

ARMY MATERIEL COMMAND WHITE PAPER



SUSTAINING ARMY 2030

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United States Army Materiel Command
Redstone Arsenal, Alabama 35898

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FOREWORD

“Infantry wins battles, logistics wins wars.” --General John Pershing

America’s Army finds itself in the midst of a massive transformation. We are building a multi-domain ready force that will meet its enduring responsibility as part of the Joint Force, to provide for the defense of the United States and retain its position as the globally dominant land power. That transformation, however, faces an inflection point where we must re-examine how we organize, train, and sustain our operational forces.

Our global adversaries are achieving quantitative and qualitative progress that threatens our current position as the world’s premier fighting force. If we fail to adapt, we risk squandering our technological advantages, marginalizing our deterrent capabilities, and jeopardizing our ability to prevail in future conflict.

This white paper describes why we are transforming and how we will deliver the logistics, human resources, financial management, and health service support necessary to prolong endurance, extend operational reach, provide freedom of action, and prevail during joint all-domain operations.

Delivering Ready Combat Formations!



CHARLES R. HAMILTON
General, USA
Commanding

*Sustainment is about
War Fighting - Period!*

Army 2030: Divisions as the primary tactical formations

Over the next seven years, the Total Army will implement a major restructuring of combat formations. Enhanced with new technologies and weapons systems, this effort will increase the flexibility and lethality of Army divisions by adding manpower and capabilities, including fires, ground reconnaissance, and engineers. These changes will reestablish divisions as our primary tactical formations. We have identified this effort as *Army 2030*.

Why the shift?

New operational environment

First, our operational environment has changed dramatically. An evolving collection of non-state actors, including terrorist organizations, transnational criminal organizations, and malicious cyber actors, pose a growing threat to global peace and stability. As an example, cyber-attacks for ransom have become a widespread menace to both private companies and public agencies across the United States.

In addition, North Korea and Iran continue to develop offensive capabilities that threaten regional stability. Despite decades of famine, North Korea continues to expand its ballistic missile capability while developing nuclear, biological, and chemical weapons. Iran, meanwhile, continues to develop its nuclear capabilities and has spent several decades building a network of regional proxies to pursue hegemony in the Middle East.

Finally, China and Russia remain long-term competitors ready and willing to threaten our security and prosperity. China has employed information warfare, economic coercion, and its rapidly improving military to intimidate its neighbors in the Indo-Pacific region. Russia, meanwhile, has waged a long-term information war against democratic governments and pro-democracy movements around the world, while employing military force to seize territory in neighboring countries, most notably Ukraine.

Significant improvements in military hardware and training have bolstered these aggressive strategies while threatening our long-standing technological advantages.

Our adversaries developing capabilities in anti-access and area denial (A2/AD) systems, which will directly impact our ability to project and sustain combat power, pose particular concern.

The United States Army remains the world's premier fighting formation, but competitors are closing the gap, especially in the realm of long-range precision fires, space-based weapons, and cyberwarfare. These emerging capabilities across multiple domains produce a "contested logistics" environment in which adversaries will observe, delay, disrupt and attack sustainment operations, both at home and abroad. Commanders must train their Soldiers to employ dispersion, camouflage, and deception to defeat these threats and complete their assigned missions.

Shifting focus

The 2017 publication of Field Manual (FM) 3-0, *Operations*, formally transferred the Total Army's focus towards large-scale combat operations (LSCO): intense, chaotic, and lethal conflicts that we seek to deter and for which we must prepare. This shift marks a critical step in our transformation, dramatically changing the way we train, educate, organize, and equip our forces.

Emerging capabilities

As part of our transformation, we are regaining the technological high ground. We will accomplish this goal by integrating the multi-domain operations (MDO) concept within training and doctrine while equipping Soldiers with the most effective weapons systems in the world. As we develop, acquire, and field these materiel solutions across our operational force, Army 2030 will provide "landing spots" that integrate these new capabilities within our formations.

The following six modernization priorities are driving materiel development and organizational design for the MDO capable force:

□ **Long range precision fires** will enable multi-domain forces to penetrate and neutralize enemy A2/AD capabilities while ensuring military overmatch at every echelon.

- **Next generation combat vehicles** will increase the firepower, speed, and survivability of land forces, allowing them to maneuver into superior positions on the battlefield and pair with robotic vehicles.
- **Future vertical lift** platforms and technologies will increase maneuverability, endurance, lethality, and survivability of Army aircraft – increasing their operational reach and effectiveness against near-peer competitors.
- Modernized **Army network technologies** will enable leaders to command and control forces distributed across vast terrain, converge effects from multiple domains, and maintain a common situational understanding in MDO.
- New **air and missile defense technologies** will defend ground forces against adversary air threats while protecting critical infrastructure against a host of air and missile threats.
- Finally, modernized **Soldier lethality** will increase the capability of individual weapons, provide enhanced night vision, and increase Soldiers' ability to quickly understand and react to emerging situations – increasing their lethality, precision, and survivability. These efforts will complement ongoing Soldier performance initiatives to improve fitness, nutrition, and resiliency, ensuring we modernize the Soldier, not just the equipment.

Lessons from Ukraine

While we transform ourselves, we are carefully watching the ongoing Russian invasion of Ukraine. The conflict has devolved into a bloody stalemate, and the outcome remains very much in doubt. Early Russian failures, most notably the withdrawals from Kyiv and Kherson, indicated systemic weaknesses within their military formations, but Mr. Putin's willingness to invade neighboring countries reminds us that we live in dangerous times. Meanwhile, we are gathering important lessons from Russian failures in intelligence, command and control, and sustainment.

Sustainment failures have garnered media attention. Popular images depict abandoned Russian combat vehicles towed off by Ukrainian farmers and the iconic, 40-mile-long line of Russian supply trucks jamming the highway from Belarus. In addition, unconfirmed reports have described Russian troops begging for food. Meanwhile,

senior Russian commanders have repeatedly and publicly complained about inadequate ammunition supplies. Haphazard maintenance, lack of movement control, limited recovery capability, a poorly managed distribution network, and sporadic medical care have further hindered Russian military operations.

The fighting in Ukraine suggests several lessons:

First, the Putin regime appears committed to a military rather than diplomatic resolution of this conflict, and indiscriminate attacks on Ukrainian civilians highlight a continuing disregard for international law.

Second, each side has specifically targeted enemy logistical networks, with fuel and ammunition stocks proving especially vulnerable to detection and destruction.

Third, the Russians may continue fighting in Ukraine indefinitely. It is worth remembering, for example, that Russian military operations continued for several years in both Afghanistan and Chechnya, despite both international and domestic protests.

Finally, regardless of the outcome, we are not the only ones learning lessons in Ukraine. Russia and other adversaries are already adjusting and investing in new technologies based on this conflict.

Sustaining Army 2030

In previous large-scale conflicts, our nation's robust sustainment capabilities proved decisive. In the First World War, America's rapid mobilization changed the balance of power on the Western Front and forcing the capitulation of our enemies. In the Second World War, we swiftly expanded the armed forces, established a worldwide distribution network, equipped our allies, and defeated Axis opponents in every theater of operations. In Korea, Vietnam, Afghanistan, and Iraq, we repeatedly demonstrated the ability to project combat power, sustain our forces, and defeat our enemies on a global scale.

As we build Army 2030, we must not sacrifice these strategic advantages. Because we are designing future divisions to meet specific requirements, we are tailoring our sustainment formations to meet those unique demands.

Five decades ago, we developed and fielded a generation of weapon systems, dubbed the “Big Five,” that enabled Soldiers to execute the new doctrine. Those systems—the M1 Abrams tank, the M2 Bradley infantry fighting vehicle, the AH64 Apache attack helicopter, the UH60 Blackhawk helicopter, and the MIM104 Patriot anti-ballistic missile system—remain in use to this day.

Unfortunately, development of comparable sustainment capabilities lagged behind the fielding of the Big Five. During Operation Desert Storm, success on the battlefield validated our Airland Battle doctrine, but our Soldiers rolled across the line of departure on cargo trucks designed during the Korean War. With the danger of large-scale combat looming larger than ever, we can ill-afford to repeat this mistake. Rather, we must modernize sustainment at the same pace as we modernize the rest of the Army (see figure 1).

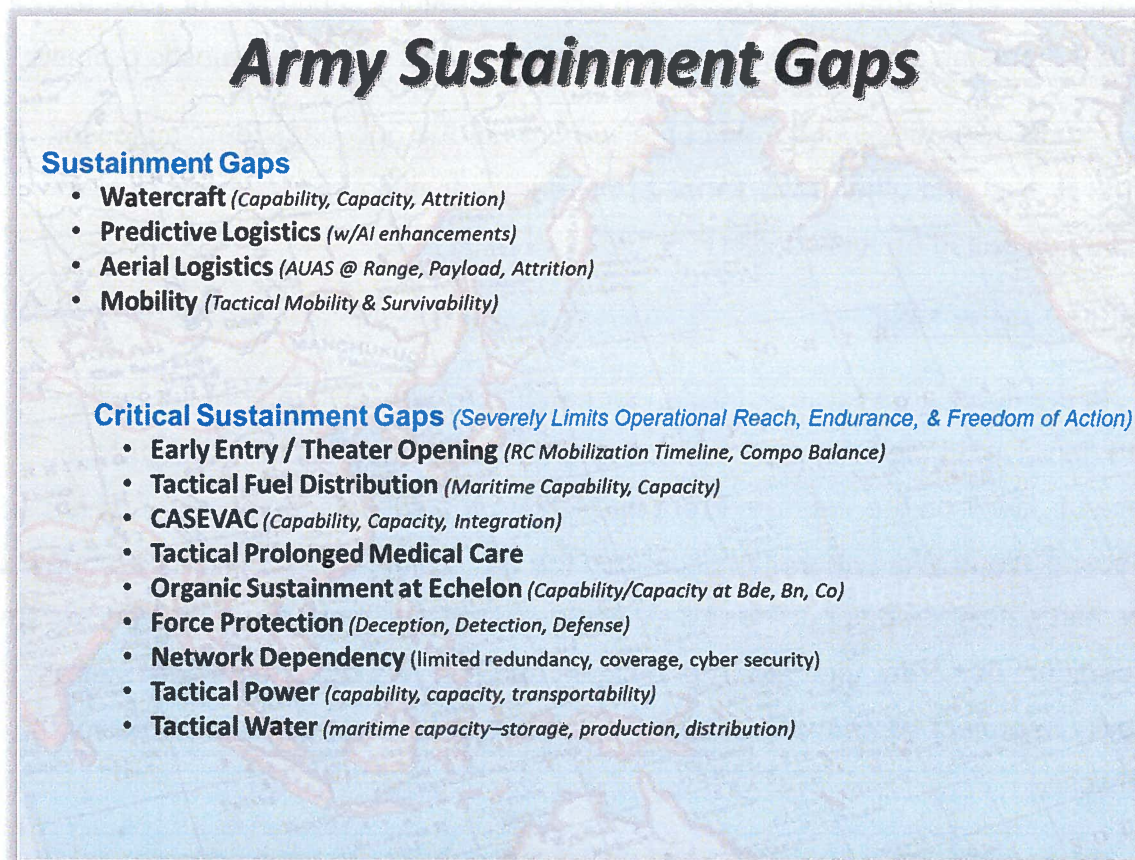


Figure 1: Army Sustainment Gaps

With over 30 new combat systems in development, the Army's current transformation poses greater challenges than ever. To ensure sustainment modernization keeps pace, we are using every tool in our capability toolbox, including doctrine, organization, training, materiel, leader development and education, personnel, and facilities. To further simplify this strategy, we are focusing on three specific areas: How We Support, What Sustains the Fight, and Who Sustains the Fight. The following discussion addresses these areas in greater detail.

How We Support involves the doctrine, organization, training, and policy that define roles, responsibilities, and relationships, shape formations, establish tasks, conditions, and standards, and govern daily operations across the Army's sustainment enterprise.

Doctrine

As we reestablish our competitive advantages in LSCO, we continue to refine and adapt our doctrinal library. The 2022 revision to FM 3-0, *Operations*, translates the Army's operational principles into fundamentals, tactics and techniques focused on fighting and winning the next conflict. FM 3-0 also introduces MDO as the Army's operational concept, codifying the combined arms employment of capabilities from multiple domains.

As the Army's operational doctrine evolves, so must its sustainment doctrine. The Sustainment Center of Excellence has already begun the process of change, shifting its focus from specific units to multifunctional sustainment operations at echelon. This shift reflects a more holistic approach to the planning and integration of sustainment capabilities at the tactical, operational, and strategic levels of war. It also mirrors the doctrinal approach adopted by other warfighting functions, making sustainment doctrine more accessible to non-sustainers. The Army's capstone sustainment doctrine, Army Doctrinal Publication 4-0, *Sustainment Operations*, will likewise reflect the unique challenges involved in sustaining MDO.

Organization

At the brigade echelon, we are streamlining the organizational structure of our brigade support battalions to increase their mobility and agility, while adding support battalions within our protection brigades, engineer brigades, and our division artillery. These changes will improve both the responsiveness and survivability of sustainment assets in the forward area.

At the division level, we are strengthening our division sustainment brigades. This effort will realign capabilities within the division sustainment brigade and radically change the sustainment battlefield calculus in our favor.

We are building a bigger, better division special troops battalion. That organization will gain a support operations office, a mortuary affairs platoon, and a maintenance company. These additions will complement its organic headquarters, human resources company and signal company while rebalancing the span of control within the brigade and fully engaging the special troops battalion in the business of sustaining the division.

We are simultaneously proposing a reorganization of the division sustainment support battalion to focus on supply and distribution. Based on mission requirements, we are proposing that these battalions gain a PLS truck company, long-haul bulk fuel capability, an inland cargo transportation company, and an ammunition company. We are also integrating Class VIII within tactical supply support activities to ensure responsive health service support in forward areas, and we are realigning distribution responsibilities at both the brigade and division echelons. In Army 2030, senior sustainment commanders at each echelon will manage distribution within their areas of operations.

Training

We have the best trained Army in the world, but readiness is a moving target. As we change the way we fight, we must change the way we train. Training is a command responsibility, and leaders at every echelon must provide their Soldiers with tough, realistic training that replicates the conditions they will face on the next battlefield.

Too often, however, we cut corners on the sustainment realities that will demand our attention in combat, as when we re-key casualties at our dirt combat training centers, hand wave the necessary support contracts, or “magic move” fuel and ammunition to execute a deliberate attack. We know from harsh experience that in the real world, weapons jam, equipment breaks, communications fail, and convoys get lost.

The following training challenges demand particular attention:

□ Protection. Because of its complexity and lethality, large scale combat places a premium on commanders’ ability to sustain operations under enemy fire, but we cannot sustain if we cannot survive. The burning cargo trucks that litter Russian supply lines in Ukraine provide a grim reminder of the threat to unsecured lines of communication on the modern battlefield. To mitigate this risk, every unit operating in the rear area must master all facets of active and passive protection, from effective camouflage and dispersion to the coordination of indirect fires. Maneuver commanders must simultaneously incorporate protection tasks within training to ensure the safety and readiness of sustainment and all other warfighting capabilities.

□ Echelons above division training. Our Army provides numerous collective training opportunities for sustainment units at the tactical level, ranging from command post exercises at home station to combined arms rotations at our combat training centers. Due to the scale and expense of exercises at echelons above division, however, expeditionary and theater sustainment commands have fewer options. To train their subordinates in a combined arms, multi-echelon environment, commanders of these units must leverage theater-level exercises and the Mission Command Training Program’s Warfighter program.

At the same time, the senior mission commanders who set exercise training objectives must expand their focus beyond fire and maneuver to stress their sustainment capabilities and all other warfighting functions that provide our Soldiers with a competitive advantage. Failure to train our headquarters to synchronize these capabilities at echelon under realistic battlefield conditions will cost lives and jeopardize the mission.

□ Reserve Component (RC) training. Over 70% of our Army's sustainment capabilities, and 83% of its sustainment capability at echelons above division, resides within the RC. These include the following:

- 72% of ammunition companies
- 83% of EAB maintenance companies
- 88% of truck companies
- 89% of POL supply companies
- 96% of water companies

We cannot open a theater, conduct early entry operations, or sustain a prolonged conflict, without them. RC commanders, however, face a significantly greater challenge than their Active Component (AC) counterparts in trying to maintain trained and ready units, particularly in terms of time and money. While legal restrictions limit the annual number of training days available, we can and should invest more in building and maintaining RC readiness.

We also need to increase opportunities for Reservists to train with AC units while expanding cross-assignment of Reservists to active-duty units, and vice versa. Finally, we must better integrate RC sustainment headquarters within theater exercises to develop their familiarity with their designated geographic areas of interest. We must train with the Reserves in peace because we cannot win without them in combat.

Policy

As an agency within the executive branch of the federal government, the United States Army complies with all federal laws, regulations, and policies. Sometimes, however, our challenges evolve faster than legislation can adapt. As we build Army 2030, we will work with our colleagues in the legislative branch to update the legislative requirements that govern our operations.

We are working on legislative solutions that will enable us to project more combat power more rapidly. This capability depends heavily on our RC sustainment forces, and we are seeking the regulatory authority to expedite the mobilization, training, and deployment of these units, particularly our fuel and distribution capabilities.

We are also seeking authority to shift more sustainment capability into our Army pre-positioned stocks (APS). These stocks provide a critical piece of our strategic mobility triad, alongside strategic air, and sealift capabilities, enabling the United States to rapidly project combat power on a global scale, demonstrate our commitment to our allies, and provide senior leaders with an array of military options. APS plays an especially important role in expediting the employment of RC forces, alleviating the need to ship RC unit equipment into the designated theater of operations.

What Sustains the Fight includes the materiel and facilities across the Army sustainment enterprise--from foxhole to factory--that provide our Soldiers with world class support.

Materiel

We cannot win the next war with the aging equipment currently fielded within our sustainment formations. To address this challenge, Army Futures Command is partnering with industry and academia to leverage the best ideas in America as we build the next generation of systems.

As part of this effort, the recently activated Contested Logistics Cross Functional Team (CL CFT) will deliver cutting-edge sustainment capabilities of autonomous distribution, advance power, demand reduction, and AI enable precision sustainment. The CFT, working closely with Army, Joint, academic and industry partners, is developing solutions for the next generation of sustainment systems at tactical and operational echelons that will shape decisions at the strategic level. Additionally, through teaming and rapid Soldier feedback, the CL CFT will expedite the development of materiel requirements while achieving the intellectual rigor necessary to rationalize the level of investment aligned to mitigating mission risk.

Many of those systems are still in the developmental stage, and we honestly don't know yet which technologies will mature, and which ones will fizzle. We do know, however, that we cannot win the next war with the aging equipment fleet currently within our sustainment formations. As we modernize our sustainment capabilities, we will focus on three major areas.

First, we will modernize sustainment mission command by improving our information advantage systems. No single commander or staff officer has sufficient information to make every important decision, and no individual has the stamina or capacity to manage all the decisions necessary during combat. In recognition of this fact, we have long employed mission command as our approach to command and control of military operations.

Commanders exercise mission command by establishing an environment of trust and shared understanding, encouraging risk and initiative, issuing mission orders, and allocating necessary resources. Mission command empowers subordinate decision making and decentralized execution appropriate to the situation, activities important within every warfighting function, but especially critical to sustainment.

The shared understanding that enables these activities requires timely and accurate information sharing within established reporting channels and across information systems. Multiple systems capture and store real-time data, but many of these rely on manual entry and analysis, and the various systems struggle to share data with each other. This jumble of stove-piped data requires too much time and effort to synthesize and convert into actionable intelligence.

Moreover, future conflicts will involve significantly more disconnected operations, both planned and unplanned. In this environment, artificial intelligence (AI) allows us to plan and predict sustainment requirements in the absence of real-time communications. This capability demands further investment and integration within sustainment mission command systems.

The Army's Mission Command Center of Excellence is leading a consortium of stakeholders in addressing this challenge. The current solution, Army Vantage, converts input from over 200 sources into a common data language that provides leaders with a better decision support tool and supports a common operating picture. This solution also integrates sustainment data within mission command systems, enabling a more comprehensive and relevant common operating picture. As this effort matures, we will be able to provide commanders with a clear vision of current conditions and future requirements.

The Army is also investing heavily in predictive logistics capabilities. Based on networked sensors, these will automatically feed data from platforms into a common

operating environment, enabling sustainers to monitor, anticipate, and ship necessary commodities, such as replacement parts, ammunition, and energy to the point of need. Faster, better data will enable commanders to make faster, better decisions.

Second, the Army will cut energy demand across the operational force to increase its endurance and agility while reducing the risk, and the cost, of keeping thousands of cargo trucks on the road. Over the past 50 years, we have benefited from myriad technological innovations that enhanced the lethality, mobility, and survivability of every Soldier on the battlefield. Unfortunately, those technological solutions also increased our need for fuel and electricity in the forward area. We absolutely cannot afford to continue this pattern. In short, our formations need to go on a diet (figure 2).

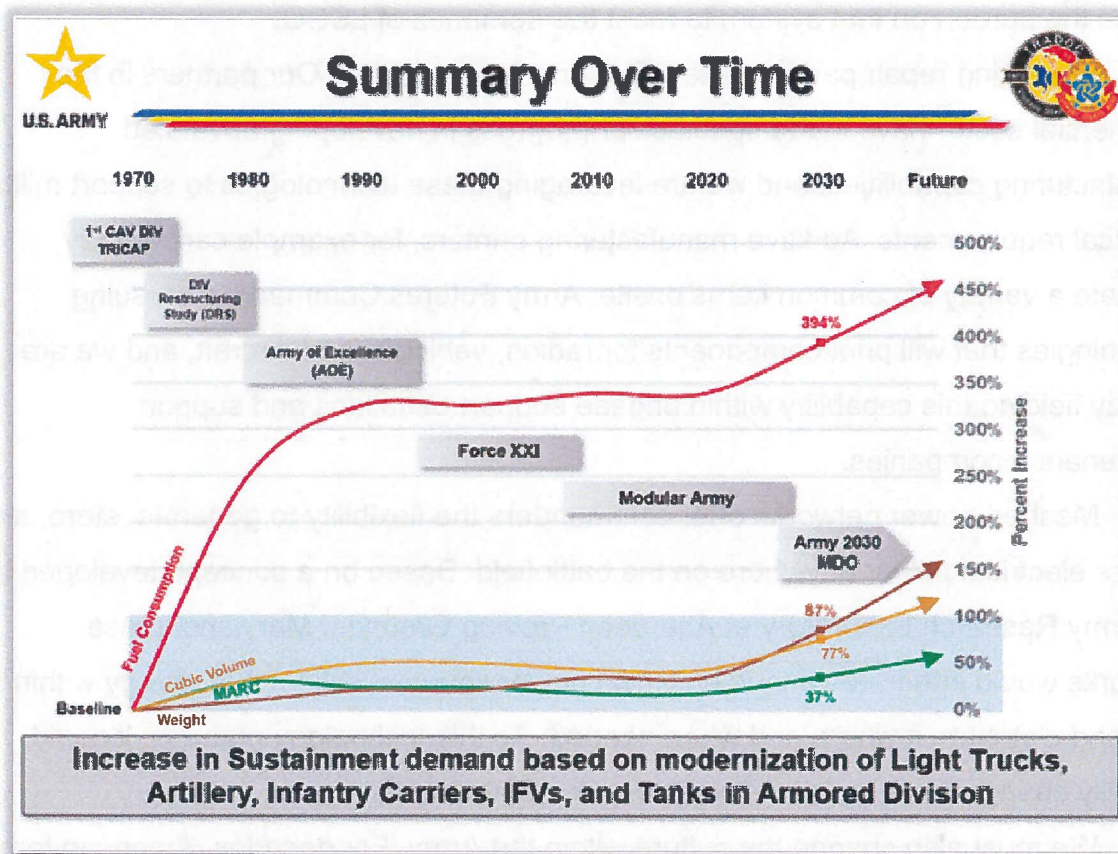


Figure 2: Sustainment Demand, 1970-2030

Fortunately, numerous technologies offer pathways to lighter, faster, more efficient combat formations without sacrificing combat power. The Ground Vehicle

Systems Center, for example, just developed a smaller, safer, and more powerful lithium-ion battery that will replace the Army's current inventory of lead-acid batteries. Meanwhile, multiple agencies are developing hybrid and electric engines that will increase the endurance and stealth of our combat platforms while reducing or eliminating the massive fuel depots that proved so critical in previous conflicts.

In addition, we continue to invest heavily in systems that will meet demand at the point of need. With apologies to UPS and FEDEX, the United States Army maintains the world's best supply distribution system. Nobody in the world requisitions, manufactures, stores, ships, tracks, and delivers a larger variety of items, ranging from whole blood to ATACMS missiles, than the United States Army. We do it on a global scale, and we do it under enemy fire. That distribution capacity, however, is not unlimited, so we must reduce the burden on that system to meet the demands of LSCO.

Producing repair parts on site offers one such solution. Our partners in the commercial sector have made spectacular progress in developing advanced manufacturing capabilities, and we are leveraging these technologies to support military logistical requirements. Additive manufacturing printers, for example can already fabricate a variety of common items onsite. Army Futures Command is pursuing technologies that will print components for radios, vehicles, and aircraft, and we are already fielding this capability within brigade support battalions and support maintenance companies.

Meshed power networks offer commanders the flexibility to generate, store, and access electrical power anywhere on the battlefield. Based on a concept developed by the Army Research Laboratory at Aberdeen Proving Grounds, Maryland, these networks would integrate various electrical power sources, collect that energy within a grid, and distribute it where and when needed. As this technology matures, it could radically change the way we deliver power to combat units.

We must also change the culture within the Army. For decades, American forces have enjoyed nearly unlimited energy resources in the forward area of the battlefield. The massive bag farms and lengthy fuel convoys that characterized previous conflicts, however, will not survive in large scale combat.

Demand reduction is commanders' business, and we are going to educate leaders to monitor and conserve energy just as they track precision munitions and

spacing items. A combat platform that can't move becomes a target reference point, so we are going to train units to manage consumption to retain their freedom of action and extend their operational reach. Like time and money, our Soldiers will never have enough energy in combat. To remain effective, we must become efficient.

Third, we will increase the speed and endurance of our formations by developing autonomous systems that provide survivable, reliable, responsive support at every point on the battlefield. The Army has already employed autonomous capabilities in combat, including robotic explosive ordnance disposal vehicles and unmanned aerial systems. Army Futures Command is working right now to expand those capabilities to meet the sustainment demands of large-scale combat.

To increase our autonomous capabilities, we are focusing our efforts on two major objectives: autonomous vehicles and precision logistics. Autonomous vehicles, such as the autonomous transport vehicle (ATV), will dramatically increase the availability of cargo trucks to move men and materiel on future battlefields by reducing the Soldiers necessary to support each convoy. A typical ATV transportation company, for example, will be able to double the hours of convoy support that it can provide daily.

Autonomous systems are part of a larger AI revolution changing every aspect of modern life. As we integrate this technology across the sustainment enterprise, from casualty assessment to autonomous warehouse operations, we must harden every system to perform within an operational environment dominated by persistent cyber threats.

While autonomous vehicles provide a striking glimpse of the future, precision logistical systems, such as Predictive Logistics (PL), offer an even more promising opportunity to dramatically increase readiness at the forward edge of the battlefield. The PL systems rely on networks of autonomous sensors that monitor status and anticipate failure of critical components, such as a tank's power train or a helicopter's transmission.

Simplistic versions of this technology already exist within passenger vehicles, providing drivers with safety and maintenance information on everything from oil viscosity to unexpected lane departures. We are leveraging these capabilities to meet the challenges of 21st century warfare, enabling commanders to monitor readiness and predict supply and maintenance requirements 72 hours in advance.

This ability to accurately project future demand will radically improve our ability to pre-position necessary fuel, ammunition, and repair parts to extend our operational reach. It will also provide commanders with the self-awareness to shape operations and regenerate combat power.

Facilities

As the world's pre-eminent land power, we can deploy further, faster, and in greater strength than any other army on earth. This strategic mobility depends on our joint air and sea capability and on our global network of facilities. These include headquarters, holding areas, rail lines, ports, airfields, repair facilities, manufacturing plants, warehouses, APS, mobilization force generation installations and power projection platforms specifically designed and built to produce, train, support and deploy combat formations.

These constantly aging facilities served us well in previous conflicts, but years of underinvestment now make them a likely target. Whether we are in competition, crisis, or conflict, the readiness of our deployable forces depends on the safety and effectiveness of our installations, both at home and abroad.

In the past two decades, we have dramatically improved cybersecurity around the world, but much work remains. Cyber intrusions such as the recent Colonial Pipeline attack can disrupt or disable everything from power and water to information technology systems. We will continue to harden our critical networks and prepare our agencies to employ analog data, if necessary. The Army's Finance Corps, for example, provides us with the ability to disburse cash payments in case an adversary disrupts our financial management systems.

In addition, we must upgrade our facilities. Renovations to existing installations must expand their capability to support mobilization and deployment. New facilities should provide high quality living and working conditions for Soldiers and Families, but they must also serve as fighting platforms when needed. Forward repair sites, for example, should include not only the capacity to fix critical weapons systems, but also the ammunition holding areas, training sets and instrumented range complexes necessary to train and certify assigned crewmembers.

We will also modernize the Army's organic industrial base (OIB). This network of 23 depots, arsenals and ammunition plants and their artisan workforce manufactures, resets, and maintains Army equipment providing critical materiel and sustainment support to warfighters across the Joint Force. The OIB enables the Army to sustain, upgrade and reset its equipment, modernize our formations, and provide operational commanders with a surge capacity.

Finally, we will improve existing facilities and programs to support our mobilization and deployment processes. These improvements will involve relevant stakeholders, such as US Army Forces Command, US Army Materiel Command, and the US Transportation Command, in identifying key infrastructure and the critical decisions necessary to push out early deploying forces while simultaneously mobilizing Reserve Component capabilities.

Because we cannot put every unit on the first aircraft, critical decisions will include the prioritization of limited transportation assets, the cross-loading of critical cargo, and the de-confliction of early deploying forces and equipment. Decisions regarding the Reserve Component remain particularly important since these forces provides most of our sustainment capability. Our ability to set the theater and sustain combat operations depends heavily on our ability to mobilize and deploy these forces early in a crisis.

Who Sustains the Fight includes the people who sustain the Army and the programs that recruit, retain, and develop them to reach their full potential.

Talent Management

People are the Army's greatest strength and its most important weapons system. They include Soldiers, their Families, Army Civilians, and our Soldiers for Life. The quality and resilience of these people guarantees our enduring advantage as the world's most ready, lethal, and capable land combat force.

The Army never stops fighting a war for talent. Because we are only as good as our people, we must recruit, develop, and retain the breadth and depth of civilian and military skills necessary to equip and sustain Army 2030. In short, we are in the business of talent acquisition.

The first step in that process requires us to attract a diverse talent pool capable of operating in a dynamic, complicated, data-centric environment. Those talents include the ability to collaborate across digital communities, leverage technology to solve difficult problems, and most importantly, understand and apply predictive analysis to large, complex, data sets. While our generation has developed these competencies the hard way, the class of 2030 is already comfortable living in the information age, because they grew up in it.

We are expanding our recruiting effort to screen and select potential Soldiers and Civilians who want to serve the Nation and can live the Army's values. That effort includes subject matter experts across the nation's labor markets who possess the right technical skills right now.

Once on board, these Soldiers and Civilians must receive the world class developmental opportunities necessary to ensure they remain current with emerging capabilities and achieve their full potential as contributing members of the Army team. To achieve these goals, we must tailor their education and training while adjusting our credentialing process to accurately measure and certify their demonstrated expertise. As we develop the next generation of military and civilian leaders, our personnel management systems must better align unique talents against our organizational needs, thus benefiting both our people and our Army.

This process is especially important within the Sustainment Warfighting Function, where numerous different skills are necessary to achieve the mission. Fortunately, we have the technology to identify, assess and cultivate the best and brightest within our ranks. Supervisors at every echelon must find, develop, and encourage those future leaders who can adapt to meet the tactical and technical challenges of the 21st century.

We must also do better at retaining talent. The Army recruits individuals, but we retain both individuals and their Families. Quality of life dramatically effects both single and married Soldiers, for whom family considerations play a huge role in the decision to stay or leave. Commanders must know and engage their subordinates through formal and informal counseling, candid feedback, and thoughtful career guidance. After all, we are competing with the best companies in the world to promote our top performers.

At the institutional level, we are updating compensation practices to reward and incentivize responsibility, authority, and talent. At the individual level, we must create

more flexibility for individuals. Many Army Civilians, for example, prefer to telework at least part of the time, a dynamic increasingly found in many of our leading industry partners' employment policies. Our civilian workforce has already demonstrated the ability to produce outstanding results in a hybrid environment, and we need to trust they will continue to do so. In a similar category, we must enable Soldiers to move between components when such cross-leveling makes sense, and to transition departing members in a way that reinforces their lifelong membership in the Army team.

Finally, we must leverage our growing data literacy to better manage that talent. The Army's 21st Century Talent Management System adopts new approaches, systems, and processes that identify and catalogue Soldier knowledge, skills, behaviors, and preferences and match those against unit needs. The Integrated Personnel and Pay System – Army (IPPS-A) will integrate the active and reserve forces and complete the Army's transition to a single system across all components that identifies needed talent and manages Soldier careers from accession to transition.

We will also improve talent management by assigning the right commissioned and non-commissioned officers to lead our tactical formations. These critical positions have the greatest impact on retention and attrition. To ensure we select the very best, the Army has implemented a Commander Assessment Program to select future commanders and command sergeants major for our battalions and brigades. This intensive five-day program evaluates the temperament, cognitive fitness, physical health, and leadership skills of prospective leaders. We are currently building a system to assess and select our Army Acquisition Corps civilians at the same echelons.

Leader Development

Author and combat veteran George Orwell famously observed that people sleep peaceably in their beds at night only because warriors stand ready to do violence on their behalf. America's Soldiers are the warriors ready to act with violence and precision, but also with courage and compassion, when and where necessary to protect and defend the nation. Regardless of new technology and emerging threats across multiple domains, those Soldiers deserve fit, capable, courageous leaders of character.

Fortunately, the United States Army specializes in leader development. We have been selecting, training, and developing outstanding leaders for 248 years, and we

continue to improve the process. The commissioned and noncommissioned officers who lead today's Soldiers are the best trained, best prepared individuals we have ever produced.

We cannot, however, rest on our laurels. The many challenges we expect between now and 2030 require us to modernize and adapt both our curriculum and our methods to ensure that future leaders retain the ability to fight, sustain, and win the next war. Hybrid courses, for example, expand education beyond the brick-and-mortar confines of our classrooms, enabling Soldiers and Civilians to learn at their own pace from any location with a Wi-Fi signal.

We are also building better sustainment leaders by integrating data analytics within every aspect of our professional military education system. People have always been the Army's most important resource, but data now represents our most decisive resource. Modern technology generates and collects enormous quantities of data concerning the usage and reliability of our equipment. Supply chain management, for example, relies almost entirely on timely and accurate data. With proper analysis, we can leverage it to anticipate sustainment challenges, build more reliable weapons systems, and plan better military campaigns. Every sustainment leader must master this science. We are awash with data; we ignore its potential at our peril.

In addition, we are expanding the scope of our professional military education to ensure that junior leaders, particularly company grade officers, understand the role of sustainment at all four levels of warfare. In most of our other branches, officers focus on tactical assignments until they reach senior field grade rank. Sustainers, however, may find themselves serving in tactical, operational, theater strategic or national strategic organizations as young captains. To succeed in these assignments, they must broaden their education and embrace a culture of life-long learning. That culture is even more important for the reservists who provide 70% of the Army's sustainment capability.

Moving forward, we will also train leaders and their Soldiers to sustain, fight, and win in teams of manned and unmanned systems. Autonomous capability already extends the capability of every unit on the battlefield. In the near future, it will extend the capability of every Soldier. We must integrate unmanned systems within every level of training and education, anticipate the new problem sets accompanying this technology,

and develop new, battlefield-ready solutions to keep our Soldiers, and their systems, in the fight.

Conclusion

In 1914, Germany launched a massive assault against France. The so-called Schlieffen plan sent hundreds of thousands of German troops marching across Belgium to outflank French defenses, seize Paris, and achieve a swift, strategic victory. The Germans were well trained, well equipped, and well led, but the scale of the German plan overwhelmed the Belgian road network, delaying the movement of food, ammunition, and reinforcements. The campaign failed miserably, leading to a four-year stalemate that starved the German people, destroyed the German empire, and set the stage for a second, even more devastating world conflict. The history of modern warfare teaches that commanders who outrun their sustainment culminate early and lose.

Our Nation, and our Soldiers, deserve better. As we compete globally and prepare to fight and win the Nation's wars as a member of the Joint Force, we are simultaneously executing the most significant Army transformation in half a century. To achieve that transformation, we must fully integrate sustainment with our modernization effort, both technically and financially.

That integration requires the cooperation of all stakeholders within the Army's modernization effort. These include the legislative and executive branches, our corporate partners, and the thousands of Soldiers, civilians and contractors who work daily to build a better Army.

We must continue this momentum so that our Army doesn't repeat the costly mistake of considering sustainment as an afterthought. We must train and educate leaders across the force to think of sustainment first, and plan and execute sustainment as a part of every operation. We must also incorporate sustainability within every new system, from its inception, to increase the readiness and endurance of our combat formations.

At the same time, we need Congress to provide us with adequate, predictable, and sustained resources. The Army is making long-term investments right now to ensure we field multi-domain capable formations in 2030, but we cannot turn those investments on and off like a light switch. They require a reasonable and reliable

funding stream to ensure our ability to develop and field the critical systems necessary to maintain our combat readiness.

When we invest in sustainment modernization, we invest in victory.