



THE ARMY IN 2020

1 November 2020



Department of the Army
Objective Force Task Force
2531 Jefferson Davis Highway
Arlington, VA 22202

OFTF

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SUBJECT: *The Army in 2020* White Paper

Army Leaders,

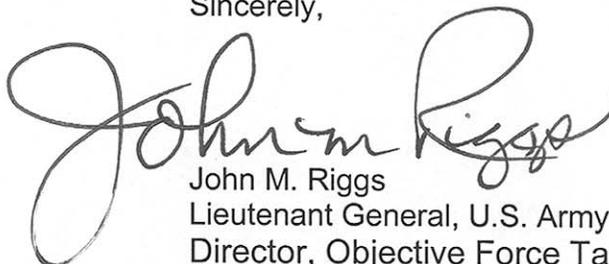
With any journey it helps to know where you are going. *The Army in 2020* White Paper is prepared and respectfully submitted in that spirit as a "think piece" by thoughtful people to project the reader into the future. It was written in response to the Office of the Secretary of Defense's *Transformation Planning Guidance* to help describe the Army we want to be in 2020, an Army that is an even more ready and relevant member of the interdependent Joint, Interagency, and Multi-national Team in support of this Nation.

This paper describes a waypoint along the Army's journey to the Future Force by holistically outlining changes in doctrine, organizations, training, materiel, leaders and education, personnel and facilities. Although the concepts and capabilities included will surely challenge the reader's vision of the future, they are critical steps in describing the path to realizing the increased capabilities Combatant Commanders require for a dominant Joint land force capable of conflict resolution in 2020.

The concepts and capabilities portrayed in this paper are thought to be within the realm of both the desirable and the feasible, but some are outside the control of the Army and will require Congressional and Department of Defense actions to implement. We must have the courage to change and the ability to maintain our focus on the Future Force while meeting the needs of the Current Force.

The path to our Army's future will certainly be challenging; however, we run the danger of even greater risk if we do not have firm convictions on where we want to go and steadfastly commit the resources required to ensure it is the future we, not our adversaries, want it to be.

Sincerely,

A handwritten signature in black ink, reading "John M. Riggs". The signature is written in a cursive, flowing style with large loops and a prominent initial "J".

John M. Riggs
Lieutenant General, U.S. Army
Director, Objective Force Task Force

The Army in 2020

by
Dedicated Representatives of
The Army Staff and Major Army Commands

“With any journey...it helps to know where you are going.”

The Army in 2020...the Future Force

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Introduction - Toward a More Relevant and Ready Army

As a waypoint in our journey into the future, the Army of 2020 exists for the same enduring reasons it has always existed - to deter threats, and when needed to fight and win the Nation's wars. However, the Army of 2020 is even more relevant and ready than the Army of 2004.

The Army in 2004 participated in the first campaign level responses of a Global War on Terrorism. Acts and threats of terrorism over the preceding two decades challenged the Nation and the world without provoking a large-scale response. It took the events of September 11, 2001, the resulting campaign in Afghanistan, and the almost daily attrition of Soldiers during stability operations in Iraq for the Nation to fully recognize and accept these events as chapters in another World War - but a much different kind of war - one against a transnational threat employing terrorism.



The Army recognized that operations against adaptive adversaries in Iraq and around the world would consume years not days. The post Cold War mentality of how to organize, train, equip, fight, and sustain was no longer valid. The Department of Defense processes had to change to accommodate the changing

threats against the Nation. The Army found itself with a strategy-mission-resource imbalance, executing a much broader range of commitments than had been planned and programmed. The Army realized it could not operate with a short-range focus, dependent on Congressional supplements to finance increased operational tempo, to fight the Global War on Terrorism. Senior Department of Defense and Army leaders recognized the need for an "aggressive new defense strategy" for combating the global terrorist threat.

The Army of 2004 adapted to a new era that required a different force; a new strategy, a new approach to war, and a different mindset for the future. Not only did the Department of Defense's strategy and processes need to change, the Army realized it had to Transform holistically to remain relevant and capable both in 2004 and to meet the challenges of the future. Failing to transform was not an option. The early years of the 21st century proved critical for the Army as it began its new path to the future. Transformation's momentum has had, and continues to have, a profound impact on today's Army. The Nation's security continually depends on the Army's achievements in developing Transformational attributes and capabilities to counter future challenges, and, to serve as an indispensable component of the Combatant Commander's Joint force. In many ways the very existence of our way of life depends on the success of the United States Army...an Army that is relevant and ready.

2004 Operations Impact

Analyses of operations in 2004, national and defense policies, the future operational environment, and the immediate focus areas of the Army leadership helped shape the Army of 2020 and defined the path for Army

Transformation. Events from Operations Enduring Freedom and Iraqi Freedom demonstrated the advantages of maintaining a relevant Army as part of a Joint, Interagency, and Multi-national Team and the true value of Joint interdependency and Interagency/Multi-national interoperability. In both operations, a single Joint system of maneuver and strike, supported by inter-agency and coalition partners created advantages over the enemy by reducing the time from sensing-to-decision-to-engagement.

In Afghanistan, the Army operating alongside other Services and coalition forces enhanced the Joint capability to conduct precision engagements by rapidly sharing targeting information with precision strike systems. In Iraq, the Army's 173rd Airborne Brigade deployed directly from Italy to Iraq aboard U.S. Air Force aircraft to conduct operational maneuver from strategic distances. The brigade fixed Iraqi forces in the north, which allowed coalition forces in the south to dominate the enemy and maneuver directly to the capital. Joint, Interagency and Multi-national operations, with the Army on the ground for final resolution of conflict, proved the only way to ultimately resolve the complex conflict in Iraq. Additionally, the war reinforced the value of Unmanned Aerial Vehicles, Blue Force Tracking, dismounted Soldiers in support of armored units, Global Positioning Systems and communications in support of logistics forces, and intra-theater lift.



Our Nation and the Department of Defense learned from Operation Iraqi Freedom. The stark realization that casualties continued to mount following the declared end of hostilities awakened the Services and the Nation to the true meaning of a "new way of war" and ultimately led to changes in culture, doctrine, training, education, organizations, equipment, and processes. The Army recognized the characteristics of the "new way of war" and Transformed as part of the Joint, Interagency, and Multi-national Team. Significant lessons learned included the following:

- The transnational enemy, employing terrorism, cannot be deterred. The terrorist threat is not a single political regime or person or religion or ideology; it is premeditated, politically motivated violence perpetrated against innocents - *required a thinking, adaptable Army supported by the will of the Nation*
- The inability to clearly identify your enemy - *required a new emphasis on intelligence and timely efficient processing of relevant information to achieve knowledge and speed*
- The enemy is adaptable using commercially available technologies to counter the most sophisticated precision weapons - *required a responsive Army capable of spiraling in new technologies and capabilities across doctrine, organizations, training, materiel, leaders and education, personnel, and facilities rapidly with minimal formalized testing*
- The concept of a global (world) war has changed. It no longer equates solely to full force-on-force conflict as part of a large coalition; war may begin and end



without a tangible event - *required experienced trained Army leaders who recognize enemy strategies and are capable of developing and executing counter-strategies*

- War is fought through seemingly unrelated events along the full spectrum of military conflict around the globe and into the third dimension, space - *required a relevant and ready Army; agile and responsive, enhanced by modular organizational constructs*
- Recognition of the criticality of the network, no matter how unsophisticated - *required the ability to conduct Information Operations and exploit the network*

Some of the changes to the Army of 2004 were so significant in setting the course for the Future Force that advantages continue today, almost two decades later. Divisions returning from Operation Iraqi Freedom completed major internal restructuring. They implemented Future Force organizational constructs, advanced them into the Current Force, and validated the concepts. The Transformation of the divisions from the traditional structure of three maneuver brigade combat teams to five modular combined arms Units of Action led to an increasing ability to plug lighter, more agile units into the Joint system, which was critical for dealing with the changing adversary.

The implementation of "Unit Manning" within these and other restructured organizations impacted the entire personnel system. Unit Manning provided more stability, continuity, and predictability for both active and reserve component Soldiers, and their families. Units also benefited from enhanced cohesiveness and sustained readiness.

Unit manning cycles among Army organizations in 2020 are linked to the posture of engagement and rotational deployments and provide a programmed flow of trained, highly cohesive immediately deployable units to Combatant Commanders. Units of Action operate under a "cyclic (phased) readiness" system, which allows them to rotate through stages of training, employment, and recovery. Personnel arrive together, train together, and depart together so that the lifecycle of a unit is synchronized with Army support to Combatant Commands. Professional development and career progression are also aligned with Army unit manning cycles. Soldier training and professional development are conducted before and during assignment to the unit exploiting the full potential of web-enabled distance learning. The personnel system has changed to fully support both the needs of the unit and the Soldier.

Operational experiences from as early as 2004 shaped the Army of 2020. The U.S. learned to fight terrorism most successfully with Jointly interdependent forces that could interoperate with Interagencies and Multi-national partners. Leaders restructured organizations, implemented unit manning, and set the stage for phased readiness. Despite the difficulty of transitioning through these initiatives, determined American Soldiers prevailed, adapted to the new procedures and created a more capable force.

✎ National and Defense Policies, Strategies, and Concepts Shape the Future

National and defense policies, strategies and concepts help guide, direct, and ultimately resource the development of military capabilities. While there have been many policies, strategies and concepts since 2004 that shape

the Army of 2020, the common denominator for crisis or conflict resolution remains the timely delivery of the right land force capabilities to achieve the desired effects. National policies and Joint concepts, such as preemption, demanded more mobile, deployable ground forces capable of rapid entry, decisive actions in hostile areas, and resolution of conflict. Capabilities-based strategies, effects-based operations, and rapid decisive operations, required the entire Joint force to possess both speed and power to contribute to decisive outcomes.

The speed and power of the 2020 Army meets national security objectives by providing the Combatant Commander prompt and sustained ground forces for campaigns and by facilitating transitions to post combat and stability operations. Army land force capabilities include preemptive attacks, Joint raids, and other forcible/early entry operations. The Army conducts multiple, simultaneous deployments that transition directly into employment. The Army, as an integral component of the Joint, Interagency, and Multi-national Team supports and is supported by the other Services.

The 2020 Combatant Commander seeks Full Spectrum Dominance as the underlying goal of the Joint Operating Concepts. Combatant Commanders integrate air, land, and sea forces into a Joint networked system that is interoperable with other government agencies and multi-national forces. The Joint system leverages the power of information gained through intelligence, surveillance, and reconnaissance to support Battle Command. Combatant Commanders use the information to tailor and focus Joint capabilities required for the operational environment.

Combatant Commanders address Joint

Operating Concepts (Major Combat Operations, Strategic Deterrence, Stability Operations, Joint Forcible Entry Operations, and Homeland Defense) by applying the Joint Functional Concepts of Battlespace Awareness, Force Application, Joint Command and Control, Protection, and Focused Logistics. Each Service prepares for the Department of Defense a bi-annual Service Roadmap that outlines their plan to support the generalized capabilities defined by the Joint Functional Concepts. The Army contributes a unique set of core competencies and capabilities as an interdependent member of the Joint, Interagency, and Multi-national Team. Preeminent among Army contributions is the capability to resolve issues where they are fought and where people live, on the ground.

Throughout the early years of the 21st century the Army embraced, applied and validated the Joint Operations Concept. The Army's foresight in anticipating the operational environment in the years prior to 2020 played a key role in the development of a relevant and ready Army. In addition to evaluating current operations and embracing National/defense guidance, the Army looked closely at the future operational environment in order to understand potential adversaries and their likely courses of action.

2020 Operational Environment

In 2020, urbanized regions characterized by disenfranchised youthful populations actively seeking change, combined with economic disparity, the proliferation of technology, and influential non-state leaders create unstable conditions within the areas of responsibility of Combatant Commanders. Adversaries range from separatist movements, to religious radicalism, to regional powers, to potential competi-



tors, to worldwide-networked terrorist organizations. Most adversaries study and understand U.S. capabilities and adapt their techniques to overcome their disadvantages. They capitalize on worldwide access to information, advanced weaponry and other military capabilities. The U.S. no longer operates under the planning assumption of a "known" threat.

Research, development, and acquisition investments help defeat our adaptive adversaries. Significant results occurred in the key areas of the network, the Soldier ensemble, unmanned systems (air and ground), high energy lasers, advanced medical technology, power and energy, non-line-of-sight precision fire effects, countermine (including improvised explosive devices), non-lethal solutions, chemical-biological agent remote detection and identification, and systems survivability. Investments in nanoscience, biometrics, materials by design, robotics, simulations technologies, intelligent agents, smart structures, space, and directed energy provided significant contributions and continue to improve warfighter capabilities to deal with challenging operational environments.

Future Force designers recognized and appreciated the implications of the operational environment in 2020. Accordingly, they successfully designed and restructured the Army to expand the Joint Force Commanders' ability to rapidly deploy, employ, and sustain forces throughout the global battlespace in any environment and against any adversary across the full spectrum of operations. The Army continues to embrace the Transformation concept of a modular capabilities-based force to achieve Joint interdependence in support of Combatant Commanders' requirements across doctrine, organizations, training, materiel, leaders and education, personnel, and facilities.

2020 Transformation

The Transformation of the Army began decades ago with the realization that the security challenges of the 21st century were changing. Army leaders reacted by creating a new vision of a force that could respond more rapidly and decisively across the full spectrum of operations. It became apparent that the pace and proliferation of technologies could diminish the Army's future relevancy. Concepts for Transformation continuously evolved to accommodate changes in capabilities and National and defense guidance. Leaders understood then, as they do now, that Transformation is not an endstate; it is a process of continual change that ensures relevancy and readiness - today and into the future.

The Army is a key Service in facilitating the Transformation of the Department of Defense because land force capabilities play a central role in most operations. The Army performs many functions as a member of the Joint, Interagency, and Multi-national Team, providing numerous capabilities. These include full spectrum expeditionary and precision maneuver Future Combat Systems equipped Units of Action and rapid flexible Stryker equipped Units of Action. The Army's capability set also contains traditional campaign overmatch assets, combining with heavy, light, and specialty forces (airborne, air assault, Special Forces) Units of Action and Employment. Strategically responsive and technologically advanced Army Reserve and Army National Guard Units of Action and Employment are also critical elements, contributing enhanced force readiness and rotation depth.

At the strategic level, the Army deploys from either forward sanctuaries or the continental U.S. Army forces have both expeditionary

and campaign qualities, are configured for rapid responsive deployment, and are ready at a moments notice for sustained operations. At the operational level, the Army arrives at multiple austere points of entry via air and sealift. Tactically, the Army deploys and re-deploys in aircraft capable of using short field and unimproved runways. Noteworthy is the complete Transformation of Army aviation at the beginning of this decade in order to address the need for intra-theater lift capabilities. The Army presents the adversary with multiple challenges by striking simultaneously at his centers of gravity.

The Army of 2020 continues to grow adaptive Soldiers and leaders who deal with uncertainty in any environment. They overcome uncertainty through the power of the network, the advantages of information superiority, and the situational understanding they provide. They train to be capable of rapid transition across the spectrum of peacetime and combat operations. They operate in modular Army organizations that allow them to tailor capabilities and adapt to changing mission requirements. Soldiers use an array of new or modernized equipment and procedures providing the lethality, survivability, and sustainability needed to defeat adversaries in all conditions and environments.

The Army has undergone profound changes in the last two decades that enable the capabilities described above to be realized. At all echelons of the Army, Soldiers and leaders understand they are a part of an organization much bigger than themselves: *"The Army - a relevant and ready interdependent member of the Joint, Interagency, and Multi-national Team."*





2020 Profound Changes

Not since World War II has the Army changed so dramatically. Although Army values do not change, the Soldiers of 2020 apply them within an organization and cultural context unrecognizable to the Soldier of 2004. Some of the changes are so profound; they affect the very essence of the Army. Major changes reshape the basic institutions of the Army, adjust statutory responsibilities, implement a culture that places Army interests second to those of the Joint Team; create a network to enable the Army, meld the Active and Reserve Components, focus sustainment, and emphasize support for the true centerpiece of the Army - the Joint Soldier.

A. Joint and Expeditionary Mindset - Service Responsibilities and Functions

As a general rule over time, staff responsibilities and functions tend to migrate based on personalities and operational requirements. The migration necessitates the need to periodically reset the responsibilities and functions to where they rightfully belong. Recognizing the need to reset responsibilities and to change processes to support new missions, the Department of the Army conducted a focused effort in 2004 to clarify authority, responsibility,

and accountability. As a result, the Army reorganized its headquarters staff and modified its processes to ensure they were flexible, responsive, and timely to the needs of an Army at war.

Following Operation Iraqi Freedom, Congress and the Department of Defense reset Service functions and responsibilities. Joint functions migrated to Joint commands designated to manage specific functional areas, such as, mobilization and deployment, installations, sustainment, information operations (the network, intelligence, and space), legal, and medical. The consolidation continues to reduce Service redundancies, conserves resources, facilitates the Joint Team concept, and enhances the capabilities provided to Combatant Commanders.

An example of one such command is U.S. Medical Command, established to consolidate Services' medical capabilities while eliminating non-military medical services. As a result, Army units in 2020 receive universal medics with specialized training in Army operations. The power of the network, the maturation of technology, and the immediate availability of health expertise enable this transition and ensure the ability of medics to function within the context of Army missions. These capabilities also reduce the need for medical personnel in the battlespace. Advances in telemedicine, intelligent agents, and web-enabled solutions facilitate the administration of medical treatment by non-specialists. Advances in the Joint Soldier's uniform provide embedded physiological capabilities to monitor the wellbeing of the Soldier, transmit appropriate data to health care specialists, and administer basic first aid.



The Institutional Army (or Generating Force) has changed; but remains responsible for organizing, training, and equipping land

forces as a part of full spectrum Joint operations. Although Army institutions have an increased number of civilian positions, they directly link to the operational Army in the field. The Army has developed end-to-end processes connecting the Soldier to the institutional base all through the common operating picture. The seamless institutional-to-field linkages provide enhanced warfighting capabilities within the broader Department of Defense. The barriers between the "field Army" (operational Army) and the "school house" (institutional Army) no longer exist.

Internally, the institutional Army reorganized in support of the Joint, Interagency, and Multi-national Team. The consolidation of branches and occupational specialties resulted in the reduction of separate institutions and facilities. The Army of 2020 has three branches, all essential components of the Combatant Commander's Joint land force package: Joint Maneuver, Joint Maneuver Support, and Joint Maneuver Sustainment. Every officer and Soldier is first a warrior and then a specialist. This simplified organizational structure and closer relationship to the operational force dramatically enhances the warfighting capability of the Army. The institutions of the Army are now part of the battlespace and provide routine and timely support to deployed operational forces. The Institutional Army is proactive and anticipatory; it looks, thinks, and acts like the warfighters it supports.

Institutions create the conditions to build an Army that is truly Joint. A strategically responsive precision land maneuver campaign quality force, imbued with a Joint and expeditionary mindset, provides the capability to assure regional stability, achieve decision in conflict, and then "win the Peace."

B. *Born Joint - Interagency and Multi-national Capable*

Unlike any other time in history, the Army of 2020 is designed and developed for Joint Interdependency with varying degrees of Inter-agency, and Multi-national interdependency and interoperability. The Army desires interdependency with selected Interagency and Multi-national forces. However, national politics, policies, and sovereignty often only allow interoperability. The standard of Joint interdependence requires the Services to develop systems and processes that no longer rely on work-arounds to operate together. Solutions are born Joint.

The Executive Branch, Departments of State, Defense, and Homeland Security developed interagency procedures and policies that provide for the integration of non-governmental organizations (NGOs) with Joint military operations. The Army of 2020 can communicate with first responders, such as, police, firefighters, and medical personnel. The Joint Interagency Control Group (JIACG) and the centralized direction of related activities from Home Station Operations Centers resolved issues surrounding command and control of non-governmental organizations, Battle Command architecture, communications, planning and support require-





ments, cultural sensitivities, and limitations of roles and responsibilities. In addition to resolving these issues, the heart of interagency operations is the national security goal of protecting the Homeland.

In 2020, the Army's capability to routinely synchronize and coordinate with federal, state, and local government agencies facilitates effective Homeland Security operations and results in a significant paradigm shift from past military operations inside of the United States. Interagency capabilities necessary for Homeland Security missions now involve a full range of interagencies (federal, state and local) working as a single team with the military while preserving individual rights. Operations run the full spectrum from public and covert diplomacy to counter-terrorism and small-scale contingencies. The military interagency team conducts information operations, counter-narcotics missions, and responds to natural disasters. They also deter and respond to weapons of mass destruction events.

The Army continues to develop interoperability with select allies by integrating them into our Transformation processes. Rationalization, Standardization and Interoperability Agreements produced by the Department of Defense and the Services support seamless coordination of land forces regardless of the allies involved. Multi-national training and education implemented within a Joint Education and Training System (including Joint Combat Training Centers) and rotations of Army personnel with our closest allies further enhance coalition operations.

True Interdependency applies across the entire Army to include, doctrine, organizations, training, materiel, leaders and education, personnel, and facilities (DOTMLPF). The Army

no longer operates alone; everything land forces do is now Joint Interdependent or Interagency and Multi-national interoperable. The Army is a critical component of the Joint Team: Joint first and Army second.

■ **Doctrine.** By design, 2020 doctrine is "born Joint " then collaborated with other agencies and select allies. The ultimate goal is a true Joint, Interagency, and Multi-national doctrine. The Joint community develops doctrine through the collaboration of the Services, to a point where individual Service input is indistinguishable except for those core competencies for which each Service retains responsibility.

Standardization of Joint, Interagency and Multi-national operational concepts produces common relationships, procedures and collective activities governing all agencies, departments, and forces. Joint doctrine enables integration down to the tactical level and more effective employment of the Army's multi-dimensional capabilities within the Joint Force to address the challenges of the operational environment.

The development of Joint, Interagency and Multi-national doctrine is enabled by the tools of modeling and simulation, analysis, and experimentation as part of the top-down Department of Defense capabilities-based process. The Army exploits a collaborative, reconfigurable, immersive simulation network for system-of-systems concept and doctrine exploration, experimentation, and development. U.S. Joint Forces Command (JFCOM) manages the Joint, Interagency, and Multi-national distributed collaborative environment for access, linkage, and integrated use of a diverse set of Joint, Interagency and Multi-national sanctioned models, simulations, simulators, databases, intelligent agents, and analytical

tools, all available on demand.

■ **Organizations.** Organizations in 2020 are developed from Joint concepts and doctrine. As a result, the Army is organized into two basic modular capabilities-based Joint organizations; the Unit of Action, a brigade-size combat maneuver element operating below the Unit of Employment, an interdependent multi-level organization.

Units of Action are the decisive, tactical warfighting elements within the Army. By design, Units of Action fight and win on the offensive across the spectrum of conflict and against any possible enemy. Combatant Commanders employ modular, scalable and tailorable Units of Action as the fundamental land force building block for Joint organizations. Units of Action are capable of self-sustainment for 3 to 7 days of operations, which dramatically reduces the theater stockpiles and footprint.

Units of Employment are designed with a multifunctional headquarters nucleus and are scaleable and highly tailorable. They draw from a pool of modular units with specific functional capabilities, such as aviation or fire support, and units with enabling capabilities, such as, engineer, and sustainment. Units of Employment provide command and control for Units of Action. Combatant Commanders use Units of Employment when operations approach the high end of combat, demand a campaign quality force, require control of multiple organizations, or involve Joint, Interagency, and Multi-national organizations.

Units of Employment may also contain several types of Special Purpose Forces. Those that fulfill specific functions, such as, airborne and air assault, will comprise part of the Unit of Employment force pool. Special Oper-

ations Forces (SOF), also considered special purpose forces, have unique statutory responsibilities. U.S. Special Operations Command (SOCOM) provides assets to the Regional Combatant Commander who may then direct them to operate under the control of Units of Employment.

U.S. Special Operations Command and the Army merged specific responsibilities and functions following Operation Iraqi Freedom. Experience in the Iraq War and other operations in the Global War on Terrorism demonstrated the need for conventional force psychological operations. Psychological operations in 2020 are the responsibility of U.S. Information Operations Command with U.S. Special Operations Command in support with their unique capabilities. The maturation of technologies has also facilitated the migration of other former special operations capabilities to the conventional forces. Automated language interpretation through embedded communications software in the Soldier's ensemble decreases dependence on special operations language capabilities. Work continues on intelligent agent interpretation of language and is considered feasible within the next decade.

Even in today's world, Special Operations Forces remain heavily dependent upon interoperability with Army systems and programmatically, financially and operationally dependent upon Service-provided common equipment, support and services. Special Operations Forces' leaders and personnel continue to play a vital role in operations with the Army and are a major enabler of Joint, Interagency, and Multi-national operations.

■ **Training, Leaders and Education.** Although training Soldiers and growing leaders remains a core competency of the Army in 2020, training is



part of the Joint Education and Training System, which is a component of the National Education and Training System. The National Education and Training System links the governmental and interagency systems and select allies. This system provides Soldiers a life-long learning environment through a combination of schooling and self-development, on-demand access to Joint training and education resources supported by global interconnectivity, exposure to and experience in Joint operations, and access to civilian institutions. Assignments to Joint billets reinforce the role of the Joint Education and Training System in the officer and Soldier development process.

Every school and training event includes Joint, Interagency, and Multi-national education. However, the responsibility for conducting formal training transfers from the Army to the Joint Education and Training System at the Advanced Non-commissioned Officer and Command and General Staff Courses level. The individual Services retain responsibility for service unique and service leadership skills.

In 2020, Soldiers participate in minimal formal resident training courses. Beyond Service unique training and entry-level training, Soldiers require formal resident training only for those skills, which cannot be taught in the units, such as, pilot qualification. Unit training replaces formal resident instruction at the individual and officer advanced training level. Army training centers have become Joint extensions of the Joint National Training Center. Linkages among the Joint Combat Training Centers and the Joint Battle Command Training Programs enhance individual and collective training capabilities.

Each individual entering the Army receives an evaluation and counseling on a rec-

ommended career map, including education and training. A mentor follows throughout his career to help guide him along the right path. A strong mentorship program facilitates building a bench to develop the future senior leaders of the Army.

The primary goal of Army education and training is to produce Joint warriors and leaders and develop the warrior ethos throughout their careers. Exposing leaders to Joint, Interagency, and Multi-national environments early in their careers helps prepare them to be more comfortable with ambiguity and operations in widely dispersed areas. This experience includes training at their unit; live, virtual, and constructive exercises; and assignments to Joint, Interagency, and Multi-national positions.

- **Materiel.** Material solutions to warfighter requirements are realized through a Joint capabilities-based requirements generation process and an integrated, responsive Joint acquisition system. Key features of this system include evolutionary acquisition, spiral development, and a system-of-systems approach. In 2020, significant changes in system development and fielding include a Joint Science and Technology Laboratory and the extensive use of industry to manage complex Army programs. This reduces the number of materiel management positions across the Services, and solidifies the Joint Interdependency system-of-systems approach to acquisition.

Service science and technology laboratories merge into The Joint Science and Technology Laboratory where research efforts focus on development of Joint warfighting core capabilities. Commercial and multi-national advanced technologies are also widely used to provide military solutions. As an integral partner in the Joint Laboratory, the Army pursues land

warfare-unique core competency research and development.

A principal component of evolutionary acquisition, spiral development, now commonplace, enables rapid insertion of technologies and capabilities while simultaneously continuing advanced development efforts. The spiral process is both responsive to the urgency of the warfighters' immediate needs and the requirement for continuous improvements in Current-to-Future Force capabilities over time.

Interdependent partnerships between the Army and industry, once resisted, are now the norm in 2020. The Lead System-of-Systems Integrator approach combines the best defense industry core competency, management of complex programs, with streamlined government oversight. The combination results in a smaller core of government program management personnel.

System-of-systems development leverages the synergy of integrated systems, subsystems, and component capabilities. Exemplified by the success of the Future Combat Systems, this approach allows suboptimization of individual systems and components while designing in "graceful degradation" to the system-of-systems-equipped Joint Force. System-of-systems development realized programmatic flexibility capitalizing on innovative business practices. Future Combat Systems paved the way as the Department of Defense pacing item for system-of-systems development. Joint Interdependent Future Combat Systems is designed reliant upon other Army, Marine Corps, Navy, and Air Force capabilities in order to realize greater total force effectiveness.

■ **Personnel.** The Army of 2020 is an integrated team of Soldiers (Active and Reserve Com-

ponents), families, government civilians, and contractors, both government and non-government. At the beginning of the decade, the Army experienced difficulty in knowing the status of Soldiers, civilians, and contractors on the battlefield. Past personnel systems were incapable of adequately tracking individuals. Reserve Component Soldiers brought under the active duty personnel system, experienced problems with receipt of pay and allowances.

The Joint Enterprise Human Resource System for all Services, military (Active and Reserve Components) and civilian (government and contractor), remedies past problems. The Joint Enterprise Human Resource System benefits from global connectivity and advanced automation to support individual and unit manning requirements. Personnel actions processing, both combat and non-combat, occurs routinely through connectivity to home station. Soldiers, civilian employees, and family members now have ready access to Joint Enterprise Human Resource information that accurately depicts current status and also predicts future status.

The Army supports and encourages the "continuum of service" concept moving people between components to support both institutional and individual needs. This concept leverages the individual's experience gained from a lifetime of military service to enhance the base of skills, knowledge, and professionalism throughout the Army. The integration of recruitment, accession, and transition of people allows greater fidelity in support of unit manning requirements and greater flexibility for the individual.

A Joint holistic, integrated well-being support system for the entire military family across all Service components provides support

to a busy Army. The system integrates resources and policies to provide world class benefits across key areas: installation support, medical services, and civilian education opportunities. Distinctions of levels of support to different components of the Army and other Services no longer exist.

- **Facilities.** The majority of facilities (installations) in 2020 are Joint with some being Interagency and Multi-national. Navy ports, Air Force bases, and Army (Active and Reserve Components) installations are "Home Stations." U.S. Home Stations Command consolidates and manages all installations under one Joint command. Home Stations perform specified Joint functions, to include: combat preparation (training), force power projection, and continued support of the units and families. Contractor agencies and personnel provide all non-government and non-military functions that support Home Stations.

Selected Home Stations house the Unit of Employments' Home Station Operations Centers (HSOCs), which are integral to the command and control of Army units in support of Combatant Commanders. The Home Station Operations Centers allow the Home Stations to effectively operate within the battlespace, extending the reach of deployed forces, facilitating the understanding of situational awareness, and reducing the footprint in theater. As a secure facility, the Home Station Operations Center conducts sustained operational support and planning throughout the deployment and provides appropriate information to the deployed commanders. Additionally, they enable implementation of Human Resource activities underpinning the readiness and well being of the force.

The changes in Joint, Interagency, and

Multi-national doctrine, organizations, training, materiel, leaders and education, personnel, and facilities are possible because of the increased reliability of today's global Joint network. These changes enable the Army to realize the vision of operations from space-to-mud and factory-to-foxhole.

C. *The Network Enables*

At the turn of the century it was considered risky to design the Joint force and an Army around something that was not yet proven. To change warfighting concepts from mass to effects delivered by Joint platforms was culturally and technically challenging. This was compounded when the survivability of Soldiers was based on not being hit. The challenge was the acceptance that the network would enable the force to have superior knowledge and be able to react before the adversary. Cognizant of these risks, Army leaders committed to ensuring the relevance, effectiveness and dominance of the force in 2020, therefore, they invested the necessary resources in the development of the network to ensure success of network-centric Joint warfare.



Also realizing the power of the network, the Department of Defense, designated U.S. Information Operations Command to consolidate Service networks: communications, information operations, intelligence, surveillance,

and reconnaissance (ISR), and space functionalities. Networked activities on the battlefield contributed to the Joint network and therefore became Joint by design.

The network, interdependent with the Global Information Grid, provides assured, secure, worldwide access that is ubiquitous and autonomous; and reliably satisfies tactical, operational, and strategic requirements. Network and communication systems, transparently interoperable with Interagencies and selected allies, provide warfighters with proactive, intelligent, decision-oriented, and knowledge enabled capabilities. The network uses 'smart' processing capabilities that manage data traffic to eliminate information overload and help Commanders and operators more efficiently manage their cognitive resources.

The network is self-organizing and self-configuring. It enables communications-on-the-move and operational maneuver from strategic distances. Autonomous network operations are transparent to the ground force Commander: multi-layered, composed of terrestrial, air, and space based systems, forming a network of networks. Layered redundancy contributes to assured capabilities and extension of the battlefield, including functional business processes and management, Home Station Operations, training, mobilization, deployment, employment, redeployment, human resources, sustainment, and medical. The Soldier on point is not concerned about the origin of required capabilities...just that when called upon, they are there. The Network enables Joint interdependency.

Communication systems no longer "reach back" or "reach," they simply connect to establish the "always on" connectivity required for Battle Command. Software defined radio

systems operate in multiple frequency bands, offer high throughput, and employ conformal antenna technology and capabilities to automatically convert from omni-directional to uni-directional operation. Network and communication devices no longer exist as separate components; they are tightly embedded into all platforms. A personal user interface provides voice, video, text, and data input and output. Voice recognition and commands replace the need to know phone numbers, e-mail addresses, net frequencies, or call signs.

Networks and communications enable Battle Command. Battle Command empowers people; the art of leadership and decision-making enabled by science (communications, computers, intelligence, surveillance, and reconnaissance) to achieve mission success. Battle Command is the principle integrator of combat power. Leadership is of greatest importance for land forces that confront the enemy face-to-face in order to resolve conflict. The application of leadership is the significant difference between the terms "Battle Command" and "Battle Management." Understanding this, the accepted Joint concept in 2020 is "Battle Command."

Battle Command information systems operate on a robust and reliable network providing far greater situational awareness and understanding. The Battle Command architecture is open and adaptive in order to incorporate diverse Interagency and Multi-national partners. Battle Command tools generate running estimates, develop courses of action, collaborate interactively, and disseminate information to facilitate superior understanding necessary to accelerate the military decision making process. Battle Command enables rapid, mobile, and adaptable employment of effects in response to a thinking, adaptive enemy's changing tactics.



The network virtually links all members of the intelligence community to form a Global Intelligence Enterprise. Units of Action and Employment are integral parts of this enterprise. Every Soldier is both a consumer and a contributor to the enterprise, a function of information transparency made possible by a common network which integrates people with shared databases, advanced analytical tools, knowledge centers, and sensors/collectors that are accessible by all, to include our mobile tactical forces. The network's ability to meet time sensitive, critical bandwidth demands in a multi-level security environment makes virtual teaming routine and the term "reachback" obsolete.

Approved policy changes employing a risk management approach eliminate the stove-piped nature of intelligence information by separating the relevant intelligence from the collection source. These classification policy changes result in universal access to a "data pool" of common, shared and interoperable databases that are structured to enable foreign releaseability in a multi-national environment. Advanced analytical software tools access all available knowledge within the data pool, sift through the data in order to gather, fuse, and present relevant information tailored to the decision maker's requirements.

The Army leverages a seamlessly integrated mix of manned and unmanned ground, maritime, air, cyber, and space sensor systems, immediately accessible to all, to generate persistent surveillance of the battlespace. While the Department of Defense continues to exploit advantages in technologies, the diffuse nature of threats continues to validate an enduring need for Human Intelligence. All Soldiers are trained in basic human intelligence skills and information operations.

Information Operations is an enabler of full spectrum operations and a critical operational component for gaining and maintaining information superiority. Specifically, it is the employment of the core capabilities of electronic warfare, computer network operations, psychological operations, military deception, and operations security, in concert with specified supporting and related capabilities, to affect or defend information and information systems and influence decision-making. Supporting capabilities include physical attack, physical security, information assurance and counterintelligence, with the related capabilities of public affairs and civil military operations. The Army employs Information Operations as a core capability to influence, shape, sustain and manage the battlespace and enable decision dominance, thereby making it a key enabler for Joint Battle Command.

In 2020 the Joint battlefield extends vertically into space, "the ultimate high ground." As a space empowered Army, units routinely exploit military and civilian space systems to support decision dominance and decisive victory. Army space operations support a strategically responsive and flexible land force guided by five essential tasks: enable situational understanding and Joint Battle Command on-the-move; support precision maneuver, fires, and sustainment; contribute to continuous information and decision superiority; support increased deployability; and protect the force.

The Army as an interdependent member of the Joint space community relies on space products and services provided by the Department of Defense, intergovernmental agencies and commercial space systems. Space-based systems and services are fully integrated.

Space control is essential to conducting network-centric warfare and protecting U.S. national interests. The Army conducts ground based space control, selectively integrated into other Information Operations, providing the Combatant Commander a responsive and tactically relevant capability. Space, Battle Command; intelligence, surveillance, and reconnaissance; and Information Operations all contribute to the importance and significance of the network for today's Joint, Interagency, and Multi-national operations.

D. Reserve and Active Components Melding

The Global War on Terrorism exposed the need to reset the roles, missions, and use of the Army Reserve Component. During deployments, selected Reserve Component forces arrived at destinations prior to Active Component forces with the capabilities required for opening ports of debarkation. Additionally, the imbalance between the Active and Reserve Components forces resulted in high operations tempo and back-to-back mobilizations. Recognizing the problems, the Army instituted rules for use of the Reserve Component limiting individual mobilization to one in six years and no Reserve Component deployments prior to the first 15 days of operations. The Army transferred organizational functions between the Active and Reserve Components to support the new rules. The Army also provided resources to concurrently transform the Reserve Component in an attempt to increase relevance and readiness.

The Army Reserve Component of 2020 contains the organizations and equipment that provide complete interoperability with the active force across the full spectrum of military operations. The Reserve Component enables

the Army to conduct Joint, Interagency and Multi-national operations by providing a strategically responsive warfighting capability comprised of units and technologically advanced individuals with specialized skills.

The Reserve Component complements the operational capabilities of the Active Component for major combat operations, power projection, and stability operations. Reserve Component forces maintain a level of readiness to complement the active force and facilitate responsiveness as the Army transforms. Reserve Component forces are vital to the Army's success during campaigns, providing depth for force rotations. They support Joint operations in Home Station Operations Centers and during domestic interagency operations.

Reserve Component unit and personnel readiness is now changed to a pre-alert standard, with Home Station Operations Centers acting as "centers of readiness." Major program changes in Army Human Resource management and advances in information technology tied to joint virtual, live, and constructive web based training enable pre-alert readiness and training.



The removal of impediments in statutory and policy requirements and the elimination of the Cold War mobilization processes reduce employment timelines. This enables Reserve Component units to deploy directly from Home Station Operations Centers. Reserve Component Soldiers and units now become immedi-

ately accessible and available.

The Reserve Component provides an important force generation capability. Reserve Component Units of Employment with their Units of Action enhance the Army's ability to conduct missions across the full spectrum of operations, including Homeland Security and other civil support operations.

The role of Reserve Component intelligence forces expanded beyond contemporary roles as linguists, interrogators, interpreters, and analysts. The Reserve Component provides direct support to forces forward, support to Homeland Security/defense, and academic, industry and intelligence Knowledge Centers. Among the organizations receiving Reserve Component Soldiers are the National Security Agency, the Defense Intelligence Agency, the National Imagery and Mapping Agency, the Federal Bureau of Investigation, and other non-government organizations. Additionally, advances in technology allow Reserve Component intelligence forces to train and operate as part of the global intelligence network from their Home Station Operations Centers.

E. Focused Sustainment

Some sustainment problems experienced in Desert Storm also occurred 13 years later in Operation Iraqi Freedom. Accordingly, the Army accelerated the pace on Focused Sustainment Transformation in 2004, taking swift action to fix the problems of battlefield distribution and sustainment. In addition, the Army designed new equipment with common parts and embedded web-based prognostics and diagnostics in order to reduce the footprint in theater. The network, transformed business processes, intelligent agents, and mobile wireless communications were leveraged to inte-

grate logistics and operations.

Sustainment Transformation pursued three overarching goals: enhanced strategic mobility and deployability; reduced deployed sustainment footprint and replenishment demand; and reduced cost of logistics, while maintaining warfighting capability and readiness. The Army achieved these goals by advancing four capstone concepts: Joint Logistics Corporate Enterprise; Distribution Based Logistics; Performance Based Logistics; and Demand Reduction.



Individual Service sustainment functions merged with transportation and deployment to form U.S. Global Support Command. The new command provides Joint, predictive, and responsive logistics support to meet the operational requirements of Combatant Commanders. This transformed sustainment system optimizes for major combat operations in Joint, Interagency and Multi-national settings, but remains fully capable across the full spectrum of combat operations. The Army retains responsibility for land warfare unique sustainment systems, processes, and organizations.

Sustainment forces, like combat arms forces, are robust, reliable, interoperable, and have organically embedded connectivity and

linkages. Both satellite and ground-based systems enable these units to see assets throughout the distribution "pipeline." These systems provide sustainers with the capability to transmit and use data and information to respond to the warfighters operational requirements. Army sustainment organizations are organized and resourced to perform Joint executive agency functions for common user logistics as required by Global Support Command.

Sustainment is not just about taking care of equipment; it is also about taking care of Soldiers. Focused sustainment provides the Joint Warrior those items needed at the right place, in the precise quantity, in time for mission success.

F. *The Joint Warrior - the Soldier*

American Soldiers with their warrior spirit remain. The Army in 2020 recruits, trains, and equips the Soldiers to create an unmatched land force for the most formidable Joint team in the world. The Soldier is trained for Joint, Interagency, and Multi-national operations from the first day of basic training to his last day of service to his Nation. Flexible, adaptive, and competent Soldiers infused with the Army's Warrior culture fight wars and win peace. The Soldier - fierce, disciplined, well trained, and well equipped ultimately represents and enables the capabilities the Army provides the Nation.

Soldiers in the Army of 2020 are healthier as a result of Global Force Health Protection. This resource empowers them with in-depth health knowledge and promotion programs to prevent the onset of disease. Through the advancement of vaccines, fitness and wellness, and a variety of predictive interventions, Soldiers avoid common health issues, and

thereby contribute to a more healthy and fit force. Global Force Health Protection helps reduce the incidence of disease and non-battle injury: reducing casualties, providing essential medical care, treatment and evacuation as needed, and rapidly returning Soldiers to duty.



The Transformational changes in the Army serve but one purpose: to empower the Soldier. All the advances in doctrine, organizations, training, materiel, leaders and education, personnel, and facilities are for naught, without the Soldier. Soldiers win wars; machines alone cannot. Warrior ethos and unit cohesion motivate Soldiers for the selfless service needed to win - but wars are still not without costs. Army values and Soldier camaraderie are the foundations for their willingness to lay down their lives in defense of the Nation. They answer to a higher calling. The Soldier remains the most critical piece of the Army - the centerpiece of its formations.



