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INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE



JUNE 2014

JOINT FORCE 2020 WHITE PAPER





CHAIRMAN OF THE JOINT CHIEFS OF STAFF

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MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR INTELLIGENCE
CHIEFS OF THE MILITARY SERVICES
COMMANDERS OF THE COMBATANT COMMANDS
CHIEF, NATIONAL GUARD BUREAU
DIRECTOR, DEFENSE INFORMATION SYSTEMS AGENCY
DIRECTOR, DEFENSE INTELLIGENCE AGENCY
DIRECTOR, NATIONAL GEOSPATIAL-INTELLIGENCE
AGENCY
DIRECTOR, NATIONAL SECURITY AGENCY
DIRECTOR, NATIONAL RECONNAISSANCE OFFICE

SUBJECT: Intelligence, Surveillance, and Reconnaissance Joint Force 2020 White Paper

1. The following Intelligence, Surveillance, and Reconnaissance (ISR) Joint Force 2020 White Paper provides my vision for how we must shape, grow, and integrate our ISR capabilities to remain effective and relevant in future operating environments. The paper includes eight initiatives to advance ISR capabilities, force effectiveness, and community efficiency.
2. I appreciate the input you provided. This helped refine my understanding of this complex issue. I look forward to continuing to work with you as we posture ourselves proactively and appropriately.

A handwritten signature in black ink, reading "Martin E. Dempsey", is positioned above the typed name.

MARTIN E. DEMPSEY
General, U.S. Army

Table of Contents

1. Introduction.....	1
2. The Need for ISR Joint Force 2020.....	2
3. ISR Joint Force 2020 Vision	4
4. The Way Ahead for ISR Joint Force 2020.....	7
5. Conclusion	9



1. Introduction

The use of aircraft changed how military forces viewed their battlespace, providing situational awareness far beyond the perspectives of their ground and naval forces. For our current and future forces, intelligence, surveillance, and reconnaissance (ISR) plays an even greater role, not only in how we maintain situational awareness but in how we conduct operations and employ our forces against the adversary. However, despite the incredible proliferation of airborne ISR systems, they are just one element in the full spectrum of our intelligence collection capabilities, ranging from the individual Service member up to numerous space systems and global communications networks. These ISR assets provide us with more data than a previous generation would have believed possible. However, they now present a massive challenge: to build ISR capabilities that rapidly provide Warfighters and decision makers with fused intelligence they can act on, rather than proliferating a multitude of systems that may only bury these users in data. This ISR force must provide ever-improving access to the most difficult targets, operational flexibility, responsiveness, interoperability, sur-

vivability, increasingly greater precision, and affordability. As we plan, acquire, and implement the ISR capabilities for the future, the following key principles will guide how we build this ISR force.

With the Capstone Concept for Joint Operations (CCJO): Joint Force 2020, I describe my vision for how the future Joint Force will posture to protect U.S. interests and respond to a wide range of challenges and threats in a complex and changing security environment. This white paper serves as an annex to the CCJO, outlining a vision for the future of ISR that we call ISR Joint Force 2020. To achieve an integrated ISR Joint Force 2020 requires a combination of initiatives targeted at improving the most important and challenging aspects of this problem by examining factors that have changed our warfighting culture while articulating a sense of how we will maintain our advantages in war. We know that other states and actors are pursuing advanced and resistant technologies and procedures. Beginning this effort today will help us avoid losing the decision superiority that we have long enjoyed in understanding the adversary and battlespace in which we all operate.

ISR Joint Force 2020: The whole of the Department of Defense (DoD) intelligence components: this phrase is not used to describe a specific organization or body but is the panoramic grouping of personnel, processes, equipment, and other resources under the umbrella of DoD ISR.

2. The Need for ISR Joint Force 2020

To achieve an effective, efficient ISR Joint Force for 2020, it is critical to pinpoint where and how ISR can be improved, not just in capability but in acquisition, development, force management, and across the full spectrum of operations. Being attentive to the current and future operational, strategic, and fiscal environments is key. We will work closely with Combatant Commanders (CCDRs), the Services, the Intelligence Community, interagency offices, and our foreign partners to ensure we account for their requirements and contributions to our strategic objectives.



Since 2001 we have presided over a vast and growing enterprise of ISR systems and operations, ranging from seemingly ubiquitous unmanned aerial systems to innumerable sensors, platforms, and processing systems operating in every military environment. Some of these systems, while extremely effective in relatively permissive environments, will be highly unsuitable for operations against a modern military force.

Therefore, while we will continue to field mature, high-payoff, low-risk, low operating cost systems in low-threat environments and capture their proven combat tactics and procedures, we will also develop and field sensors and systems designed to penetrate and survive in high-threat areas. In fact, many of our newest, most advanced combat systems are highly dependent on cueing from ISR systems to put their weapons on target. Consequently, these ISR systems should communicate rapidly and securely to combat systems and operators, despite the adversary's efforts to degrade them.

The ISR Joint Force 2020 construct should focus on networked joint ISR solutions rather than platform-centric sensors and processing, exploitation, and dissemination (PED) methods. It should encourage the integration and innovation of multiple sensors to provide the fidelity and redundancy required to support rapid and sound decision-making. Additionally, sustaining global leadership in a fiscally constrained environment will demand new paradigms, strategies, and concepts of employment. As the Joint Force adapts to new resource realities, our development and employment of joint ISR capabilities should likewise seek to rationally balance fiscal affordability with operational risk. The development of ISR Joint Force 2020 should maximize return on investment by ensuring cost considerations are weighed appropriately against risk and military utility. To this end, I see four main factors driving our need for an ISR Joint Force in 2020:

Lack of Common Data Standards

ISR systems, due to the way they are developed, fielded, and operated, frequently produce data that is not compatible with data derived from other ISR or combat systems. While this approach to building and fielding systems is often successful in relatively narrow mission areas, it produces a force that does not fully take advantage of our networks or fully support our stand-off and precision weapon systems. Despite the many successes associated with the explosive growth in our joint ISR capabilities over the past decade, we still lack a true “joint ISR enterprise” to facilitate the effective, efficient, and secure movement of information across



all domains and among joint, Defense, national and multinational intelligence mission partners and allies. Proprietary systems, networks, formats, and protocols impede effective data integration and system interoperability in our ISR Joint Force. The result is the inefficient and less powerful use of our collective capabilities. The development of ISR Joint Force 2020 should enable the global agility, flexibility, and cross-domain synergy essential to Global Integrated Operations. For example, in order to ensure joint integration is executed across the Department of Defense for geospatial intelligence (GEOINT) capabilities, I directed, via CJCS Instruction 6212.01F, Interoperability and

Supportability of Information Technology and National Security Systems, that the GEOINT Functional Managers Seal of Approval processes should be followed. Without a similar course correction across the Services and other force providers, and in coordination with the Intelligence Community, these inefficiencies will continue.

Disjointed Management of the ISR Force

The current joint force of ISR personnel, sensors, platforms, and networks is so vast, diverse, and distributed that managing their effective employment represents a large and growing challenge for the Department of Defense. This challenge is further complicated by the

rapid growth of the geographically dispersed DoD reachback PED enterprise, government-owned/contractor-operated systems, contractor-owned and -operated systems, Service-organic assets, non-program of record systems, and a new generation of combat sensors that feed the common operational and intelligence pictures. The development of ISR Joint Force 2020 should create effective joint ISR management processes and structures to improve operational effectiveness, unity of effort, and return on investment.

Parochial ISR Architectures

While we have made progress in system and data interoperability, we still lack a common joint ISR architecture that allows data to be moved from all domains and across multiple platforms and sensors rapidly, efficiently, and effectively. Proprietary systems, networks, formats, and protocols impede integration and interoperability when fielding sensors, processing capabilities, analytic tools, and storage systems. The development of ISR Joint Force 2020, in conjunction with our emerging Mission Partner Engagement framework, will enable unprecedented access to common mission networks for operational planning and execution with U.S., Coalition, allied, and other mission partners.

Increasing Threats to Systems and Communications

The ISR Joint Force 2020 will face increasingly sophisticated adversaries capable of challenging our ability to operate effectively with assured command and control in every domain. The lethal and nonlethal threats to our platforms, sensors, communications, and underpinning infrastructures, particularly at the seams between systems and data streams, continue to grow rapidly in sophistication and scale. This increasingly puts at risk our ability to effectively operate across the full spectrum of operations, from humanitarian assistance/disaster relief to anti-access/area denial missions and environments. The development of ISR Joint Force 2020 should leverage advances in increased security,

flexibility, and resilience gained through our Joint Information Environment and Cyberspace initiatives to ensure our future ISR concepts, forces, systems, and architectures can operate and prevail in every operating environment.

3. ISR Joint Force 2020 Vision

In the CCJO, I outlined the eight key elements of globally integrated operations. One of them is the necessity for flexible, low-signature, or small-footprint capabilities; this element includes ISR. The Joint Force should fully integrate ISR into operations, leveraging it as a force multiplier to increase the effectiveness of other military capabilities. We should also continue to improve our capability to process, fuse, analyze, and utilize large data sets. Some means to achieve these ends are straightforward, while others require bold and innovative approaches.

To support Joint Force 2020, sensors, platforms, communications systems, processors, and analytical applications must be:

Diverse

Sensor and platform diversity is critical to successfully operating against a wide range of target sets, in numerous operational scenarios, and in a variety of threat environments—permissive, contested, and denied. While we should protect certain niche capabilities, this diversity should not necessarily equate to the need for a variety of Service-specific systems.

Instead, I envision a diversity of ISR capabilities across Service lines through the joint development and acquisition of ISR sensors (human and technical) and processing capabilities. This joint approach is an avenue through which we will gain and maintain financial and operational efficiencies in 2020 and beyond.

We should also ensure that our ISR workforce consists of the right mix of Active Duty, Reserve Component, and civilian personnel. By rightsizing the diversity of our professional ISR corps, we will posture the Department of Defense for sustainable and continued innovation as well as operational success.

Interoperable



ISR Joint Force 2020's systems architecture will be modular to increase inventory flexibility. Interchangeable sensors; plug-and-play technologies; interdependent people, processes, and systems; and common interfaces will increase interoperability and utility. Collection assets should be able to "tip and cue" other sensors to focus capabilities at critical moments. Most important, ISR Joint Force 2020 will invest significantly in joint processing architectures and common networks. These architectures and networks should be fully capable of operating within sophisticated and

complex Coalition environments and digesting large amounts of data. Currently, ISR assets collect more data than the Services, Combatant Commands (CCMDs), Joint Intelligence Operations Centers, Joint Task Forces, Combat Support Agencies, and the Intelligence Community can adequately process and exploit. To mitigate this problem, ISR Joint Force 2020 will invest in joint, federated, and automated solutions for processors and data synthesis. PED will be sensor and platform agnostic, with federated and collaborative joint ISR architectures leveraging reachback to technically proficient and operationally focused analysts worldwide.

Survivable

ISR Joint Force 2020 will consist of sensors, platforms, and communications systems that exist across all domains (air, land, sea, space, and cyberspace) to be survivable in a range of operational environments including anti-access/area denial environments. This means stealthy platforms, longer-range active and passive sensors, secure assured communications paths, and energy effects (e.g., lasers, jammers, nuclear/nonnuclear electromagnetic pulse, and high power microwave protected/survivable system architectures) to ensure that mission-focused and actionable sensor data reliably reaches operational decision makers. In addition, we will continue to emphasize the integration of intelligence estimates during the development of our combat systems to ensure critical vulnerabilities are not created as DoD postures itself to gain overall force efficiencies.

Efficiently Managed

Global Force Management (GFM) processes enable the Department of Defense to make proactive, informed force management decisions and integrate DoD force assignment, apportionment, and allocation actions. Currently, ISR sensor and PED requirements and associated resources (systems, software, and people) are managed separately, resulting in mismatches in collection, processing, and analysis capacities. In order to streamline these capabilities, we should review and modify the management of ISR sensor and PED requirements within the GFM process to ensure they are appropriately synchronized and prioritized.

Furthermore, policy and doctrine should be updated to reflect that finite ISR capabilities can be rapidly re-missioned across CCMD boundaries, thereby maximizing the employment of scarce resources. This will demand increased rigor in deliberate planning to optimize ISR assignment, apportionment, and allocation decisions. Within ISR Joint Force 2020, an ISR Functional Management Group will be charged with synchronizing the development, fielding, and employment of complementary military and national-level ISR activities across the Department of Defense and other governmental agencies. This multi-agency group will champion rapid fielding to long-term programmatic initiatives to bridge existing ISR sensor capability and interoperability gaps from national down to tactical-level systems to maximize coverage. If adequately

resourced and given the requisite authorities, the Joint Functional Component Command-ISR or another existing ISR organization is well positioned to assume this role.



Simplified Programmatically

The Services, CCMDs, Joint Staff, and Office of the Secretary of Defense have commissioned numerous organizations and studies designed to make ISR more efficient and to ensure commanders' needs are fulfilled. While many of these entities serve unique ends, many of them also overlap—or worse, conflict. To more rapidly achieve an interoperable, survivable, and diverse Joint Force in an increasingly constrained fiscal environment, we must make difficult choices about how to acquire and employ sensors and processing capabilities. This may mean accepting greater risk in some areas in order to focus on our most critical intelligence requirements. Therefore, our collective analytical and production efforts (including targeting of fixed and mobile targets) should be synchronized and holistic to ensure we efficiently develop and

field complete, end-to-end capabilities rather than an array of incompatible or competing systems.

Multinational

ISR Joint Force 2020 will benefit from the integration of multinational Coalition ISR to a much



greater extent. We will pursue a strategy that seeks to diversify the current U.S.-centric ISR paradigm by supporting and leveraging the ISR capabilities of our Coalition partners. This will require continued collaboration and information sharing with our partners to ensure they and we can fully exploit their potential to support our common objectives. Enhancing our partners' capabilities will help mitigate some of the risks we may be forced to accept with our own ISR limitations.

4. The Way Ahead for ISR Joint Force 2020

Over the next year, we will begin to implement several measures to effectively posture ISR Joint Force 2020. I will ask DoD leadership to think differently about the way we have developed and implemented ISR forces in the past and move

toward more joint solutions, from sensor acquisition to employment and processing. These solutions cannot be worked by the Department of Defense alone, however. While the Joint Staff will be a visible leader in this effort, collaboration with the greater Intelligence Community, CCMDs, the Services, and partner nations is a vital necessity.

Initially I will focus the Joint Staff on the following key initiatives to advance our ISR capabilities, force effectiveness, and community efficiency:

- In coordination with the Under Secretary of Defense for Intelligence (USD(I)) and the Combat Support Agencies, provide requisite authorities and adequate resources to a multi-agency ISR Functional Management Group to synchronize DoD and national-level ISR efforts from the national to the tactical levels and closely coordinate ISR development, fielding, employment, and automation efforts.
- Lead a comprehensive inventory of DoD ISR sensors and joint processing infrastructure and personnel (including national-level, Combat Support Agency, DoD theater-level, Service Component organic, interagency, and Intelligence Community assets) worldwide. The ISR Functional Management Group will leverage the data to map requirements to directed mission area tasks (e.g., Unified Command Plan (UCP)-directed) and to determine gaps, unnecessary redundancies, and inefficiencies between where we are and where we need to be.

- Review the rapid acquisition process to incorporate cost-benefit analysis. When operational needs dictate expedited procurement, enforce interoperability standards through all phases of ISR system development and fielding.

- Evaluate all ISR acquisition programs to determine if they duplicate current/programmed efforts. Combine or integrate duplicative ISR systems in development and enforce collaboration among the Services on unmanned systems and associated training, basing, and logistics support requirements. In addition, cancel duplicative ISR studies and combine duplicative ISR organizations to reach a broader joint consensus of how to achieve ISR Joint Force 2020.

- Continue initiatives to drive increased rigor in deliberate ISR planning and assessment to support assignment, apportionment, allocation, and procurement



decisions. The incremental steps in the Fiscal Year 2015 Global Force Management Allocation Plan Plan-



ning Order—such as defining the linkage between requested ISR capability and the CCDRs' UCP-assigned missions and their UCP-derived priority intelligence requirements should be the first of many steps to move us from unconstrained to optimized ISR planning.

- Build upon ongoing ISR baseline requirements-focused reviews by leading development of a requirements-based global ISR investment strategy that integrates CCMD ISR strategies and baseline requirements with DoD, national, commercial, and allied sensors and worldwide PED capabilities.

- Require planning documents to address ISR PED needs. The Joint Staff will review and revise as necessary intelligence planning, GFM, and collections management processes to minimize gaps and better determine ISR force sufficiency requirements.

- Work more aggressively to focus on PED. In coordination with the Director of National Intelligence, USD(I), Combat Support Agencies, and the Services, challenge stakeholders to develop more efficient PED processes, invest in appropriate training and equipping of analysts, engage in

automated PED efforts, and include PED considerations within CCMD deliberate and crisis planning efforts. Work with our interagency partners to initiate the interagency policy process that leverages ISR assets of our allies and select partners. Make gains in ISR capacity by fully leveraging existing allied ISR agreements. Pursue integration of foreign

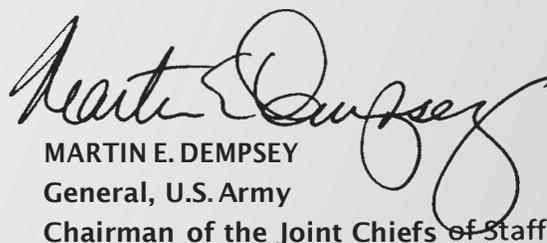
fielded or developmental ISR assets into expanded sharing arrangements. By offering to take on additional requirements of our allies, seek to gain in return increased access to data from partner systems currently off limits. Selectively develop combined ISR acquisition programs where each investing partner has a commensurate share of tasking and collection.

5. Conclusion

The advancement of ISR platforms has changed how we conduct operations by giving us new advantages over our adversaries. ISR Joint Force 2020 will challenge our cultural expectations, but it is critical to achieving our objectives in Joint Force 2020. To derive the most value we can from our ISR capabilities—to create a force that enhances jointness, incorporates multi-intelligence technology, is interoperable and survivable, and relies on integrated PED of collect-



ed data—we must share a common vision and sacrifice proprietary systems for a more powerful collective capability. Doing so will render successful globally integrated operations and will ensure our ISR capabilities respond to the challenges of 2020 and beyond.


MARTIN E. DEMPSEY
General, U.S. Army
Chairman of the Joint Chiefs of Staff

'There is nothing more necessary than good intelligence to frustrate a designing enemy, and nothing that requires greater pains to obtain.'

- George Washington

