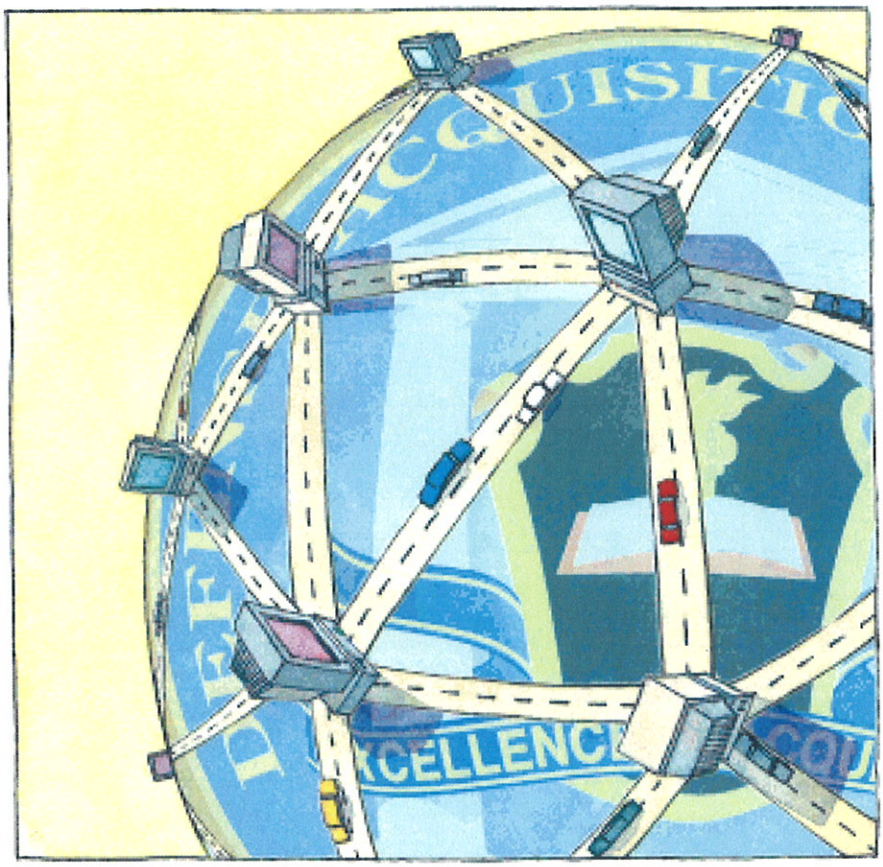
The DAU Technology Road Map for e-Learning and Performance Support



Frank J. Anderson, Jr.
President
Defense Acquisition University

Technology has fundamentally changed the way we live and work. DoD is committed to moving to an e-Business environment. Our goal is to facilitate this business transformation by training the way we will work — "e-Learning to support e-Business." We must accelerate the transformation of DoD acquisition training, and smartly applying technology will facilitate this journey into the future.

—Frank J. Anderson, Jr.

An immense and ever-increasing wealth of knowledge is scattered about the world today; knowledge that would probably suffice to solve all the mighty difficulties of our age, but it is dispersed and unorganized. We need a sort of mutual clearinghouse; a depot where knowledge and ideas are received, sorted, summarized, digested, clarified and improved.

—H.G.Wells (1940)

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Collaboration and Teaming to Transform Training for the Future

Richard Reed
Provost
Defense Acquisition University

Craig Lush
Chief Knowledge Officer
Defense Acquisition University

Shifting to e-Learning when appropriate is critical to the success of our workforce. Not only does it allow for relevant, innovative approaches that open new worlds, but it will ensure that today's learners can be productive members of tommorow's workforce.

—Richard Reed

Prepared by the Defense Acquisition University

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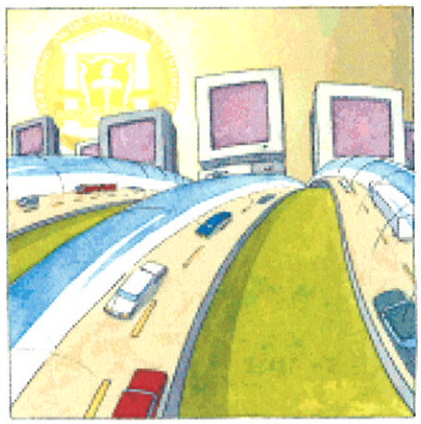
A Technology Road Map for e-Success — Stepping into the Future of e-Learning

DAU's education and training mission is to provide a program that fully embraces certification training, performance support, and a culture of continuous learning. The application of technology provides convenient, cost-effective access to education, training, performance support, and expert advice to all members of the Department of Defense (DoD) acquisition community.

DAU has identified three target areas for expanding the use of technology-based learning:

- Certification and career advancement training
- Performance support and continuous learning
- Knowledge dissemination and just-in-time support



DAU is an on-ramp for the information super-highway, not only for training, but also for research and information.

Our goal is to form a continuous-learning enterprise with "just-in-time" training and knowledge management. We will provide modern, technology-driven education and training and high-quality lifetime educational opportunities to ensure the competency and readiness of the Acquisition, Technology & Logistics (AT&L) Workforce. We will take advantage of the efficiencies realized through process reengineering to support ongoing curriculum modernization.

Energizing Our Strategic Planning Process

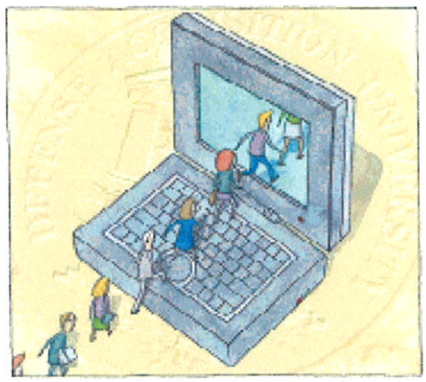
This document will expand the reader's knowledge of the broader context within which the University shapes its future. This road map also provides a framework for integrating and achieving DoD AT&L's and DAU's institutional goals. Above all, this is a living document, not a static, concrete blueprint. In all phases of planning, DAU will be responsive to changing internal strengths and weaknesses, as well as external opportunities.

Other DoD agencies' strategic and implementation plans supplement the DAU road map. These plans complete our strategic picture and portray the interrelationship among the components of DoD and our University. Our e-Learning

road map supports the DAU goal to become a leading corporate university, with emphasis on quality, a shared understanding of institutional and faculty focus, and a receptivity to change. Our plan emphasizes the importance of building our major strengths as a university, dedicated to educational and outreach programs of exceptional quality. At the same time, major emphasis is placed on significantly enhancing our role as a learner-oriented university.

In keeping with our *Smart Business 20/20* plan, our current key requirements are to:

1. Enhance Workforce readiness
2. Train to the standard
3. Exploit technology
4. Accelerate courseware redesign
5. Demonstrate a return on investment
6. Change cultural paradigms
7. Incorporate training to support DAU transformations
8. Support DoD Advanced Distributed Learning (ADL) and Acquisition Knowledge Management System (AKMS) initiatives.



Our e-Students report online courses are successful learning experiences for them, and tests show actual long-term learning takes place.

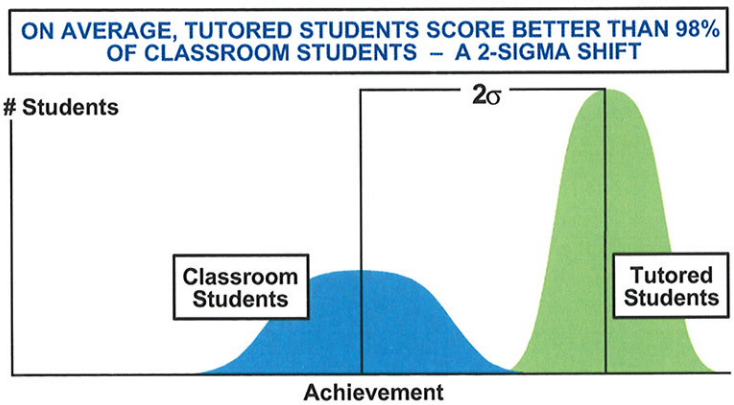
e-Learning: Greater Effectiveness and Training Efficiency

Education is a huge business. Educational spending in the United States alone is projected to be $815 billion and over $2 trillion worldwide. Adult corporate universities make up about 12% of the total educational spending or about $85 billion. More money is spent on education than the State Department and Defense Department budgets combined. It is 9% of the gross domestic product and is the second largest expenditure category in the United States after healthcare. In 1998, 700,000 American students enrolled in e-Learning courses, and over 2,000,000 are projected by the year 2003.

Worldwide, eleven virtual universities have enrollments of over 100,000 students. Their aggregate budgets are about $900 million for 2.8 million students. This breaks down to $320 per student. Compare this to the traditional higher education system in the U.S., with over 3,500 degree-granting institutions, serving 14 million students on capital-intensive campuses, and spending $199 billion. This represents an average cost of $14,200 per student.

These numbers illustrate that the dramatic shift to technology-based education is not a fad, but rather a stampede to accommodate the diverse needs of working adults. Over the decades, education and training have transformed from a predominantly industrial environment to a primarily network-centered environment with measurable benefits.

Individualized Versus Classroom-Based Instruction



Adapted From: Bloom, B.S. The Two Sigma Problem: The Search for Methods of Group Instruction as Effective as One-to-One Tutoring. Educational Researcher. 13, 4-16 (1984)

Nearly 300 studies show that the shift away from classroom training to technology-driven, individualized environments produces better test scores in more than 98% of students. As an added bonus, additional research shows that using technology-based instruction reduces the cost of instruction by about one-third. Furthermore, such use either reduces instruction time by a third, or it increases effectiveness by a like amount.

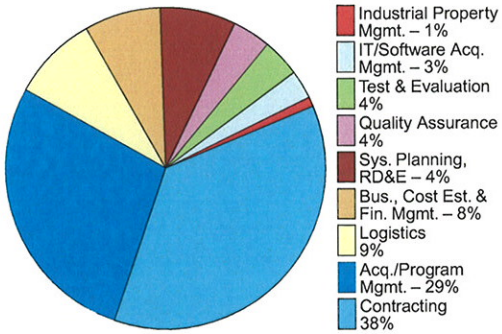
Who Are Our Students?

In Fiscal Year (FY) 1998, 630 DAU students enrolled in distributed-learning classes. Three years later, over 12,800 enrolled — a 20-fold increase. This trend is expected to continue. Classroom use will continue to drop dramatically in the next three years, predictably slipping from 74% to about 64% by 2002. This trend closely tracks the findings of the "Year 2000 American Society for Training and Development (ASTD) State of the Industry Report." This shift is driven by the rising demand for "just-in-time" accessibility to learning, as well as a Workforce that is accustomed to the self-service convenience of e-Trade, Amazon.com, and more.

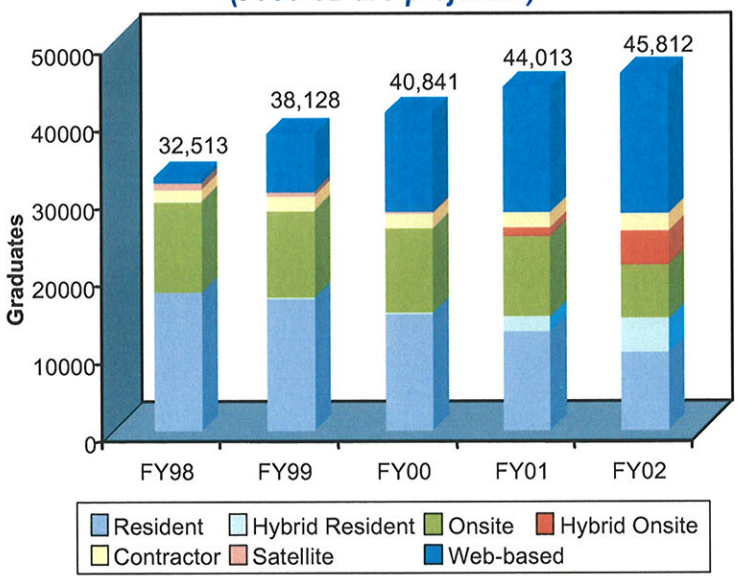
1999
2000
FY 2001 –
2
Jan 2001
FY 2002

The typical American e-Learner is a male (57%), about 43 years old (median age), married (60%), and with an average annual household income between $50–75K. They "log on" between 31–40 hours per year for mandatory work-related training. Likewise, the typical DAU student is male (63%), about 42 years old (ages range from 19–80), and earns between $60–79K (GS-13). The DAU current enrollment of 19,162 students, provides direct support to eleven career fields.

Percent of Students by Course Type Attended



DAU Graduates
(FY01-02 are projected)



Trends in Learning and Technology During the 2000s

Making predictions for the coming years presents a major challenge because the rate of technological change and innovation is based on weeks or a few months, not years. However, the following are our predictions for the New Millennium:

1. Communities of Practice. During the next few years we will witness increasing numbers of Communities of Practice (CoPs) in the DoD workplace, perhaps numbering 4,000–5,000.

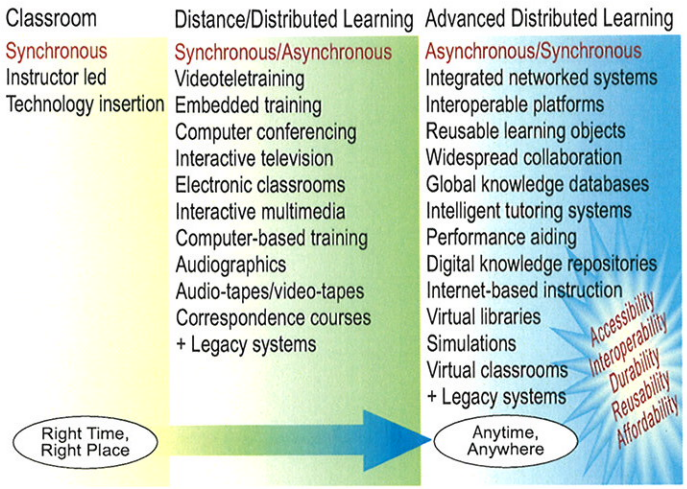
2. Portals. A portal is the name for a single, unified site that brings together a wide range of learning resources for the use of learners. If we add portals to the CoPs framework, we have a dynamic mechanism for collaboration and learning.

3. Enterprise Learning and Knowledge Systems. DAU will focus on the need to manage the information side of learning and establish links to other knowledge management systems. DAU will invest heavily on integrating this technology and supporting the development of the DoD AKMS.

4. Content. The coming years will focus on content and delivery using a variety of technology, including the desktop computer, the laptop, and handheld devices. The portal concept will fuel the demand for comprehensive catalogs that reside in digital repositories (such as the Integrated Curriculum Environment (ICE)) and future learning-object repositories.

Yogi Berra once said, "When you come to the fork in the road, take it." At DAU, whether we take the left or the right fork, it leads us to the fusion between knowledge management and e-Learning. Successful fusion will yield the desired e-Learning ADL architecture.

Advanced Distributed Learning Initiative



Total Force Advanced Distributed Learning Action Team

We envision an e-Learning and performance-support environment that is characterized by three components:

New Learning Construct – ***Modernizing Acquisition Training***

DAU Strategies for e-Learning

To achieve our goals, we are developing and implementing appropriate strategies, indicators of success, and ways of measuring progress at regular intervals. This is a process that will be revisited continuously during the coming years.

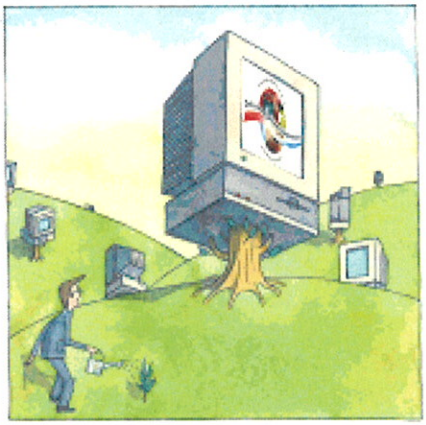
DAU will:

1. **Develop an organization/process that provides learner-focused services, delivery modes, and feedback mechanisms. (A two-year strategy.)**

   This entails refining the organizational structure and instructional mentality along learner lines rather than course lines. How this cultural shift works is exemplified by the "Acquisition Support Center" (ASCr). This form of a "Learner Concierge" will have a significant online presence for both active and alumni learners. Not only can DAU faculty and staff offer assistance with problems, but they can also help with Deskbook 2001 searches and questions, assist with maintaining the ASCr portal, interact with learners over the DAU Learning Management System (LMS), and bring a heightened sense of community to our Workforce. The Center will not only be a test bed for new technology and courseware, but it will also bring functionality to our academic universe. ASCr will also support a portal to career field and special focus CoPs.

2. **Cultivate faculty and administrative interest in the learner-centered process. (An ongoing strategy.)**

   The roles and responsibilities of learners, instructors, and managers will need to change in the learner-centered environment. Traditional instructors and professors will still be needed, but so will facilitators,



DAU is developing additional e-Learning courses to teach the basics before students arrive for resident courses.

mentors, and experts. All will play a part interacting with the learners — to tutor, coach, monitor, manage, and provide assistance so that they will learn new skills and acquire knowledge. Teachers who use ADL will spend more time interacting with their students than they did when teaching in a traditional lecture method of instruction. As their role changes, they will need to develop new skill sets and communicate more frequently and individually with students.

3. Develop standardized, neutral, and reusable content. (An ongoing strategy.)

Previous economic or revolutionary changes in our ways of working and learning came with the widespread adoption of standards. Railroads, telecommunications, VCRs, and the Internet are only a few examples. The new learning and knowledge-based economy will take off only when open, accredited standards become universally adopted. They will enable full interoperability, interchange, sharing, and reuse of information, tools, and technology.

Moreover, educational content is not inexpensive to produce. Even a plain Web page, authored by a mathematics professor, can cost hundreds of dollars. If graphics and a little animation are included, the price doubles. If you add an interactive exercise, the price is quadrupled.

The economics are relentless. It makes no financial sense to spend millions of dollars producing multiple versions of similar learning objects when single versions of the same objects could be shared at a much lower cost per institution. There will be sharing because no institution producing its own materials could compete with institutions sharing learning materials.

Our strategy, therefore, is to create through collaboration a sharable framework and mechanism in which DAU and acquisition community members will want to participate.

4. Enhance learner opportunities by establishing external relationships with degree-granting institutions of higher learning. (A two-year strategy.)

If another university or educational organization has a good version of courseware that would benefit our students, efforts should be made to establish a mutually beneficial relationship with that hosting school.

In addition to current four-year degree requirements, the Acquisition Workforce needs to have additional educational offerings for personal and professional growth. For example, following Defense Acquisition Workforce Improvement Act (DAWIA) certification, a learner could complete a certain number of academic credits and be granted a graduate degree. This will be a prime motivator for the AT&L Workforce.

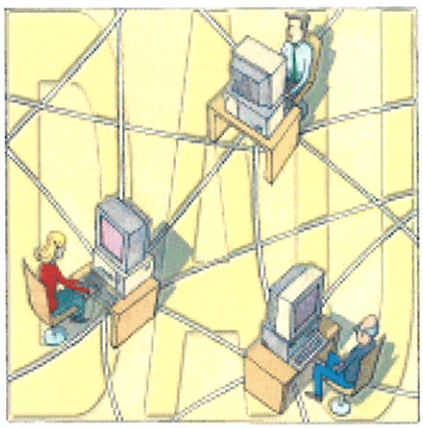
Our strategy will be to solicit partnerships with other educational resources, i.e., to get users to identify needs, build on what is "out there," and reach out.

5. Continue the development, maintenance, and improvement of DAU's database of courseware and the Integrated Curriculum Environment (ICE), and provide a public access to the ICE student materials. (An ongoing strategy.)

The ICE is DAU's current corporate repository of classroom-based course knowledge in the form of student assignment sheets, teaching notes, white papers, and PowerPoint briefs. The AT&L Workforce will be able to access these knowledge objects anytime and anywhere in support of a classroom course, as job aids at work, or in support of continuous-learning activities. The knowledge objects in the ICE will also be accessible through other knowledge objects, such as integrated performance support and learning modules and communities of practice.

6. Develop and maintain a DAU digital repository of knowledge objects/ products to support certification courses, continuous learning, communities of practice, and performance support. (An ongoing strategy.)

DAU will develop and maintain a digital repository of knowledge objects and products to support DAU certification courses, continuous-learning modules, communities of practice, and performance-support tools and techniques. Examples of these objects and products include career-certification course materials, such as teaching notes, white papers, and PowerPoint presentations, distributed-learning courses, and course lesson modules. They also include performance support and learning modules, courses and course modules for continuous



Student connectivity is as much an added value of e-Learning as the course material and facilitator interaction.

learning credits, case studies, DAU guides, magazine articles, handbooks, toolkits, military research fellows' reports, and student-developed reports or papers.

7. **Migrate and/or redesign existing single, Sharable-Content Object (SCO) courseware into multiple SCO courses and elements suitable for placement in a searchable, modular Knowledge Management (KM) digital repository. (A three-year strategy.)**

   About half of our online courses are SCO courses. That is, they spring from a common main menu and return to it over and over again as the learner progresses through the course. The ability to create multiple learning "chunks" from these types of online courses is difficult and costly because multiple copies of HTML pages with identical content must be produced.

   DAU is modifying its single SCO courses into Sharable-Content Objects Reference Model (SCORM) that are conformant, but the true value of a digital repository is its unique "chunk-ability" — "chunks" being sets of elementary building blocks. Learners or educators seeking information or building blocks must be able to reach information that creates a digital portrait.

8. **Migrate all DAU online courseware to a common language. (A three-year strategy.)**

   Keeping with our principle of adopting the SCORM standard, DAU is migrating or converting all of its online courseware to HTML/Javascript. Several of our older courses are written in software such as Authorware, Flash, etc., and must be redesigned to be SCORM compliant. In their current state, they are not friendly to the concept of digital modularization.

   By moving to a common style and language, our local faculty and the DAU Distance Learning Design Team will be able to make simple courseware updates without going to a major contractor and, thus, further reduce costs and decrease maintenance.

9. **Create and support individualized pre-assessment in specific courses. (An ongoing strategy.)**

   DAU will establish an assessment mechanism for qualified people who are in other career fields and who are entering that field to test out or apply for advanced-level equivalency. Through the pre-testing or equivalency process, students will receive individualized determinations of their place in the course structure, based on their personal level of subject understanding. If the student wants to take the entire course, that would also be encouraged.

10. Support the American Council on Education (ACE) accreditation and International Association for Continuing Education and Training (IACET) Continuing Education Units (CEUs). (An ongoing strategy.)

Courses converted to distance learning must be revalidated for both CEUs and ACE credits. DAU will continue to work with ACE and IACET regarding any revisions to any credit-bearing course. When a course is going through an "online" conversion, ACE and IACET reviews will be conducted as early as possible in the course-development stage.

11. Test and leverage communications engineering solutions to increase educational access, reduce time to online access, and reduce DAU costs. (An ongoing strategy.)

A large impediment to fully utilizing the world of educational multimedia (streaming video, audio, and animation) is the inequality of the bandwidths available to students, based on several physical factors. To resolve this inequality, DAU refrains from using multimedia elements in online courseware.

By working closely with the ADL Co-Laboratory, DAU will test and evaluate the extent of degradation that takes place when courseware travels through different communication environments. In this way, we can study the effect of different bandwidths to learn which educational multimedia is advantageous.

12. Consider and analyze alternate delivery media. (An ongoing strategy.)

From time to time, alternative communications strategies, and opportunities will arise that may enable DAU to enhance its delivery strategies. The sharing of broadband networks with other DoD organizations and the use of satellite technologies, wireless handheld communications, and alternate course delivery media are examples. DAU will continue to monitor the state-of-the-art, next-generation technologies, as well as the tried-and-true techniques. We will analyze them and provide the optimum choice for our constituency.

13. Consider and analyze internal information systems planning and technologies in conjunction with DAU e-Learning plans. (An ongoing strategy.)

From time to time, the DAU Information Systems Department will modernize or update its facilities and equipment. Similarly, advanced communications technologies studied by the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) may have a direct impact on our delivery decisions. DAU will study these alternatives and work hand-in-hand with those organizations so our plans

will mesh with theirs cohesively and provide the optimum choice for on-campus and off-campus personnel.

14. Develop and provide Web-server hosting and Internet connection services to DoD Services and agencies that contribute to the overall acquisition body of knowledge. (An ongoing strategy.)

DAU's ultra-high-speed OC-3 connection to the main hub of the Internet at Fort Belvoir (with plans for OC-12 connectivity), combined with low server-support cost, provides an opportunity for DoD to reduce overall Information Technology (IT) cost while centralizing (physically and virtually) acquisition knowledge.

15. Develop knowledge object structures for all AT&L career fields. (An ongoing strategy.)

The Acquisition Support Center will act as the principal performance support "work bench" for the AT&L Workforce and as the gateway to DAU's acquisition body of knowledge. The Support Center will also provide access to DAU's Virtual Campus for online certification courses and to DoD's database of continuous learning courses/learning modules.

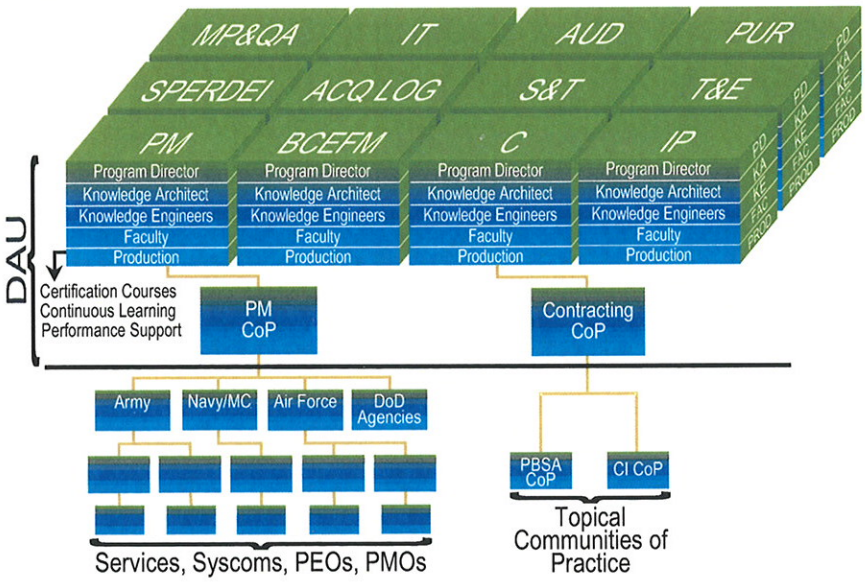
Process and product breakdown knowledge structures will be developed for each of the eleven different acquisition career fields. These taxonomies will support the development of a digital repository of knowledge, identify topics for performance support and learning modules, provide expertise subject areas for an "Expert Finder" system, and provide content structures for communities of practice. The DAU and Project Management Community of Practice (PM CoP) teams will work in concert with DAU Program Directors to identify common, standard taxonomies.

16. Create and maintain performance support and learning modules (objects) in accordance with AT&L career field knowledge structures. (An ongoing strategy.)

A comprehensive set of Web-based modules will be developed by DAU faculty and other subject-matter experts, which will tie together all relevant knowledge on a subject and provide context where needed. Elements of the modules will include overviews and hot topics, policy, detailed DAU knowledge sources, frequently asked questions, links to other related modules, continuous learning resources, tools/templates/example documents, best practices, lessons learned, links to other knowledge sources, search, and "Ask an Expert."

These publicly accessible modules will support CoPs, on-site and online courses, and other web-based products.

DoD AT&L Body of Knowledge



17. Design, construct, and maintain a library of online courses focusing on continuous learning requirements and job performance assistance in support of DoD AT&L Workforce. (An ongoing strategy.)

Where feasible and when the DoD AT&L Continuous-Learning Policy requires an increase in the number of distributed-learning courses and learning modules, DAU will provide the management and development expertise to create such focused courseware. This will also include the development of external relationships with outside learning centers and universities to provide courses that meet AT&L requirements set forth by the Functional Advisors.

18. In concert with USD(AT&L) and the Services, develop and maintain communities of practice for all AT&L career fields and specific sub-focus areas. (An ongoing strategy.)

Knowledge Management (KM) is essential to the acquisition enterprise. Its decentralized approach will promote and nurture the use of KM and KM assets in CoPs, encourage innovation, and produce results. The right Workforce incentives will accelerate the adoption of a knowledge-sharing culture. Effective centralized portals are needed to link all acquisition knowledge assets. Our knowledge assets will be enriched by turning tacit knowledge explicit and by keeping that knowledge current with shared tools, education, and learning.

Today, program management and contracting fields have CoP pilots underway. DAU will be proactive in championing CoPs, building on the experiences of the PM CoP, and establishing more CoP activities.

19. In concert with USD(AT&L), support the development and maintenance of the improved Acquisition Deskbook 2001 (A two-year strategy.)

DoD is adopting a new decentralized approach toward KM. It will promote and nurture the use of knowledge assets and KM CoPs — networks of people who are held together by a common purpose and share and learn from one another. CoPs and other knowledge assets will be linked together into an overarching AKMS. CoPs will collect and maintain all of the knowledge (policies, informal information, etc.) associated with their areas of interest.

Accordingly, DoD has elected to evolve and improve the function and configuration of the Deskbook as part of this new approach. DAU's new Deskbook will become a knowledge asset, and it will be a user-friendly reference library for all acquisition and acquisition-related policy. It will contain navigational aids, smart search capability, links to more-detailed references, and links to CoPs and their knowledge assets.

20. Develop "Expert Finder" systems for internal DAU use and provide personalized performance support to the AT&L Workforce. (An ongoing strategy.)

In conjunction with the Project Management CoP, develop and coordinate a standard, common "Ask the Expert" tool that can be used by DAU and other CoPs.

An Expert Finder system or "Yellow Pages" will provide valuable, personalized service to the Workforce when unique circumstances exist (issue complexity, time criticality, or both) or when specific knowledge on a subject does not yet exist online. An Expert Finder system will facilitate bringing community members together to discuss and solve problems. Expert finder systems will help "push" hot topics and new knowledge to experts.

21. Develop and maintain an Acquisition Support Center (ASCr) "portal" to DAU knowledge objects, DoD communities of practice, experts, tools, good practices, lessons learned, collaboration forums, and team share spaces. (An ongoing strategy.)

Develop and maintain a public Web-based support and reach-back capability for knowledge assets made available through the Internet. Upgrade the ASCr portal and coordinate that upgrade with the DAU Home Page and other Internet portals.

Measurable Tasks and Objectives

The broad-based DAU strategies and implementation plans are divided into several tasks and objectives that will provide a measurable progress chart. These tasks are divided into short-term (within a year), near-term (within two years), and long-term time periods.

Short-Term Tasks - Year One

The following courses have been developed and are currently online:

- ACQ 101 Fundamentals of Systems Acquisition Management (v.2)
- ACQ 201 Intermediate Systems Acquisition
- BCF 102 Fundamentals of Earned Value Management (Revision)
- BCF 211 Acquisition Business Management
- CON 237 Simplified Acquisition Procedures
- IRM 101 Basic Information Systems Acquisition
- LOG 203 Reliability and Maintainability
- PMT 250 Program Management Tools
- PQM 101 Production, Quality and Manufacturing Fundamentals
- SAM 101 Basic Software Acquisition Management
- TST 101 Introduction to Acquisition Workforce Test and Evaluation

The following courses have been converted so that they are SCORM conformant:

- ACQ 101 Fundamentals of Systems Acquisition Management (v.2)
- LOG 101 Acquisition Logistics Fundamentals
- IRM 101 Basic Information Systems Acquisition
- PQM 101 Production, Quality and Manufacturing Fundamentals
- PQM 201 Intermediate Production, Quality and Manufacturing
- TST 101 Introduction to Acquisition Workforce Test and Evaluation

The following courses are scheduled to go online in FY01.

- SYS 201 Intermediate Systems Planning, Research Development and Engineering
- CLM xxx How to Take an e-Learning Course at DAU

Several CoPs will be prototyped. These will include:

- Program Management (PM)
- Contracting Incentives (CI)
- Policy, in concert with Deskbook 2001.

A digital repository will be prototyped with concept design and planning.

Near-Term Tasks -Year Two

Other near-term tasks of the DAU ADL initiative are to develop and assess ADL prototypes that exploit existing technologies in order to demonstrate the capability to provide learning on demand (anytime, anywhere) that is consistent with DAU's functional requirements. We will also continue to retrofit online courseware to make it more accessible to the disabled members of the AT&L Workforce.

In addition, the CON career field will be significantly restructured in FY02.

The following courses are scheduled for online introduction in FY02.

- ACQ 101 Fundamentals of Systems Acquisition Management (v.3) (Authorware to HTML/Javascript Conversion)
- BCF 102 Fundamentals of Earned Value Management (Revision)
- BCF 103 Fundamentals of Business Financial Management (Conversion)
- CON 101 Basics of Contracting
- CON 104 Principles of Contract Pricing
- IRM 202 Advanced Information Systems Acquisition
- LOG 201 Intermediate Acquisition Logistics (Conversion)
- LOG 235 Reengineering and Product Support (Hybrid)
- PMT 352 Program Management (Hybrid)
- SAM 202 Intermediate Software Acquisition Management (Hybrid)
- TST 202 Intermediate Test and Evaluation (Hybrid)

ACQ 101 and LOG 101 will be converted to HTML/Javascript in this period.

The following existing online courses are scheduled to be considered for modification towards SCORM conformance:

- ACQ 201 Intermediate Systems Acquisition
- BCF 102 Fundamentals of Earned Value Management (Revision)
- CON 101 Basics of Contracting
- CON 104 Principles of Contract Pricing
- LOG 203 Reliability and Maintainability
- PMT 250 Program Management Tools
- PMT 352 Program Management
- SAM 101 Basic Software Acquisition Management

In addition, all newly delivered courses will be SCORM conformant.

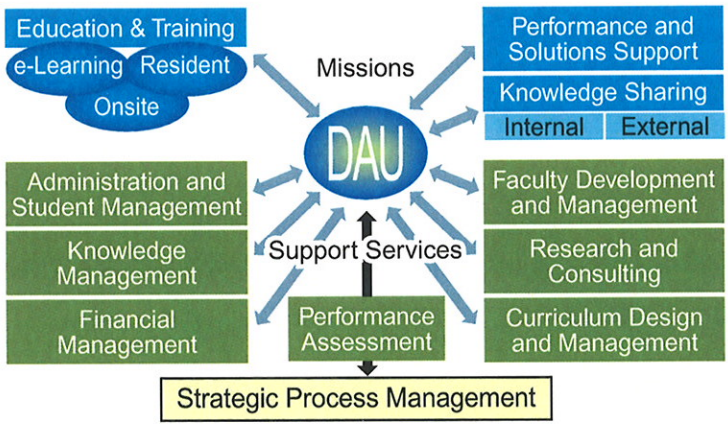
A contract will be awarded for a single prime contractor for IT, LMS, and course development initiatives.

Activities surrounding the migration of the online Acquisition Deskbook will be undertaken.

Additional Communities of Practice will be developed. The following CoPs are planned:

- Contract Management
- Logistics Management
- Plus others are under study

Functional Model/Concept



Long-Term Goals and Objectives

DAU's major goal is to field a total package of e-Learning and knowledge management tools that will include all three components of the DAU ADL initiatives — infrastructure, learner interface, and content.

These components are the keys to our long-term vision at DAU. They include implementation of a fully functioning e-Learning system that supports a wide range of learning needs, while reducing costs and increasing Workforce effectiveness, based on the requirements of prioritization and funding availability. These keys include:

- Harnessing the power of the Internet/Wide-Area Networks (WANs);
- Providing intelligent tutoring for "just-in-time" performance support;
- Coordinating distributed subject-matter experts and courseware;
- Sharing real-time, in-depth learning management; and
- Delivering support tools in a responsive, top-quality "learner-centered" system.

How Will We Measure Success?

Successful implementation will require the development and application of methods to monitor and measure the progress of the entire University as well as that of the individual components. Several potential metrics are being identified as a result of collaborative efforts with the external Universities and advisory contractors.

In follow-on activities, DAU will provide a list of common metrics to the Board of Visitors for review, refinement, and approval. Our guiding principles are applicable to decision-making and management processes for funding DAU components with regard to distributed learning.

A final thought:

Historians may one day look back at this moment in time; the decades on either side of the Millennium divide and write, "That was when things changed; that was when the next chapter began."

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