Army Research Laboratory Research Management & Leadership Strategy

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ARL's Research Management and Leadership Strategy

The U.S. Army Research Laboratory (ARL) has developed a new strategic framework for how it will conduct defense research within a rapidly evolving global environment. This Research Management and Leadership Strategy (RMLS) provides the high level vision of how ARL plans to manage its resources, positioning ARL to develop as the Nation's premier laboratory for land forces, while fulfilling its mission in the most efficient and effective manner possible. Four focus areas in this framework guide the management and leadership of the laboratory: People First, Open Campus, Technical Strategy and Business Acumen.

1. The People First initiative fosters an environment that encourages and enables employees to become personally invested in ARL's success and take stewardship of the laboratory, allowing them to thrive both professionally and personally.

2. The Open Campus initiative is a new business model for building an integrated work environment with academia, industry and government, thus fueling innovation through research and development (R&D) collaboration.

3. The Technical Strategy creates a shared vision of the future technical landscape, defining ARL's long term scientific agenda, encouraging more cross-directorate research and collaboration across the organization, academia and industry. It defines the scientific, technical, and analytical areas ARL believes to be of vital importance to the Army and serves as the foundation for strategic science and technology (S&T) investments.

4. The Business Acumen initiative fosters a more business savvy approach and thought process at all levels of the laboratory.

These initiatives provide a strategic framework to define new thinking, models and approaches, encompassing an overarching research management and leadership strategy envisioned to strengthen the whole organization by energizing and enabling the workforce for ARL's success.

Why A Research Leadership and Management Strategy?

The United States Army of 2040 will operate in a rapidly changing environment, impacted and challenged by global complexities the armies of previous decades never experienced. Strategic land power dominance will be critical to the U. S. Army's capability to conduct prompt, sustained, and synchronized operations with a force customized to the mission and poised to conduct both combat and noncombat missions in all functional domains — air, ground, maritime, space, and cyberspace. The dynamics of the Army's future operational environment suggests the Army's land power dominance now demands increased speed of responsiveness, mechanisms to mitigate or wholly eliminate tactical surprise, the capability to effectively accommodate changing alliances and partnerships, and proficiencies across a myriad of functional domains. Strategic land power dominance will be critical to the U. S. Army's capability to conduct prompt, sustained, and synchronized operations with a force customized to the mission and poised to prosecute both combat and noncombat missions in all functional domains - air, ground, maritime, space, and cyberspace.

ARL is the Department of the Army's corporate laboratory, strategically placed within the Research, Development and Engineering Command (RDECOM), an Army Materiel Command (AMC). Explicitly, ARL's mission is to *"Discover, innovate, and transition science and technology to ensure dominant strategic land power."* To achieve these goals, the laboratory maintains a broad-based organization to support the Army's strategic land power dominance through new and greatly improved methodologies, techniques, and materials. ARL is the Army's sole fundamental research laboratory focused on scientific discovery, technological innovation, and transition of knowledge products; it impacts the Army and broader DoD science and technology (S&T) communities through transition of knowledge products to its sister Research, Development, and Engineering Centers (RDECs) within the Army Research, Development, and Engineering Command (RDECOM) — an AMC Major Subordinate Command (MSC), Army PMs/PEOs, the other services, and industry. ARL executes fundamental research, defined as Basic Research (BA 1) and Applied Research (BA 2), to address enduring S&T challenges that have been identified by the Assistant Secretary of the Army for Acquisition, Logistics, and Technology [ASA (ALT)] and priorities articulated by the Chief of Staff of the Army (CSA). In addition, the laboratory conducts research in emerging fields that hold promise in realization of novel or vastly improved Army capabilities into the deep future; performs research on behalf of other Army activities and, where specifically qualified, for other agencies of the DoD; and, in defense-related efforts, for other government agencies (OGAs).

Since its inception in 1992, ARL has successfully evolved from a collection of individual laboratories into an organization meeting multiple mission mandates. ARL provides critical war fighting capabilities in support of deployed Warfighters and provides technologies, assessments, and analyses, for tomorrow's systems, to the Army acquisition community and other customers and stakeholders. But the world is rapidly changing, requiring the Army to continually evaluate the future global environment and the increasingly complex roles and missions required of the Army of 2040 and beyond. The results of those evaluations create a new context within which ARL must operate.

This evolving environment and the rapid pace of advances in science and technology mandate

that ARL become a more flexible, dynamic, and collaborative organization. New strategies enable the Laboratory to provide both the evolutionary and the disruptive technologies to ensure our Army's success into the future. ARL's new strategies for conducting defense research within this evolving environment provide the mechanisms for achieving six goals essential to strengthening the Army's research programs:

- Provide scientific leadership for a collaborative research enterprise
- Attract the Nation's best scientists and engineers to contribute to and lead Army research
- Ensure coherence and balance in the ARL research portfolio
- Foster connections between Army researchers and the Army community
- Maximize the discovery and innovation potential in the ARL research environment
- Identify and execute opportunities to transition technologies for the Future Force

ARL developed an overarching RMLS envisioned to strengthen the organization as a whole. ARL accomplishes this by energizing and enabling the workforce for success, fostering a culture of true collaboration between academia, government and industry, creating strategic technical objectives designed to support Strategic Land Power Dominance for the Army of 2040 and beyond, and developing organizational business savvy to enable efficient and effective laboratory operations.

This document defines ARL's RMLS — integrating four major strategic focus areas and providing additional insight into the major laboratory initiatives ARL believes are critical to the Army's assured land power dominance into the deep future. Each focus area provides a high-level overview of the research management and leadership landscape and strategically defines ARL's approaches for developing the Nation's Premier Laboratory for Land Forces.

Planning Construct

Because the strategies outlined in the RMLS are interdependent, ARL will synchronize these focus areas to create objectives and goals to guide the laboratory into the future. The combined concepts outlined in the RMLS are the catalyst for identifying goals at the next stage — the five-year ARL Implementation Plan. This Plan articulates detailed tactics for utilizing people, infrastructure, and research collaboration. The next step is capturing performance objectives and goals in the Biennial Performance Plan — which outlines performance objectives at the organizational level and provides the foundation for individual employee performance objectives. This framework effectively enables ARL strategic goals to penetrate every level of the organization, as both employee and organizational annual performance plans reflect the overarching strategy laid out in the ARL Implementation Plan. This process is depicted in ***Figure 1*** on page 8.

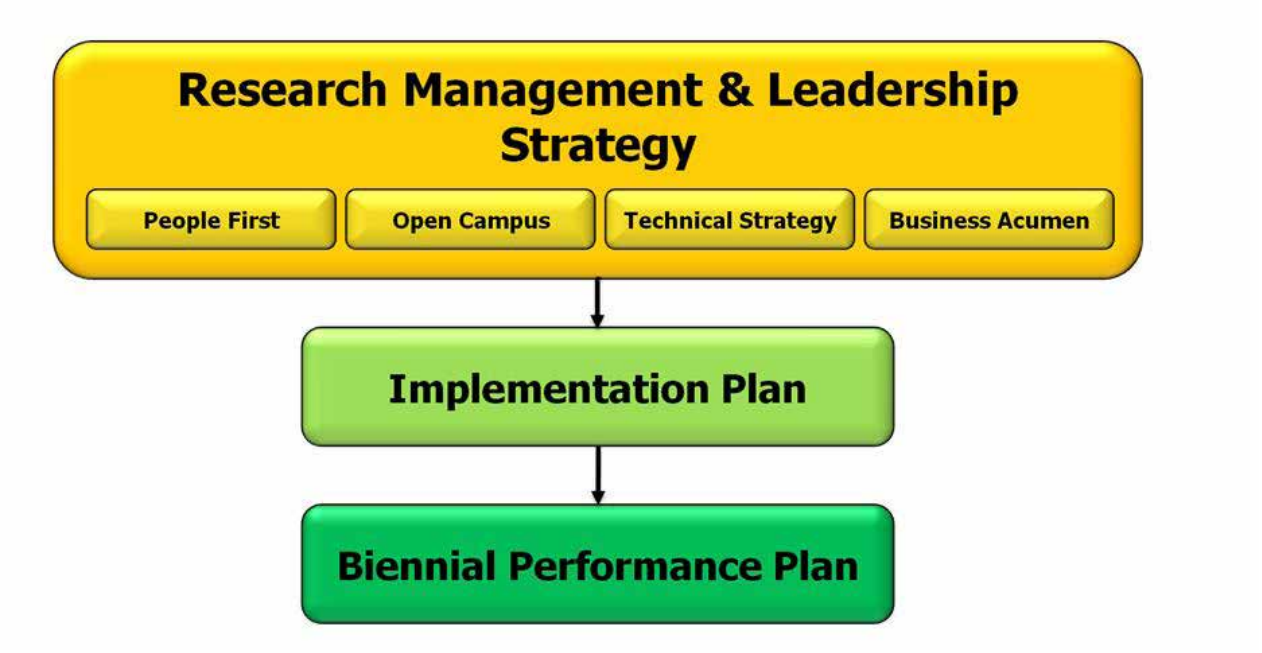

Figure 1. **ARL Strategic Framework**

This rigorous, structured approach to organizational planning creates a strategy-focused organization aligned to be effective, efficient, and most importantly, adaptive to meet the needs of the evolving defense environment.

People First

The People First initiative is intended to create a premier organization staffed with an integrated and diverse team of people excited, dedicated, and focused on achieving the mission of the ARL. People First is a means to foster an environment that encourages and enables employees to take ownership and stewardship of the ARL and allow them to thrive both professionally and personally. Through the feeling of ownership, ARL employees will be invested in the laboratory and dedicated to its mission. As stewards of ARL, they understand and work toward the mission with great pride helping to steer the organization towards success through their various roles. From administrative and technical support to management and the scientists and engineers, each person will feel dedicated first to one another and then to the work at hand. This requires programs that support appropriate work life balance, facilitate an exciting and interesting workplace, reward selfless service, teamwork and collaboration, and provide opportunities for advancement and learning for all employees at all levels of the organization. The four critical areas of the People First initiative are work-life balance, employee recognition, employee development and work environment.

Through the People First initiative, ARL will generate an environment where all team members (employees, contractors, collaborators/partners) see the worth of their contributions and are personally invested in the organization. ARL team members will take on ownership and stewardship responsibilities for the greater community, not just in ARL facilities but within the neighboring communities. Success in the People First initiative will allow ARL to continue to attract, develop, and retain highly productive scientists, engineers, analysts, technicians, and administrative support personnel dedicated to the pursuit of technological advancement for today and tomorrow's Warfighers.

Fostering a People First environment requires:

- Creating an organizational culture that is inclusive and built on trust, and that reaffirms value of the individual employee
- Focusing attention on developing individuals by enhancing their capabilities, recognizing their organizational roles and contributions, and supporting their personal and family interests
- Developing a culture that promotes and rewards ambitious and creative approaches to discovery, innovation, and transition in ensuring the Army's technological dominance
- Creating diverse, agile, competent and responsive individuals and teams recognized as peers by the greater research and analyses communities
- Maintaining and strengthening essential workforce competencies through an environment focused on continuous learning and professional growth
- Securing a critical mass of expertise within ARL and its strategic collaborative partners in key science and technology areas
- Enhancing productivity through effective internal and external communications

ARL is a GOOD place to work but through the People First initiative it will become a GREAT place to work

Open Campus

ARL's Open Campus is a fundamentally new business model implemented to create a more efficient and effective defense laboratory adaptive and responsive to the challenges of 21st century national security. It is widely acknowledged that innovation is critically dependant on bringing together multiple disciplines to engage in collaborative projects that often yield unpredictable, but critically important results. Formal and informal interactions among scientists and engineers working closely together leads to knowledge-building and research breakthroughs.

ARL is working to remove the physical barriers and modify policies and procedures that preclude effective interaction between private and public sector researchers, allowing the creation of an integrated work environment among academia, industry and government to fuel innovation through onsite R&D collaboration. This improved interaction can become a force multiplier that expands ARL's capability to execute its technical strategy and fulfill its mission.

Through the Open Campus, ARL collaborates with national and international academia, industry, small business, and other government partners in forward-reaching research in areas of strategic importance to the Army. Central to the research collaborations envisioned is mutual scientific interest and investment by all partners.

In addition to creating a more collaborative onsite environment, ARL is exploring ways to create flexibility in government career paths, allowing employees to diversify their work experience through assignments in academia and/or industry while remaining a government employee. Not only will ARL open its doors to outside entities but reciprocal relationships are being developed to support ARL employees working outside the walls of ARL in academic and industry labs as well.

Key characteristics of the Open Campus initiative are:

- Open sharing of world-class ARL facilities and research opportunities for all partners, including international researchers.
- Synergistic relationships with the international, academic, and entrepreneur communities
- Creation of flexible career paths in defense research that allow easy transition between government, academia, and industry
- Investment in and strategic sharing of human capital and state-of-the-art facilities and technical infrastructure across government, academia, and industry
- Enhanced defense research environment that fosters innovation, collaboration and scientific/engineering growth, and provides an incubator for rapid transition of technologies into products by entrepreneurs
- Increased opportunities for technology advancement and transfer of research knowledge
- Increased public involvement in defense research to create enhanced understanding of the value and importance of defense science, technology, and exploration

ARL's Open Campus initiative will create an agile, efficient, and effective laboratory system that supports the continuous flow of people and ideas to ensure the successful execution of the Technical Strategy.

Technical Strategy

The ARL Technical Strategy provides a comprehensive vision of the future technical landscape and is a critical component of the RMLS. It identifies the scientific, technical, and analytical areas that the ARL believes to be of vital importance to the Army of the future and serves as the foundation upon which the laboratory's S&T investments are based. In addition, the ARL Technical Strategy defines our S&T Campaigns.

Rooted in the tenets of discovery, innovation, and transition, the ARL investigates opportunities in power projection, information, lethality and protection, maneuver, and Soldier performance for the Army of 2040 and beyond using a framework of eight S&T Campaigns – *a systematic course of aggressive science and technology activities envisioned to lead to enhanced land power capabilities in the deep future.* These S&T Campaigns – in *Extramural Basic Research; Computational Sciences; Materials Research; Sciences-for-Maneuver; Information Sciences; Sciences-for-Lethality & Protection; Human Sciences;* and *Assessment & Analysis* – operate in concert to provide the ARL with a robust technological foundation to execute its mission. Moreover, each of these S&T Campaigns is designed to explore, better understand, mature, and exploit S&T developments leading to Power Projection Superiority, Information Supremacy, Lethality & Protection Superiority, Maneuver, and Soldier Performance Augmentation that are essential to the future Army. ARL's technical strategy publications provide more information on the S&T campaigns. These documents are available at http://www.arl.army.mil/publications.

As the appendix to the ARL Technical Strategy, the ARL S&T Campaign Plans provide additional insight into the technical areas that ARL believes are critical to the Army's assured land power dominance into the deep future. Each S&T Campaign Plan provides a high-level overview of the campaign's technical landscape; a taxonomic breakdown of the campaign; descriptions of the technical areas constituting the campaign; and defines ARL's S&T Footprint in these areas including the laboratory's posture to lead, collaborate, or watch in these key S&T areas.

The ARL Technical Strategy sets the foundation for decisions in required workforce skill sets, technical infrastructure capabilities needs, and external collaborations that are necessitated to fulfill our mission to discover, innovate, and transition science and technology to ensure dominant strategic land power. The ARL Technical Strategy positions the laboratory to:

- Effectively convey our technical vision
- Set future scientific directions for the laboratory to enable the Army of 2040 and beyond
- Define ARL's posture to lead, collaborate, or watch in key S&T areas
- Make strategic and well informed decisions regarding personnel, infrastructure, and collaboration
- Guide fundamental research that is expected to significantly impact the capabilities available to the Army of 2040 and beyond

Business Acumen

The business of ARL is and will continue to be the pursuit and execution of technical endeavors in discovery, innovation and transition for the Army in a very complex and uncertain future environment. ARL must develop the acumen necessary to evaluate its business model and, in consideration of the current and future environment, make the decisions that will lead to mission success. The laboratory must focus on developing the business acumen enabling it to gain an acute perception of the dimensions of ARL business issues, make sense out of complex and uncertain future scenarios, be mindful of the implications of any single choice for all parties, and be decisive but flexible if further change is warranted in the future. The business acumen focus area challenge is multi-faceted and encompasses all elements of what the lab does; it must address (a) the planning of technical programs, (b) the execution of technical programs, (c) the administrative and management functions of the lab, and (d) strategic leadership and engagement.

This comprehensive approach to maturing ARL's business acumen will lead to significant changes in ARL's business process and practices. Specific areas of focus must include: knowledge management for research and administrative/management functions, standardizing and streamlining of administrative management processes, effective internal and external communications capabilities, decision making (research and administrative) empowered by situational awareness, and development of fundamentally new approaches to how the laboratory operates.

ARL's enhanced business acumen will provide more thoughtful analysis of issues and challenges, clearer logic underlying business decisions, closer attention to key dimensions of implementation and operation, and more disciplined performance management across all functions of the organization at all levels.

Benefits of success in the business acumen area include:

- A research portfolio planning process that provides a balanced portfolio
- Program and resource flexibility to anticipate and meet future mission requirements
- A command climate that promotes open and collaborative research across traditional organizational and disciplinary boundaries
- An expanded set of mechanisms and methods for collaborating and partnering with the private sector, including joint use of research space
- Business intelligence capabilities that will allow ARL to transform raw data into meaningful and useful information — in both the research and analysis mission space and the management mission space
- Knowledge management capabilities that enable an open planning and collaboration environment across geographic and organizational boundaries
- Strategic information transfer methods within ARL and innovative technology transfer mechanisms to peers and customers
- Active awareness of Army doctrine and Soldier lessons learned
- Early input to customers in concept and design phases to positively impact the Army's development, demonstration, and system acquisition process
- Streamlined business processes and practices across the laboratory enterprise
- Communicating significant accomplishments and activities to appropriate senior leaders, stakeholders, and partners.

Summary

ARL is at a critical turning point in its evolution. There are tremendous opportunities, but it will take innovative ideas and much hard work to realize the future potential of the laboratory. ARL's old way of doing business will not be enough in the future. The laboratory has great people, facilities, partners, and many successes — but it must continue to improve to maintain an edge in providing critical technologies for the Army. As ARL moves into the future it will use the focus areas of People First, Open Campus, Technical Strategy, and Business Acumen to shape itself into the more effective and efficient laboratory necessary to discover, innovate, and transition science and technology to ensure dominant strategic land power.

Initiatives undertaken to achieve the goals and objectives generated within this framework will provide ARL with; a highly skilled workforce dedicated to, and vested in, achieving the mission of the laboratory; a fundamentally new business model providing effective interaction between private and public sector researchers in a truly collaborative environment; a comprehensive technical strategy setting the vision and foundation for its research and analysis programs; and an holistic approach to how it functions in an increasingly complex and uncertain environment. Achieving these top level laboratory attributes are critical if ARL is to continue providing Technology to Win.

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