



All About ARDEC

ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER

Innovative Armaments
Solutions for Today and
Tomorrow

Our mission is to develop and maintain a world-class workforce to execute and manage integrated life-cycle engineering processes required for the research, development, production, field support and demilitarization of munitions, weapons, fire control and associated items.

ARDEC Values:

Accountability

Respect and Trust

Dynamic Leadership

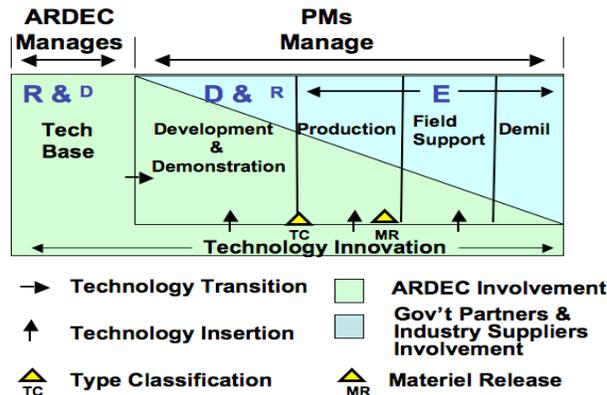
Excellence

Character

Organizational Overview

ARDEC is the internationally known hub for the advancement of **armaments technology and engineering innovations**. Driven by two of the Department of Army's strategic objectives - to provide the latest available technology to today's Warfighter and to simultaneously support a complete transformation of our future forces - ARDEC provides 90 percent of the Army's suite of armaments.

ARDEC provides armaments research (R), development (D) and engineering (E) for a broad spectrum of armament technologies and products that support the current and future forces of our nation. These include small, medium and large caliber weapons, guidance systems, explosives, warheads, propellants, ammunition and related support systems. ARDEC has a cradle-to-grave responsibility for its technologies and products throughout the product life cycle. **ARDEC has no single counterpart in the world.**



R = Research

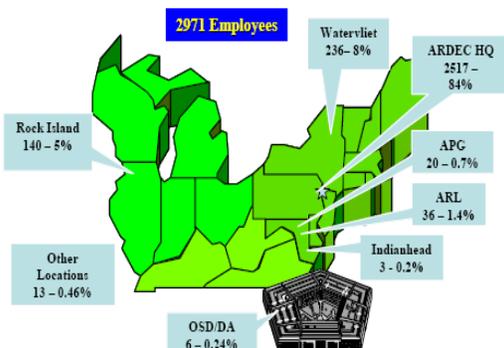
D = Development

E = Engineering

Our organizational **culture** is **customer-focused, team-based** and **dedicated to continuous improvement and innovation** through established integrated, best-in-class work system processes and practices. Our services are delivered to customers through an interdisciplinary, cross-functional, team-based approach. Our Integrated Product Teams (IPTs) are led by an ARDEC Project Officer (APO) with membership consisting of customer representatives, ARDEC employees (from all our competencies that may be needed), military program managers, and defense industry partners. Chartered by Senior Leaders, APOs are empowered with the responsibility, authority and accountability to execute their project.

Across one major and other smaller sites, ARDEC employs approximately 2,971 civilians and several hundred onsite contractors. Over 66 percent of our workforce is engineers and scientists of which almost 45 percent have been hired since 1999. Much of our civilian workforce is represented by one of multiple labor unions.

The ARDEC customer base is segmented into two major categories: Army and non-Army. Our non-Army segment may include other members of the joint military services as well as non-military groups from industry and academia. In addition, ARDEC partners with a wide variety of organizations to leverage and accelerate technology and research, increasing the opportunities for creative solutions. Our **customer's requirements** are to provide the lowest **cost** possible within the timeliest **schedule** and with the highest levels of **performance**.



ARDEC's Visionary Leadership

ARDEC is **led by** a civilian **Director** and a **military Deputy Director**, supported by a key staff of direct reports. In contrast to a traditional Board of Directors, ARDEC has a **Senior Leadership Board (SLB)** who receives guidance from our external reporting chain. Our SLB is responsible for **decision making** as well as developing and providing oversight to the **strategic direction** of the enterprise.

ARDEC currently reports to the Army's Research, Development and Engineering Command (RDECOM), a consolidated group responsible for the integration of capabilities across the Army's laboratory and all R&D centers within the Army Materiel Command (AMC).

ARDEC's value-based **Leadership System** integrates our customers, stakeholders, suppliers and internal workforce. It provides a systematic approach to **Analyze, Strategize, Communicate, Execute, Learn and Share**. ARDEC's Leadership System is **integrated with our Human Capital** system to ensure our Human Capital Plan addresses the talent acquisition, retention, training and management needs of the enterprise, current and future.

Under our Leadership System, the SLB annually reviews and confirms our existing vision, values, guiding principles and initiatives as part of the strategic planning process. Adjustments or revisions are made and communicated to the entire workforce.

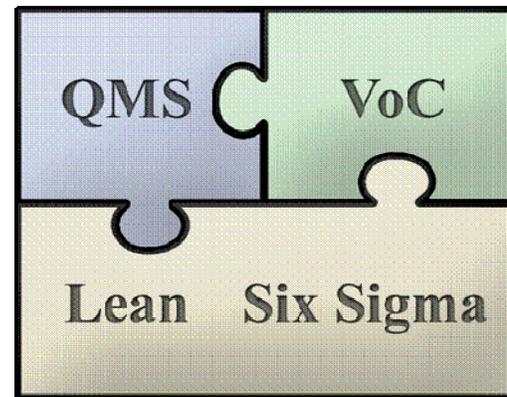
ARDEC leaders participate in quarterly **Strategic Workout Sessions (SWS)** for **review of strategic performance**. A balanced scorecard, our Strategic Management System (SMS) Map, is used to focus on the actions required to meet our organization's objectives, improve performance and ensure the realization of our vision.



Dr. Joseph A. Lannon
Director, ARDEC



Col Russell Hrdy
Deputy Director, ARDEC



Enterprise Excellence

Achieving Enterprise Excellence

ARDEC has a long-standing commitment to performance excellence and performance improvement. This commitment continues through our **Enterprise Excellence (EE)** initiative as developed by our Director and former Deputy Director in their Lean Six Sigma (LSS) Black Belt project. ARDEC's EE strategy **integrates best practices** such as CMMI and ISO 9001 to assure accomplishment of our mission and strategic objectives. It is a role-model example of the integration of a **Quality Management System (QMS)**, **Voice of our Customer (VOC)** and **Lean Six Sigma (LSS)**.

Our Leadership System is encompassed by both EE and our closed-loop **Governance System**, ensuring **ethical business practices and accountability** while achieving our Strategic Goals.



ARDEC Leadership System (Green) integrated with our Human Capital System (Purple)

Continuous Focus on the Future

ARDEC's **strategic planning** process is a **cyclical, integrated ongoing effort** providing near- and far-term guidance and direction to enable ARDEC to meet not only the current challenges of the Warfighters in a wartime mission, but to support future changing missions. Status quo is not an option.

Cascading the SMS Maps

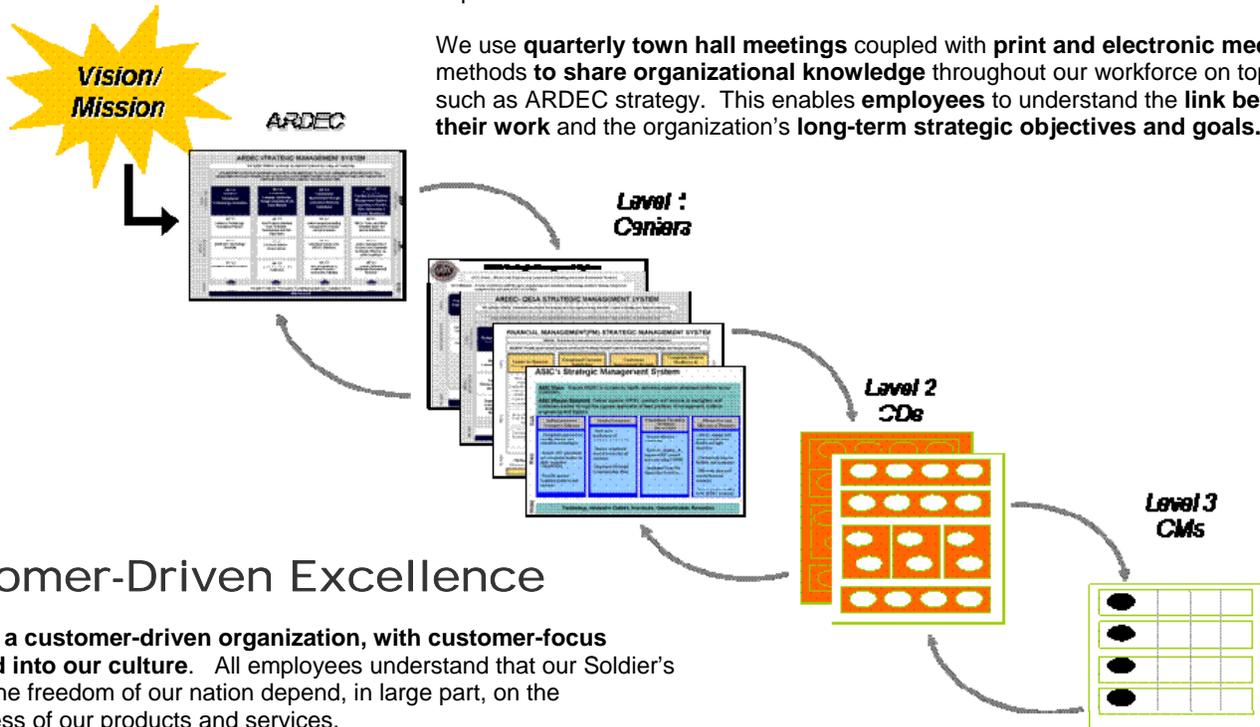
Each level of our organization aligns its objectives with the next higher organizational level for successful coordination and implementation.

Results and activities are corporately monitored on an ongoing basis

Horizontal and vertical integrated planning activities are critical to the success in the development of and implementation of our strategy. From the pre-planning assessment and analysis activities of our environmental scanning, to the planning for targets and action, to the monitoring and measuring of performance for results, ARDEC leaders outline key guidance and direction.

ARDEC is committed to **continual process feedback systems** to facilitate **learning**. From the less formal regularly scheduled reviews to the more formal Strategic Workout Sessions (SWS), careful monitoring of our action plans allows ARDEC to **maintain flexibility and agility** in adapting to today's dynamic environment, align strategic focus across the organization, link resource allocation to strategy in a way that will enhance decision making, measure ARDEC-wide performance and assess progress, reinforce a culture of performance, continuous improvement, and accountability; and identify opportunities to accelerate the momentum of ARDEC improvements.

We use **quarterly town hall meetings** coupled with **print and electronic media** as methods to **share organizational knowledge** throughout our workforce on topics such as ARDEC strategy. This enables **employees** to understand the **link between their work** and the organization's **long-term strategic objectives and goals**.

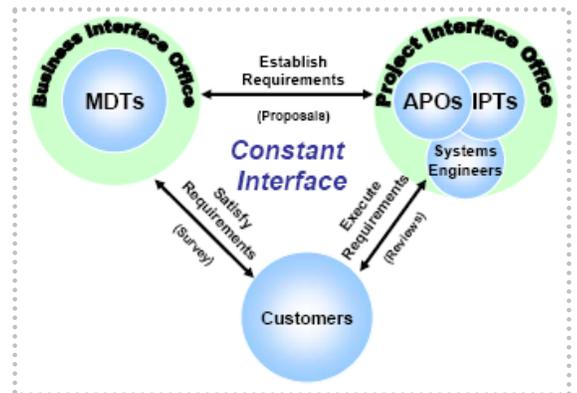


Customer-Driven Excellence

ARDEC is a customer-driven organization, with customer-focus embedded into our culture. All employees understand that our Soldier's lives and the freedom of our nation depend, in large part, on the effectiveness of our products and services.

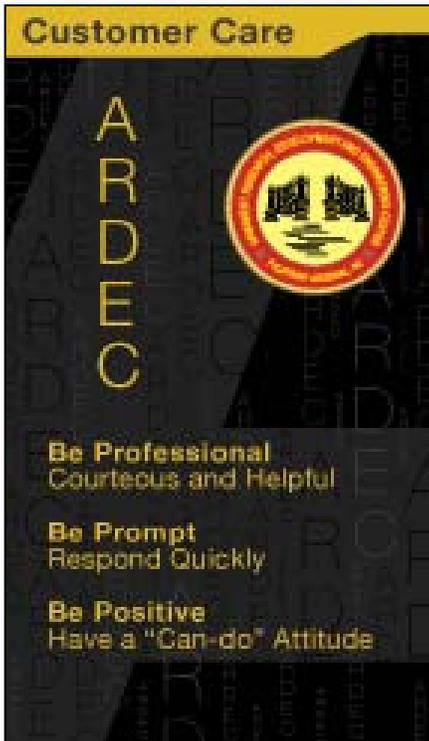
Our employees are highly focused on the needs and requirements of our customers to ensure we **rapidly develop the best products possible**. These Soldiers, our **end-use customers**, number in the hundreds of thousands and are primarily **Warfighters**. The direct line of sight of the significance of our work instills **pride and patriotism** in our employees and contributes to their **high levels of job satisfaction**.

ARDEC's customer support triangle is deployed throughout the organization and provides a mechanism for us to **listen and learn from the Voice of our Customer (VOC)**. Our Market Development Teams (MDTs) coupled with our Integrated Product Teams (IPTs) maintain a constant interface with our customers. **Customers are a key part of our Integrated IPTs**, creating an environment that enables **cross-training and learning**. Our dynamic, **hands-on work environment** often affords the opportunity to work side-by-side with our customers to learn from them in a real-time environment. Customer participation in our strategic planning process provides ARDEC insight on future requirements, new opportunities, and industry issues.



ARDEC Customer Support Triangle

ARDEC Customer Care



Mortar Fire Control System



Gunner Protection Kit



Stryker Armament Systems



IR Counter Measure Flares

Dynamic Management by Fact & Organizational Learning

Our Director's #1 customer rule, which is discussed at Town Hall meetings is:

The Customer is Always Right!



ARDEC clearly understands the **critical importance of results**, 'what gets measured gets done'. As a part of our strategic planning process we carefully track the metrics required to achieve task success. Successful coordination and implementation of our strategies and key processes is the responsibility of the Initiative Owners.

ARDEC is a **fact-based organization** and uses a **range of tools for analysis purposes**. These include Earned Value Management, Gap Analysis, Risk Analysis, Quadrant Analysis, customer feedback reviews, cause-effect, trend, root cause, cost/schedule/performance analysis, Value Stream Analysis, Project Selection and Risk Assessment, and Failure Modes & Effects Analysis **using Lean Six Sigma methodology**.

ARDEC is committed to continual process feedback systems to facilitate learning, and **learning from the best through benchmarking** with industry and academia. Our **organizational learning** is greatly enhanced and accelerated through teaming and interacting with the best-in-industry. Senior leaders and other members of the workforce at various tiers actively participate in benchmarking activities through a variety of organizations and forums. We are proud to be long-standing **members in the American Productivity and Quality Center's (APQC) International Benchmarking Consortium**, the Benchmarking Exchange, Government-only Inter-Agency Benchmarking Best Practices Council, the Stevens Institute Alliance in New Jersey, and a more recent member, the **Human Capital Institute (HCI)**. Lessons learned from our benchmarking activities are leveraged by our Senior Leaders and serve as an input into our Strategic Planning Process (SPP) to support strategic and operational decision making and innovation.

Effective Knowledge Management

ARDEC makes data available to its workforce through the use of **integrated, reliable information technologies** and processes within the framework of our knowledge repositories.

One of our knowledge repositories is our Armaments Knowledgebase.

Capturing our employee's knowledge is critical to **organizational learning**. With almost half of our engineers and scientists hired since 1999, this repository has reduced the learning cycle for some of our new engineers to become familiar with our complex programs from approximately two years to 6 – 12 months.

Capturing knowledge is only part of the equation in developing an effective workforce. In order to enhance organizational learning and personal competency skills, **the workforce has the appropriate access to tools** such as web-based data storage, public folders, knowledge repositories, lessons learned, task-supportive systems applications and programs, and email.

Our IT architecture is equipped with the latest network technologies to provide transparent redundancy and disaster recovery. The **security** of the ARDEC network is facilitated in several layers and **exceeds the standards** set by those in private industry.

Sustaining Our Workforce

ARDEC Leadership is committed to engaging, developing and rewarding our workforce and providing a positive work environment.

The majority of ARDEC's work is accomplished through 700 IPTs that bring together members from across ARDEC. Most ARDEC employees participate in one or more cross-functional IPTs. These multi-functional, multi-disciplined and fully coordinated teams report to an ARDEC Project Officer (APO) who is chartered with clear lines of responsibility, accountability and authority.

ARDEC uses numerous methods to carefully listen to our workforce to determine which key factors affect workforce engagement and satisfaction. This includes: employee surveys, round table discussions, focus groups, mentoring and sampling our intern population through annual "cohort groups" and Talent Maturity Audits (TMA). This information is analyzed and used to institute changes in our quest to be an employer of choice. Hands-on work, flexible work schedules, on-site child care, paid opportunities for advanced degrees, on-site training and student loan repayment are just some of the things we offer to our workforce.

ARDEC as an organization is structured to serve its customers through a competency based approach. Armament engineers and scientists are not readily available from academia or industry, so we must 'grow' our own skilled workforce to build our competencies. Our award winning Armaments University is the focus for our technical training and ensures our competencies are staffed with the best and the brightest. Annually, supervisors and employees document training goals in Individual Development Plans to assist in reaching their potential and career goals. We heavily invest in our employees' educations and have one of the highest numbers of training hours and annual investment in training per employee in the country based on an American Society for Training and Development benchmark.

Under ARDEC's LSS Green Belt and Black Belt programs, employees can participate in experiential training through the implementation of improvement tools on actual projects. These programs help drive performance improvement, technological change and innovation at both the organizational and project level.

To ensure our new hires make the proper transition to civil servants and learn the Army Focus, ARDEC developed the Tactical Weapons Employment Course (TWEAC). This unique course indoctrinates new hires in military doctrine and military tactics. This course enables our workforce to have a greater appreciation and understanding of the needs of our ultimate customer, the Warfighter.



*ARDEC Process Asset Library
(one of our knowledge repositories)*

*In 2005 ARDEC won the
Under Secretary of Defense
Acquisition, Logistics and
Technology Workforce
Development Award.*



*ARDEC new hires fire weapons
as part of the TWEAC Course*



*ARDEC teaming together to
support the community*

Innovation through Integrated Process Management

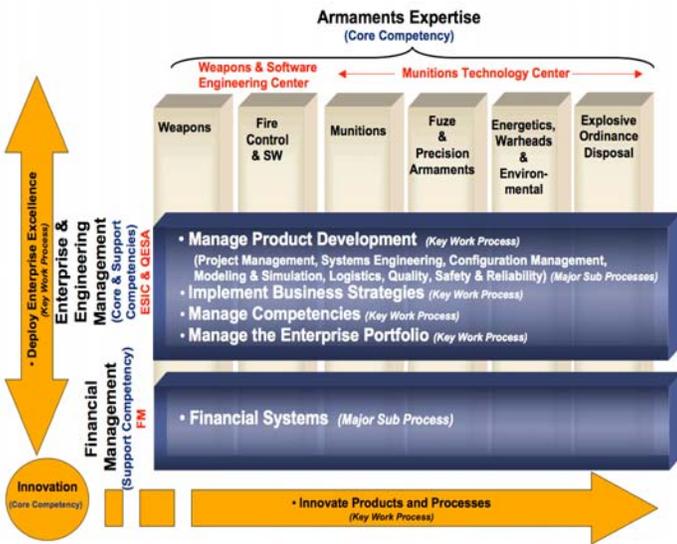
ARDEC is a role-model research, development and engineering organization that has achieved world-class levels of performance excellence in areas most important to its customers, markets and sustainability. We maintain this level of excellence by operating as an effective, mature, integrated System while **continuously innovating, improving and evolving our products and processes.**

In 2004, ARDEC reorganized to a more proactive, synergistic and collaborative structure that centers on our capabilities and competencies.

ARDEC's **core competencies** include: **armaments expertise, innovation, and engineering management.** Our engineering management is supported by our team-based, customer driven culture that follows **integrated best-in-class processes/practices** such as project management and systems engineering. Our business advantages (armaments expertise, innovation and culture) are synonymous with our core competencies and support our customer needs.

We **integrate our key work processes with our core competencies** to effectively and efficiently provide the capabilities and capacity to complete huge and complex projects.

ARDEC's **process improvement and management team** has an overall staff responsibility for the nurturing of our processes in order to improve integration between each process and ARDEC's strategic intent. This team is the **single unifying force within the multi-location ARDEC organization**, ensuring consistency in process design and improvement.



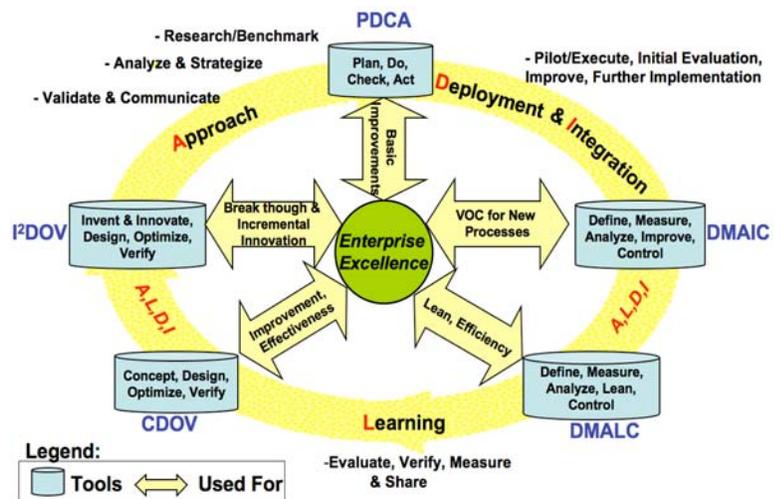
*Core Competency - Key Work Process Relationship
"All levels" within ARDEC identify needs for process design or improvement*

Our implementation of a structured set of Organizational Processes is the ARDEC Organizational Standard Process (OSP). The OSP exemplifies our **Enterprise Excellence** by **leveraging industry best practices and incorporating elements of the ISO Standard and CMMI.**

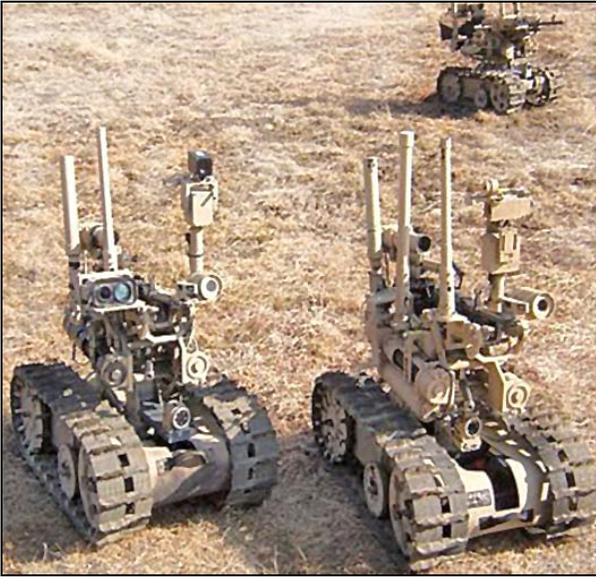
We use our **Process Asset Library (PAL)** as a part of our knowledgebase repository to **disseminate process knowledge** such as process flows, policies, procedures, guidelines, and templates throughout the organization. This **library captures organizational knowledge** and provides a standardized mechanism for learning, development, use, managing, and improvement of our processes.

Innovation and continuous improvement are integral to our **Enterprise Excellence.** ARDEC recognizes the value of using Lean Six Sigma (LSS) for process design and innovation and conducts its process improvement through a suite of tools. Although Plan, Do, Check, Act (PDCA) is used for basic improvements, with more than a third of our workforce having a minimum of Lean Six Sigma Green (LSS) Belt training we **predominantly use the more robust tools of LSS** (DMAIC/DMALC - product, process and service improvements & CDOV/I2DOV - for emerging technologies development).

ARDEC has **empowered its workforce to be an enabler and a catalyst for process improvement.** Identification of a need for process design or improvement of an existing process can occur and is encouraged at "all levels" within ARDEC.



*ARDEC Product Design and Improvement System
"The Right Tool at the Right Time
to do it Right the First Time"*



ARDEC prototype Talon (one of TIME Magazine's Most Amazing Inventions of 2004) has many variants. One has been tailored for Hazmat response to create a unique Emergency Response Capability

Proactive Emergency Readiness

ARDEC's Emergency Readiness is conducted through our Mission Security Office. **ARDEC is a tenant** at the locations in which we work and receives various services from the Garrison who is in charge of the facilities and shared tenant services. We work in conjunction with the Garrison to provide emergency readiness for our employees.

Even though ARDEC is covered under our headquarters' Continuity of Operation Plan (COOP), our organization has begun preparation of our own COOP to support **emergency readiness**. This plan includes **continued operation via remote sites** in case of emergency, and identifies Mission Essential Functions (MEF). The COOP plan designates which key personnel will be required to report to an alternate site to perform MEF, which will work to restore facilities at the current site, and which will work from home.

In addition to these emergency operations plans, ARDEC employs sophisticated **computer contingency plans** to ensure the integrity of our data networks.

At ARDEC our people are our most valuable and important asset. Employees participate in emergency drills, individual online training, and group forums to maintain workforce readiness and proficiency. In the event of an emergency, the Picatinny site can activate an Emergency Operations Center that can **remain in operation 24 hours a day, 7 days a week**. Our emergency preparedness capabilities was tested and improved as a result of the events of September 11th.

From Our Director...

Looking to the Future

The Warfighter is our customer, and the focus of our Vision is to provide the **Innovative Armaments Solutions for Today and Tomorrow**. Your creativity, curiosity and commitment will deliver tomorrow's material solution to the Warfighter. Always keep in mind, the ARDEC team is committed to the principles on which our nation was founded. Each of us, now and in the future, is clearly linked with our Vision. We believe service at ARDEC to be more than a job. It is a vocation, a calling, to serve the greatest nation in the world.

"We will not Fail."

JOSEPH A. LANNON
Director, ARDEC

Becoming the Benchmark

- 1) As the leader in innovative armaments solutions, ARDEC has **no single counterpart in the world**. We provide 90% of the Army's suite of armaments.
- 2) ARDEC has **dominated the "Army's 10 Greatest Inventions of the Year"** competition established in fiscal year 2002 (FY02), by receiving 28% of the awards over the four year period - next closest competitor is at 15%.
- 3) **Lean Six Sigma (LSS) is the "improvement engine"** of our **Enterprise Excellence**. The Department of Defense states, "ARDEC is the benchmark for Lean Six Sigma." Over a third of our workforce has been Green Belt trained through the LSS Office.
- 4) Over the past two years, positive employee satisfaction levels have been reported by over 90% of the ARDEC population; 95% indicate they intend to continue their career with the Army. A low number of grievances and complaints is the result of a **positive workforce climate**.
- 5) ARDEC has been designated as **Army's benchmark for Technology Transition** by the Army Audit Agency. Transitioning the latest technology as rapidly as possible to our Warfighters saves lives.
- 6) Setting an Army benchmark, ARDEC is the **first and only Army CMMI Maturity Level 5** organization. The ARDEC pilot area was the Fire Control Systems and Technology Directorate (Armament Software Engineering Center) (V1.1 for SE/SW/SS achieved June 2006).
- 7) ARDEC is **committed to workforce preparedness** for disaster or emergencies. At all locations, one hundred percent (100%) of our employees are trained in areas such as anti-terrorism, ethics, information assurance and protection, personnel recovery, safety and security.
- 8) ARDEC was selected by APQC in FY07 as one of several **best-in-class benchmarks for Business Process Management**.
- 9) ARDEC is a **best value to our customers** by consistently having one of the lowest man-year costs to our customers. Our customer funding has increased almost 40% since FY01 and our **customer satisfaction** is at an all time **high** (quarterly customer survey ratings of 3.78 out of a total of 4).
- 10) ARDEC is the only research, development and engineering organization to have **won Baldrige-based awards for performance excellence in both Army and DoD**. In addition, ARDEC is the only Army organization actively competing at the national level for the Baldrige National Quality Program Award.
- 11) Our workforce **supports our key communities**. In 2006, our employees contributed nearly \$230,000 to the Combined Federal Campaign, our annual charity drive (similar to United Way). Although ARDEC comprises only 14 percent of the Northern New Jersey Federal workforce in the 1000+ employee class, it gave 37 percent of the total contributions.
- 12) Effective knowledge management is critical to **organizational and employee learning**. ARDEC has been selected as the Army's leader in Knowledge Transformation in 2006. The award program recognizes breakthrough initiatives that provide **critical knowledge sharing and collaboration solutions** to improve situational awareness and organizational decision-making.



ARDEC recognized for 2006 Army Greatest Inventions



ARDEC is first organization in DOD to Attain CMMI Maturity Level 5



ARDEC's Knowledge Management Group wins Top Army Knowledge Award