a voice in national security decisions; and policymaking executives throughout DoD. At this level key officials in the United Nations, in other governments, and in *ad hoc* coalition councils as well as the established organizations such as the North Atlantic Treaty Organization (NATO) are important consumers of open source intelligence supporting U.S. policy planning and joint operations.

At the strategic level, open source information and intelligence can offer critical intelligence about military sustainability, geographic locations, and civil allies and relationships. Open source is also helpful, through content analysis of mass media publications, with respect to indications & warnings, and with respect to demographic and cultural intelligence, two areas not well covered through classified means.

Finally, at the strategic level, open source intelligence "generalizations" are extremely important to the acquisition community consumers. Open sources are vital in identifying and evaluating international commercial technologies for possible DoD use and to avoid wasteful DoD investments; and in determining the strategic conditions for which mobility, weapons, and command & control systems must be designed.[25]

6.2 Operational Consumers

At the operational level the Commanders-in-Chief of the various unified and specified commands, and commanders of major service commands with regional support responsibilities, can derive exceptional value from open sources because most of their contingencies will occur in Tier III and Tier IV countries which are not well covered by classified sources. This is also the level at which there is the greatest inter-mingling of U.S. and allied commanders and staff with international non-governmental and civilian organizations, and hence where unclassified intelligence is most valuable in part because it can be shared readily and without constraint.

At the operational level open sources are especially helpful with respect to military availability, geographic resources, and civil instability in the region. Open sources can be used to quickly evaluate cross-country mobility, aviation temperatures,

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[25] More detailed discussion of the utility of open sources at the four levels of intelligence consumption is provided in *Open Source Intelligence: Professional Handbook* (Joint Military Intelligence Training Center (October 1996).

bridge loading, port utility, airhead fuel bunkerage, and other factors vital to the planning and execution of theater operations, and generally not available, for Tier III and Tier IV countries, from classified sources.

6.3   Tactical Consumers

At the tactical level consumers include U.S. Country Team representatives who are participants in the joint planning process, allied and host country officials whose assistance and permissions are required, and a wide variety of non-combatants who must either be used for the operation, or who must be evacuated, quarantined, or otherwise planned for as an operational security or logistics sub-mission.

At the tactical level, open sources can provide information about military reliability, geographic terrain, and civil psychology, in advance of the conduct of operations.

In general, classified sources will be superior to open sources for real-time air defense and other critical war-fighting processes—where open sources are most helpful is in dealing with the public, including the press, and in rapidly researching specific individuals or organizations with whom military forces must engage.

6.4   Technical Consumers

At the technical level consumers include the war-fighters themselves, requiring very rapid and detailed infrastructure information about power, transportation, communications, and financial networks and capabilities; and the DoD acquisition managers, who must be concerned with long-term acquisition planning.

At the tactical level, open sources are very useful with respect to military lethality (including accuracy), geographic atmosphere, and civil infrastructure.

7.0   DOSIP SCALABILITY

This report assumes that the initial trial effort of a DOSIP Cell for DIA will be limited to a single cell at DIA. The Cell is also conceptualized as a "virtual" cell in the beginning, with none of the cell members being on a full-time contract. While DIA is establishing its own internal DOSIP Cell, and for as long as desired, all of the functions of the Cell can be fulfilled as an out-sourced contract under the direction of a single COTR. Once the formal Cell is established, and as other Cells may be established, the private sector can continue to provide fulfillment, with the internal Cells concentrating on requirements management and general analyst satisfaction. Once other cells are in existence, a DOSIP coordination process can be established so that the respective cell managers can follow the open source contracting activities of all of the other cells, and participate in a DOSIP "lessons learned" process.

7.1   Establishing a DOSIP Cell

The first and most important element of a DOSIP Cell is the Requirements Office and Acquisition Manager described in section 5.1 of this report. The next most important element is the Analyst and Presentation Manager. These two positions should be filled by DIA employees as soon as possible, and are easily filled by existing employees who are fully familiar with the DIA organization and DoD consumers.

The remaining four positions require a degree of expertise about private sector sources, systems, and services which is unlikely to be available within DIA, and which warrant new positions, new position descriptions, and the authority to hire from the private sector or be willing to train existing employees for 90-180 days each. There are individuals who already have clearances and are working in the private sector, who have these skills. Pending the hiring or training of such individuals, these functions can be fulfilled by a private sector organization on contract to DIA.

This report recommends a complete cell at DIA focused on requirements and presentation, and a counter-part cell off-site focused on acquisition management and first phase open source analysis. As DIA chooses to expand the DOSIP Cell to address increased demand from specific communities (e.g. the acquisition community), internal positions can either be realigned from within the consumer community being served, from within DIA as the value of the DOSIP proves itself, or contracted for from the private sector.

7.2   Expanding the DOSIP Cell

Expansion can be done in a piece-meal fashion, with sub-cells corresponding to major program areas (for example, one specializing on particular weapons systems (e.g. ground combat); one on mobility systems; one on C^3I systems) or--eventually--on major technology areas (e.g. electronics and computers, aerospace, materials). Properly expanded, with sub-cells earmarked for and responsive to individual acquisition managers, a single DOSIP Cell with a private sector counterpart could fulfill all DIA/DOSIP requirements, because this process leverages the distributed intelligence of the private sector, and explicitly avoids the overhead cost and knowledge atrophy cost of attempting to have in-house experts in all the technology areas.

The major advantage of a single DOSIP Cell with a single private sector counterpart is that it optimizes the scarce knowledge about exploiting open sources, systems, and services, while also minimizing costs through the regular deconfliction of redundant requirements, and economies of scale obtained through major discounts from the private sector vendors of open sources and services.

7.3   Extending the DOSIP Cell Concept

Extending the DOSIP Cell concept can be done easily by initially developing a small network of RO/AM interns from the interested DoD consumers. These individuals

can work directly within the DOSIP Cell, and then when they are ready and their sponsor is ready to invest funds, they can establish their own dedicated cell (or a partial on-site--partial open source cell) to focus exclusively on their needs.

The major advantage of having more cells, with each cell focused on a particular topical or technology area, is the assurance of a very close daily working relationship between the DIA consumer's technology experts, the search specialists, and the external experts identified by the search specialists.

The central DOSIP Cell can serve as a "court of last resort" and also (this is strongly recommended) as a passive quality control point able to alert the distributed cells when they are, through inexperience, failing to identify and exploit the lower-cost but higher-quality providers of niche open sources, systems, and services in the private sector. The success of an extended network of DOSIP Cells will require constant attention to updating each Cells knowledge of the latest OSIF/OSINT capabilities in the private sector--the pressures of the free enterprise marketplace assure an ever-changing mix of sources, systems, and services--if specific Cells get "locked in" to a particular information broker or support process, it is likely that within a year or two they will have "bureaucraticized" their DOSIP Cell and will be over-looking opportunities for cost-savings as well and also missing emerging capabilities for monitoring foreign language sources or new technologies that did not exist when the Cell was first formed.

7.4   Enhancing the DOSIP Cell Capability

Once the DOSIP Program is initiated, there are some modest investments that could be made by DIA to enhance the OSINT capabilities of the private sector and achieve for DIA some unique and proprietary advantages which could be withheld from other governments and the public. For instance, the same citation analysis and mapping technology that is used by the Institute of Scientific Information could be extended, at a cost estimated by ISI as being around $100K, to the Derwent World Patents Index, with a more complex analysis of both patents and citations then being possible, in an automated and very rapid fashion, for approximately $50K per analysis. *This would be a unique "first strike" capability for DIA in the critical technologies arena, and could offer very significant strategic planning advantages to DoD as a whole.*

8.0   PROBLEMS AND SHORTFALLS

8.1   Compartmentation and Operational Security

Today there is an existing problem or short-fall in defense intelligence, and that is its very limited ability—as found by the Commission on Intelligence for the U.S. Intelligence Community overall—to access open sources, systems, and services. Unless a process is instituted to provide DIA in particular, but ideally all DoD consumers of defense intelligence, with direct access to OSIF and OSINT, then DIA will continue to expend very significant resources on classified acquisition that could be reserved for more difficult targets; and will produce "sort-of" all-source intelligence lacking the

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context and encyclopedic foundation which open sources provide. At the same time, DoD will continue to invest in technologies that are either already emerging at lower cost in the private sector, will create operational plans which are not supportable by existing classified maps and images, and will develop policies in isolation from the larger realities which are readily available through open source intelligence, and not well-covered by the more narrowly focused classified capabilities. It merits comment that OSIF and OSINT have a special value in that they can be easily shared with the public, the press, and coalition partners. Isolation from open sources is a major problem that is addressed by this proposed program.

The second greatest problem will be the tendency of the various managers to compartment and classify their plans and intentions, and to develop programs in alliance with specific vendors and in isolation from the realities of the commercial marketplace. The government user will need to make a special effort, with support from the most senior managers, to follow the "black" programs and ensure that OSINT support is being provided to those program managers. At the same time, OSINT support can help the DoD managers make accurate and fiscally prudent recommendations to the Secretary of Defense.

Finally, DOSIP must take care to embed sound operational security practices in all aspects of its support. For many analysts and DoD consumers accustomed to a simpler world in which everything either goes to or comes from a secure intelligence community provider, training and education will be required to create new practices and new forms of relating to private sector sources, systems, and services. This will have to be a high priority in the early years of the program. At the same time, while the program is growing, maximum operational security can be easily obtained by having all open source requirements go through a central DOSIP Cell already skilled at these new operational security concepts, and by using cleared private sector intermediaries who have Sensitive Compartmented Information Facilities (SCIF) as well as experienced account representatives with clearances who are able to provide the secure "cut-out" options needed to properly exploit open sources for defense intelligence, while protecting defense intelligence and defense operational equities.

8.2   Training and Education

8.2.1   Training and Education of the DIA Analyst

A major problem which we have found in recent years is the very negative combination of an analyst corps that is "fully satisfied" with very limited mediocre access to open sources of information, and the lack of proper management emphasis and outreach within the various elements of the U.S. Intelligence Community such that those visiting DIA or other major intelligence organizations can get a good hearing. The stories that we have heard about vendors spending thousands of dollars to prepare a special demonstration and bring their best people to Washington, only to have their visit announced by a secretary the morning of the meeting, and to have no room reserved so that they end up in the cafeteria, are disturbing. Apart from funding direct access,

perhaps the most helpful thing the DOSIP process can offer to DIA analysts is a training architecture and a sense of the worth of open sources such that analysts learn to learn for themselves, and their managers encourage them to integrate open sources into their all-source production process.

Training by itself will not change the culture, nor will management initiatives change the culture. The DOSIP will impact on all analysts by example and through word of mouth—as individual analysts find that their all-source products can acquire an exceptional quality through the exploitation of open sources (e.g. getting a commercial imagery scene instead of accepting the lack of any classified imagery), and as analysts who become true "all-source" analysts are recognized, DOSIP use will increase and the culture will change.

8.2.2   Education of the DoD Consumer

As far as implementing this process, a major problem initially, apart from ensuring the modest funding is available for this endeavor, will be the internal education of the policy-makers, commanders, and action officers who stand to benefit from a responsive, low-cost OSINT product line to be provided by the DOSIP Program.

A top-down education and motivation strategy must precede a bottom-up OSINT exploitation strategy. Once the action officers are "turned on" to OSINT and experience its direct impact on their daily program management decisions of a responsive DOSIP, there will be no need for further concern--but initially, a strong commitment from management, and educational efforts by the OSINT providers, will be essential. There will be two challenges: to get the DIA analysts to fully exercise the DOSIP offerings; and to get the DoD consumers to use DOSIP themselves so that eventually only those intelligence requirements which truly require "all-source" analysis are reaching DIA.

For this reason, we recommend that DOSIP initially seek funding for a trial program to meet two objectives: to provide DIA personnel with the DOSIP support they need to be more effective; and to provide each DoD consumer with a "free" demonstration of the DOSIP capability, as a preamble to obtaining their agreement to earmark a very small percentage (1% is recommended) of their program funds for their own direct access to DOSIP offerings. The final section contains explicit funding recommendations, to include a possible source of funding able to realign funds in this fiscal year.

8.3   Establishing Concepts and Doctrine

The DOSIP must establish open source concepts and doctrine through various means, but one in particular is recommended: the development of *Open Source Intelligence: Professional Handbook 2.0.* as a follow-on to the Joint Military Intelligence Training Center publication of the same name dated October 1996.

Such a document can address concepts, doctrine, training precepts and shared lessons learned, organizational processes for obtaining open source intelligence support through DOSIP, and funding agreements and procedures for exploiting DOSIP fixed assets, transferring funds to DOSIP, or establishing autonomous DOSIP cells at consumer locations.

8.4   Foreign Language Barriers

Foreign Language is a major barrier to open source exploitation, but the process overcomes this barrier by identifying world-class experts in the private sector who routinely monitor their field *in all significant languages and at someone else's expense*, and can be relied upon to promptly identify critical foreign language materials, and also to translate those portions that are essential, while providing concise analytical summaries. At the same time, the DOSIP can pursue some of the promising automated translation and automated foreign language browsing programs that have been developed by the Air Force and others. In the private sector, there are now several real-time foreign language translation products that would permit DOSIP users to translate crudely but relatively usefully, entire sections of foreign language documents and Internet lists, or to insert foreign language queries and comments translated from English.

9.0   SPECIFIC RECOMMENDATIONS

9.1   DOSIP Cell With Six Positions

This is the recommended approach. Using the human players identified in section 5.0, and an initial cadre of motivated DIA analyst-consumers, DIA can establish a low-profile but very high-value direct DOSIP support activity, one which provides each of its analysts—and eventually if desired each of the policy-makers, supported commanders, and day-to-day action officers—with OSINT on defense intelligence which can meet U.S. defense needs. Centralized oversight and centralized requirements and acquisition management is recommended. The actual acquisition of OSIF and production of OSINT is distributed to niche providers in the private sector whose expertise and access are funded by others--DOSIP essentially leverages the overhead investments of the private sector. The initial endeavor can be "virtual" and then be established on-site, expanded as desired, and extended to key DoD consumers as appropriate.[26]

9.2   DOSIP "OSIS Plus"

The DOSIP can have an immediate positive impact on all DIA analysts, and offer DoD consumers an easy path to the DOSIP, by promptly establishing a DOSIP variation of OSIS, the DOSIP "OSIS Plus" single Home Page described in section 2.2.2. A very modest contract would allow this Home Page to be built, and to have behind it an initial

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[26]   Another option might be to engage the Marine Corps Intelligence Activity as a proxy or executive agent for meeting open source needs, and seek to fund an effort which exploits the Marine Corps University, the Marine Corps Research Center, and the Marine Corps Intelligence Activity as a whole.

offering of the four levels of service as well as a much simpler and easier to understand menu of internal OSIS database offerings.

There is one major difference between this proposal for "OSIS Plus" and the existing OSIS architecture—this proposal allows the analyst to use their existing classified terminals, and relies on the DIA internal DOSIP cell and the external DOSIP support cell in a SCIF, to manage all security requirements. This approach, in combination with the simplicity and functionality of the single DOSIP Home Page offered within an SI/TK architecture, should dramatically increase the analysts' ability to access and utilize open sources, systems, and services as part of their all-source intelligence production responsibilities.

9.3 Cost Estimates

DOSIP Cell Manning (Includes Benefits & Overhead)	$100K Each	$0.60M/YR
DOSIP *Open Source Early Bird* for 25,000 Analysts & Consumers	$100 Each	$2.50M/YR
DOSIP Help Desk for 5,000 DIA Analysts	$1000 Each	$5.00M/YR
DOSIP Strategic Forecasting for 100 DIA Projects	$10K Each	$1.00M/YR
Projected DOSIP Total		$9.10M/YR

Figure 7: Cost Estimates

The above rough calculation of $9.10M/YR does not provide for commercial imagery acquisition to make combat charts for the war-fighters, and it does not provide for the direct support consumers can and should fund themselves, either by channeling funds to DOSIP, or by establishing their own DOSIP-like arrangements. The estimate can easily be doubled if limited procurement of commercial imagery for direct DIA all-source production is included, and/or DIA chooses to fund a level of direct support to consumers as a means of gradually teaching them how to exploit open sources for themselves.

The DOSIP *Open Source Early Bird* and the DOSIP Help Desk can be implemented immediately using existing capabilities outside DIA. DOSIP primary research can be undertaken through out-sourcing also, at levels of effort and security to be defined by the consumer. Complex strategic forecasting will tend to cost more, but will be much less expensive than the existing practice of out-sourcing large research projects to major private sector research organizations. Ideally, existing resources *inside* the defense community, including defense intelligence librarians and command librarians, can be integrated into the DOSIP and provide a ready-made network of expert requirements officers and open source acquisition managers.

In essence DIA can create its own open source research organization and cut out the middle-layer of "beltway bandit" overhead, dispense with the "bells and whistles" as well as the pre-defined overhead costs that characterize reports put together by large organizations, and establish a process which puts the DIA analysts and DoD action

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officers in direct touch with world-class experts able to provide **"just enough, just in time"** Defense open source intelligence support. By making individual experts the heart of this process, rather than intermediary "research" organizations, DIA is able to leverage the overhead costs of the organizations and clients that have funded the development and maintenance of the experts concerned, but pays only for a day or two of the expert's time. This process gives DIA much greater control of "key personnel" and consequently a guarantee of much greater expertise actually being employed on DIA's behalf, much greater flexibility in commissioning for acquisition and production of **"just enough, just in time"** open source intelligence support, and much lower costs through the avoidance of waste and excessive overhead charges associated with large generic research contracts.

9.4   Recommended Funding Profile

In consultation with the former Staff Director of the House Permanent Select Committee on Intelligence, Dr. Mark Lowenthal, now an OSS Inc. associate, we have determined that the best and most immediate source of funds for implementing a DOSIP Program today, in this fiscal year, is the Defense Nuclear Agency. This organization, responsive directly to the Secretary of Defense, has ample funds available for realignment or direct obligation in support of this initiative.

At the same time, we believe that DOSIP can obtain initial current year funds from the Intelligence Reserve program and can also request direct OSINT support from the Director, Defense Intelligence Agency.

In the out-years, however, the COTR will be on strongest ground in submitting a New Initiative, citing the Commission on Intelligence's report finding which states that where the needs of the consumer can be met predominantly through open sources, it is the consumer who should fulfil the requirement.

9.4.1   DOSIP For DIA Only

For this specific program, the following initial funding profile is suggested:

1997	1998	1999	2000	2001	2002
$500K	$1M	$2M	$5M	$7.5M	$10M

9.4.2   DOSIP for DIA, With Demonstration Support for DoD Consumers

For a complete year-round effort to support DIA analysts and DoD consumers— to include the provision of commercial imagery and mapping products, an order of magnitude increase is suggested (in addition to the initial funding profile above:

1997	1998	1999	2000	2001	2002
$2.5M	$5M	$7.5M	$10M	$15M	$20M

9.4.3 DOSIP for DoD, Including Commercial Imagery for CINCS

For a network of DOSIP Cells distributed among services and theaters, with some earmarked for support to specific acquisition programs, but overseen through a central fund managed from within DOSIP, another order of magnitude increase is suggested (in addition to both the initial and DIA principal profiles above) but staggered by two years-- this would provide comprehensive defense open source intelligence support to every single program executive down to the action officer within individual programs:

1997	1998	1999	2000	2001	2002
25M	50M	$75M	$100M	$150M	$200M

We recommend that these figures be presented as a percentage of all DoD costs, and that they be explicitly compared to 1%, 2%, and 3% of dollars in the DoD program.[27]

9.4.4 DOSIP for National Security and National Competitiveness

Since the Secretary of Defense controls roughly 90% of the total national foreign intelligence program (86% according to the Commission on Intelligence, 96% according to the HPSCI *Intel21* Report), the Secretary has the option of boldly accelerating this entire program by realigning $1 billion a year ramping up from an initial realignment of $250 million in 1998. At full operational capability, a $1 billion DOSIP with strong national and state & local relevance would have $250M earmarked for COSPO/DOSIP; $250M earmarked for NIMA's procurement of commercial imagery for the warfighters; $250M for a state & local intelligence program focused on electronic home defense and economic security; and $250M for a Global Knowledge Foundation able to nurture distributed centers of private sector expertise responsive to defense needs but unwilling to deal directly with the U.S. Intelligence Community.

1997	1998	1999	2000	2001	2002
$25M	250M	$500M	$750M	$1B	$1B

The Community Open Source Program is on record as stating that the National Foreign Intelligence Program (NFIP) spends 1% of its budget on open sources, and that this returns 40% of the all-source product. A DoD initiative to increase the investment in open sources from 1% to 3% or 4% will have a *significant positive impact on defense intelligence production* as well as defense policy, acquisition, and warfighting.

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[27]   EAGLE VISION is the ground station developed under the auspices of the Air Force Vice Chief of Staff. It is capable of receiving commercial as well as national satellite imagery and directly processing this imagery into aviation mission rehearsal and simulation systems. With very little additional investment, it could be linked directly into the Army topographical suite (three eighteen-wheelers) and used to create 1:50,000 combat charts as well as other products for theater and tactical level consumers.

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- "Intelligence Preparation of the Battlefield: The Marine Corps Viewpoint" (C4I Department, Headquarters, U.S. Marine Corps, 10 July 1992)

- "Defense Intelligence Productivity in the 1990's: Executive Outline" (Official contribution to Assistant Secretary of Defense for C3I Working Group on Intelligence Restructuring, 18 May 1991)

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<http://www.oss.net> contains over 5,000 pages of information about open sources, systems, and services, including the two-volume *Proceedings* from the annual international conferences, and the monthly 30-40 page *OSS NOTICES* which has been published since 1993. The site offers an Associations section for connecting to other intelligence and information association sites, and an Intelligence Mall designed to allow analysts to pre-filter the entire site in relation to regional, functional, and technical interests. The training section, also reachable through a direct URL of <http:www.oss.net/TRAINING>, contains the abridged OSINT Handbook and OSINT Reader, as well as seven of the eight DIA Lessons commissioned by the Joint Military Intelligence College, and one basic lesson prepared for the Navy Marine Corps Intelligence Training Center.

Figure 8: Internet Open Source Site

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APPENDIX A

CONCISE DIRECTORY OF
SELECTED INTERNATIONAL OPEN SOURCES & SERVICES

DOI: 1 March 1996

Prepared by Robert D. Steele
Based on Research As Published in *OSS NOTICES* 1992-1996

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GaleNet

GaleNet can be used by anyone with an Internet connection, either dial-up or direct, and a graphical World-Wide-Web browser. The Web site offers a demonstration area. OSS tested their site by accessing the *Encyclopedia of Associations*, using the word "information", and found 138 associations that have "information" in the keyword search field. To arrange for a demonstration of GaleNet at your site, or for more information, please call the National Field Sales Manager, Mr. Tim Brandner, at (510) 671-5379, or send email to <Tim_brandner@gale.com>.

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Information Broker's Handbook

By Sue Rugge and Alfred Glossbrenner. Published by Windcrest/McGraw-Hill, 1992. ISBN 0-8306-3797-4. $30.95, order through local bookstores.

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Their Web site is located at <http://www.thompson.com>. To receive a catalog you can write to them at 7625 Empire Drive, Florence, Kentucky 41042, call voice (800) 865-5840, facsimile (606) 647-5013, or send email to <americas-info@list.thomson.com>

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Monterey Institute of International Studies

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Research Centers Directory

Sometimes titled *Research Centers and Services Directory*. Available from Gale Research for $400 (two volumes). ISBN 0-8103-7353X.

Rice University

Call (313) 764-9366 to obtain information on gaining access to the Economic Bulletin Board Service (BBS).

Science Citation Index

A service of the Institute of Scientific Information. Contact Mr. Frank Spiecker, 3501 Market Street, Philadelphia, PA 19104. Voice: (215) 386-0100 extension 1374; Facsimile: (215) 386) 6362. Web: <http://www.isinet.com/>.

Secrets of the Super Searchers

By Reva Basch, 1993. Order directly from Eight Bit Books, 462 Danbury Road, Wilton, CT 06897-2126. ISBN 0-910965-12-9. $39.95 plus shipping & handling.

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STN Service Center, c/o Chemical Abstracts Service, 2540 Olentangy River Road, Columbus, OH 43210. Voice: (800) 848-6533, facsimile (614) 447-3798. Email: <help@cas.org>.

The Reference Press, Inc.

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