

June 2004

INFORMATION
TECHNOLOGY

Training Can Be
Enhanced by Greater
Use of Leading
Practices



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Highlights of [GAO-04-791](#), a report to congressional requesters

INFORMATION TECHNOLOGY

Training Can Be Enhanced by Greater Use of Leading Practices

Why GAO Did This Study

Effective training of information technology (IT) staff, as called for in the E-Government (E-Gov) Act of 2002, is essential to developing and retaining a qualified workforce. In an earlier report ([GAO-03-390](#)), we identified 22 leading practices, grouped into 5 key training management processes, used by private-sector companies to implement effective IT training. These practices suggest approaches that government agencies could consider.

To assess IT training in the federal government, including its use of leading practices, we were asked to determine, among other things, to what extent federal agencies use our leading practices, the major obstacles in providing effective IT training and how agencies address them, and the progress the Office of Personnel Management (OPM) is making in issuing policies and performing evaluations to encourage agencies to provide effective IT training.

What GAO Recommends

GAO is making recommendations to OPM, including that it issue IT training policies and evaluate implementation of the training provisions of the E-Gov Act.

In response to a draft of this report, OPM disagreed with the conclusions on its role and efforts with respect to federal IT training. Most other agencies generally agreed with the report or had no comment.

www.gao.gov/cgi-bin/getrpt?GAO-04-791.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Dave Powner at (202) 512-9286 or pownerd@gao.gov.

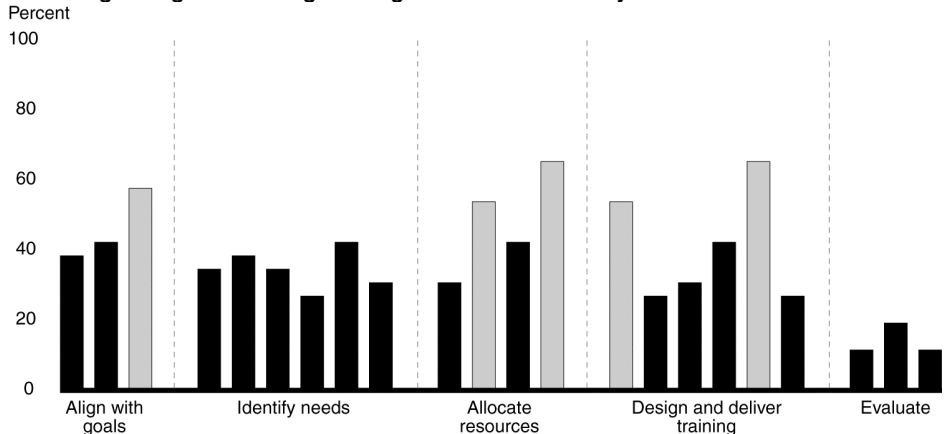
What GAO Found

Although federal agencies differ widely in how much IT training they provide, their use of the 22 leading IT training practices that we identified was generally not extensive. Of these practices, only 5 were in use to a great or very great extent in a majority of agencies (see figure below). In particular, of the three practices we identified in the area of evaluating training, none was widely used. For example, for the practice of collecting information on how job performance is affected by training, only three agencies reported use to a great or very great extent.

The most commonly cited obstacles to effective IT training were funding and the time training takes away from work. To address these obstacles, agencies are looking at ways to reduce training time and costs—for example, by greater use of e-learning.

OPM has made limited progress in issuing policies or performing evaluations regarding IT training. The E-Gov Act sets requirements for agency IT training programs. To provide oversight, it requires OPM to issue policies to promote the development of performance standards for training, and to evaluate agency implementation of the act's IT training provisions. These policies are particularly important in view of the lack of extensive agency use of the evaluation practices we identified. OPM has begun drafting guidance, but it has not issued policies or evaluated agency implementation of the act. Until policies are issued and progress is measured, oversight of federal IT training will continue to fall short of what the act calls for.

Percentage of Agencies Using Leading Practices Extensively



Practices not used to a great extent by a majority of agencies
 Practices used to a great or very great extent by a majority of agencies

Source: GAO.

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Abbreviations

APPL	Academy of Program and Project Leadership
BLM NTC	Bureau of Land Management National Training Center
CIO	Chief Information Officer
DHS	Department of Homeland Security
E-Gov Act	E-Government Act of 2002
GoLearn	Gov Online Learning Center
GSA	General Services Administration
HHS	Department of Health and Human Services
IDP	Individual Development Plan
IRMC	National Defense University Information Resources Management College
IT	Information Technology
NASA	National Aeronautics and Space Administration
NIH	National Institutes of Health
OMB	Office of Management and Budget
OPM	Office of Personnel Management
PMDP	Project Management Development Process
STAR	Strategic and Tactical Advocates for Results
USDA	U.S. Department of Agriculture
VA	Department of Veterans Affairs

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United States General Accounting Office
Washington, D.C. 20548

June 24, 2004

The Honorable Tom Davis
Chairman
Committee on Government Reform
House of Representatives

The Honorable Jim Turner
House of Representatives

The rapid pace of technological change, with its potential to transform the way the government delivers services, makes information technology (IT) human capital a critical issue for federal agencies.¹ To ensure that the federal government meets its human capital needs, effective training of IT staff, as called for in the E-Government (E-Gov) Act of 2002,² is essential to developing and retaining a qualified workforce. At your request, in an earlier report, we examined IT training practices of leading private-sector companies. We found 22 existing and emerging practices (see attachment 1 in app. I) that are used to implement effective IT training. The practices and associated case studies that we presented suggest approaches that government agencies could consider. In addition, we noted several critical issues (e.g., funding constraints and demonstrating return on investment) that should be considered in implementing these practices. More recently, we issued a final version of a guide for assessing strategic training efforts that provides a framework that federal agencies can use to ensure that their training investments are targeted strategically.³

To assess IT training in the federal government including its use of leading practices, you asked us to determine (1) how federal agencies provide IT-related training and to what extent they use the leading practices that we identified, (2) the major obstacles in providing effective IT training and how agencies address them, (3) the factors agencies should consider in preparing for future IT training, and (4) the progress the Office of

¹We have identified strategic human capital management as a high-risk area. See U.S. General Accounting Office, *High Risk Series: Strategic Human Capital Management*, [GAO-03-120](#) (Washington, D.C.: January 2003).

²Pub. L. 107-347 (Dec. 17, 2002).

³U.S. General Accounting Office, *Human Capital: A Guide for Assessing Strategic Training and Development Efforts in the Federal Government*, [GAO-04-546G](#) (Washington, D.C.: March 2004).

Personnel Management (OPM) is making in issuing policies and performing evaluations to encourage agencies to provide effective IT training. To accomplish these objectives, we conducted about 100 structured interviews with executives, training managers, and training recipients at 26 agencies and departments. We administered a survey to agencies and asked them to provide basic statistics and to self-assess the extent to which they were using the leading practices we had identified. We followed up with agencies to verify or correct data, but we did not independently verify survey responses. We researched existing reports, including previous reports by us and other agencies; reviewed related training legislation and guidance; and conducted interviews with experts on federal IT training. To evaluate OPM's progress in implementing provisions of the E-Government Act, we analyzed OPM's responses to written questions and held discussions with OPM training officials.

Earlier this year, we provided briefing slides to your staff on the results of our study. These results, updated to include additional information requested, are included as an appendix to this letter. The purpose of this letter is to officially transmit the information to you.

In brief, federal agencies provide IT training in a variety of ways. They use multiple delivery methods, acquire training from multiple sources, and differ widely in the amount of training they provide and the amount they spend. Agencies reported using leading IT training practices, but most were not used to a great or very great extent. Of the 22 practices we identified, only 5 were in use to a great or very great extent in a majority of agencies. Increased use of these practices can result in more effective training management. We also noted that several federal agencies and other entities have programs or initiatives to provide IT training or training resources to employees governmentwide.

Agencies reported that the most common obstacles to effective training are funding and the time that training takes away from normal work hours. To address these obstacles, agencies are looking at ways to reduce the time and costs associated with training—for example, by increasing the use of e-learning.

Major factors in preparing for future IT training cited by agencies included rapidly changing technologies and the loss of skills and expertise as the aging workforce retires. Further, federal officials emphasized the need for training to be focused on areas such as contract management, project management, and information security.

OPM has made limited progress in issuing policies or performing evaluations regarding IT training. The E-Gov Act requires agencies to have IT training programs that are developed and applied according to rigorous standards. To provide oversight, the act requires OPM, in coordination with the Office of Management and Budget (OMB), to issue policies to promote the development of performance standards for training, and to evaluate agency implementation of the act's IT training provisions. Such policies are particularly important in view of the lack of extensive agency use of the leading training evaluation practices that we described. In May, OPM told us that it plans to consider incorporating our leading practices in future guidance. OPM has begun drafting guidance and is in the final stages of issuing a report on governmentwide IT training, but it has not issued policies or evaluated agency implementation of the act. Until policies are established that promote the development of performance standards for training, and progress is measured against these standards, agency and OPM oversight of federal IT training programs will continue to fall short of the expectations established in the act with respect to standards.

Recommendations for Executive Action

We recommend that, as part of OPM's oversight responsibilities under the E-Gov Act, the Director of OPM

- issue governmentwide IT training policies, consistent with our strategic training guide, that promote development of performance standards for training and encourage agencies to use the leading practices that we identified; and
- set specific milestones for evaluating agency implementation of the provisions cited above.

Agency Comments and Our Evaluation

We sent a draft of this report to all 24 agencies⁴ that provided information and to OMB. We received written, oral, or e-mail comments from 9 agencies; 11 agencies responded that they did not have comments; 5 agencies did not respond.

⁴Although we counted Department of Defense components separately in our data, Defense handled agency comments centrally as a single response.

In a written response, OPM disagreed with our conclusions about its role and efforts with respect to federal IT training. OPM stated that it has not fallen short of the expectations established by the E-Gov Act, noting that the draft report focuses on only one of six statutory responsibilities under the act and that we fail to acknowledge that OPM is to work with the CIO Council and OMB in addressing federal IT personnel needs. Our report focuses on policies because we believe these are a foundation for exercising oversight of the other areas of responsibility mentioned. We cite OPM's plans to coordinate with OMB and the CIO Council on slide 37 (p. 43), and we note that OMB generally agreed with the findings and conclusions in our report. We adjusted our report to clarify that OPM oversight will fall short of the expectations of the E-Gov Act with respect to standards.

With respect to issuing policies, OPM states that the report does not fully and fairly inform the reader as to the status of the policies. In its response, OPM refers to an unpublished report in final clearance that will recommend a governmentwide IT training framework and announces that it has developed milestones for issuing policies. We mention the unpublished report on slide 37, but it has not been provided to us, so we are unable to comment on it. We have modified our report to reflect OPM's announcement of milestones. Setting milestones is a positive step toward issuing policies.

OPM also took exception to our report's statement that it has made little progress in evaluating agency implementation of the E-Gov Act provisions. The response states that OPM will incorporate a review of agency use of the Governmentwide IT Training Framework and standards in its regular review of agencies' mandated training carried out under its Human Capital Assessment and Accountability Framework. Since the IT Training Framework is to be set forth in the unpublished report referred to in the previous paragraph, it is clear that no specific evaluation of IT training has yet been done.

OPM also objected to "the use of GAO's 22 standards as a mandatory benchmark." We believe this is a misreading of our recommendation. We cite 22 leading practices, not standards, and we recommend that OPM encourage their use. We believe, and experts agree, that greater use of these practices could result in better IT training management.

OPM's comments are reproduced in appendix II.


Eight other agencies submitted comments:

- In oral comments, representatives of the Office of Management and Budget Personnel Policy Branch and Office of E-Government and Information Technology generally agreed with the findings and conclusions in the report and also provided some technical comments, which were addressed as appropriate.
- In written comments, the Department of Veterans Affairs (VA) generally agreed with our conclusions and provided additional information about its training programs. VA's comments are reproduced in appendix III.
- The GAO Liaison for the Department of Transportation indicated via e-mail that Transportation generally concurred with our report.
- The Acting Principal Deputy Inspector General of the Department of Health and Human Services (HHS) characterized our report as “generally on the mark” but had some concerns about how our leading practices—particularly those on identifying training needs and evaluating training—would apply to professional researchers at the National Institutes of Health (NIH). The response states that because our practices represent conventional wisdom in training theory, they might not apply to creative programs that meet unique training needs, such as those at NIH. We agree that medical researchers at NIH are not typical of the federal IT workforce. However, the leading practices are general in nature, are widely accepted, and allow for flexibility in application. HHS's comments are reproduced in appendix IV.
- The GAO Review Liaison of the Nuclear Regulatory Commission indicated via e-mail that the commission supports the effort to encourage greater use of leading practices across federal agencies.
- The Deputy Associate CIO for Business and Information Management of the Department of Energy, commenting via e-mail, agreed with the need for policies. She also recommended that we list all reported obstacles to effective training and that agencies' successes in dealing with obstacles should be shared across the government. In appendix I, slide 43, we list methods of addressing the two most important obstacles—time and funding, which were cited by almost all agencies. To promote sharing of successes, we include case studies of effective agency training programs in appendix I, attachment 4. Accordingly, we did not modify the report.

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- The Department of Defense GAO Liaison sent technical comments via e-mail, which were addressed as appropriate.
 - The Department of Justice GAO Liaison sent technical comments via e-mail, which were addressed as appropriate.
-

Unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies of this report to interested congressional committees. In addition, copies will be made available to others upon request. Copies of this report will also be available at no charge on GAO's Web site at www.gao.gov.

If you or your offices should have any questions concerning this report, please contact me at (202) 512-9286. I can also be reached by e-mail at pownerd@gao.gov. Key contributors to this report were Barbara Collier, Megen Davis, Pam Greenleaf, Kush Malhotra, David Noone, John Ortiz, Tomás Ramirez Jr., Jamie Pressman, Glenn Spiegel, and Angela Watson.



David A. Powner
Director, Information Technology Management Issues

Information Technology: Federal IT Training



Information Technology: Federal IT Training

Updated Briefing to the Committee on Government Reform
and to the Honorable Jim Turner
House of Representatives



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3. IT Training Statistics and Data Issues
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Introduction

Our recent work,¹ as well as studies by other organizations,² has highlighted human capital shortfalls, including training-related issues, such as training management and employee satisfaction with training. Accordingly, we have identified strategic human capital management as a high-risk area for the federal government.

Concerning IT training issues, we issued a report, *IT Training: Practices of Leading Private-Sector Companies* (GAO-03-390, January 2003), in which we described how leaders in IT training from the private sector implemented five key training management processes—aligning IT training with strategic goals; identifying and assessing IT training needs; allocating IT training resources; designing and delivering IT training; and evaluating/demonstrating the value of IT training (“evaluating IT training”). We identified 22 practices distributed across the key management processes. Experts in this field agreed that these practices could result in more effective training management. See attachment 1 for a listing of these practices.

¹See, for example, the following: U.S. General Accounting Office, *Military Transformation: Progress and Challenges for DOD’s Advanced Distributed Learning Programs*, GAO-03-393 (Washington, D.C.: Feb. 28, 2003); *Export Promotion: Government Agencies Should Combine Small Business Export Training Programs*, GAO-01-1023 (Washington, D.C.: Sept. 21, 2001); *Veterans’ Benefits: Training for Claims Processors Needs Evaluation*, GAO-01-601 (Washington, D.C.: May 31, 2001); and *Acquisition Reform: GSA and VA Efforts to Improve Training of Their Acquisition Workforces*, GAO/GGD-00-66 (Washington, D.C.: Feb. 18, 2000).

²See, for example, U.S. Office of Personnel Management (OPM), *What Do Federal Employees Say? Results from the 2002 Federal Human Capital Survey* (Washington, D.C.: March 2003).



Objectives, Scope, and Methodology

Objectives

- How are agencies providing information management and technology-related training, and to what extent do they use leading practices?
- What are the major obstacles in providing effective IT training, and how are agencies addressing them?
- What factors should agencies consider in preparing for future IT training?
- What progress is the Office of Personnel Management (OPM) making in issuing policies and performing evaluations to encourage agencies to provide effective IT training?



Objectives, Scope, and Methodology

Scope and Methodology

To determine how federal agencies provide IT training and use leading practices, identify obstacles and factors regarding IT training and provide additional information on OPM's implementation of E-Gov Act provisions, we performed the following activities:

- We conducted about 100 structured interviews with executives, training managers, and training recipients at 26 agencies and departments. We interviewed the departments and agencies covered by the Chief Financial Officers Act, the Department of Homeland Security (DHS), and two components of the Department of Defense—the Army and Navy.
- We researched existing reports, including previous reports by us and other agencies, reviewed related training legislation and guidance, and conducted interviews with experts on federal IT training.



Objectives, Scope, and Methodology

- We administered a survey to agencies and asked them to self-assess the extent to which they were using the leading practices that we had previously identified. We also collected basic statistics on IT training (see attachment 3). If survey responses raised concerns about consistency or accuracy, we followed up with agencies to verify or correct data, but we did not independently verify survey responses. In reporting the aggregated results, we do not include information from DHS because the department did not exist in fiscal year 2002. The Department of the Army did not provide statistics in its survey response. We included information on Department of Energy practices, but not statistics, because Energy was unable to separate statistics for federal employees from those for contractors.
- We developed case studies of successful programs and practices implemented by federal agencies (see attachment 4).
- We interviewed officials from various federal entities that provide governmentwide training programs or support initiatives related to workforce development.
- The departments and agencies that we interviewed or that provided a survey response are listed in attachment 2.



Objectives, Scope, and Methodology

- To evaluate OPM's progress in issuing IT training policies and evaluating agency implementation of the E-Gov Act, we analyzed OPM's response to written questions and conducted interviews with OPM officials.

We conducted our review from February 2003 to May 2004. We conducted our work in accordance with generally accepted government auditing standards.



Results in Brief

Federal agencies provide IT training in a variety of ways. They use multiple delivery methods, acquire training from multiple sources, and differ widely in the amount of training they provide and the amount they spend. In addition, agencies reported limited use of leading IT training practices. We also noted that several federal agencies and other entities have programs or initiatives to provide IT training or training resources to employees governmentwide.

Agencies reported that the most common obstacles to effective training are funding and the time training takes away from normal work hours. To address these obstacles, agencies are looking at ways to reduce the associated time and costs associated with training—for example, by increasing the use of e-learning.

Regarding major factors that need to be considered in preparing for future IT training, agencies cited rapidly changing technologies and the loss of skills and expertise as the aging workforce retires; both factors could impact future training. Further, federal officials emphasized the need for training to be focused on areas such as contract management, project management, and information security.



Results in Brief

The E-Gov Act sets requirements for agency IT training programs. To provide oversight, it requires OPM to issue policies to promote the development of performance standards for training, and to evaluate agency implementation of the act's IT training provisions. These policies are particularly important in view of the lack of extensive agency use of the evaluation practices that we identified. OPM has begun drafting guidance, but it has not issued policies or evaluated agency implementation of the act. Until policies are issued and progress is measured, oversight of federal IT training will continue to fall short of what the act calls for.

We are making recommendations to OPM, including that it issue governmentwide IT training policies and set milestones for evaluating agency implementation of the IT training provisions of the act.



Background

As we reported in our strategic training guide,¹ to effectively address the nation's most pressing priorities, federal agencies will need to invest resources, including time and money, to ensure that employees have the information, skills, and competencies that they need to work effectively in a rapidly changing and complex environment. The guide provides a framework federal agencies can use to assure that training investments are targeted strategically.

Our strategic training guide also highlighted human capital shortfalls, such as insufficient training, duplicative and uncoordinated training efforts within and across agencies, and incomplete information on the extent to which employees had received required training. Further, the 2002 Federal Human Capital Survey,² conducted by the Office of Personnel Management (OPM), showed that only about half of federal employees were satisfied with the training they receive.

Studies have shown that training may be a problem area for the federal government. According to a study by the National Association of Public Administration,³ there is a lack of investment in continuous learning within the federal government. The study further stated that this lack of investment is especially problematic in the dynamic and rapidly changing world of IT.

¹ U.S. General Accounting Office, *Human Capital: A Guide for Assessing Strategic Training and Development Efforts in the Federal Government*, GAO-03-893G (Washington, D.C.: July 2003). [The final version was published in March, 2004 as GAO-04-546G.]

² OPM, *What Do Federal Employees Say? Results from the 2002 Federal Human Capital Survey* (Washington, D.C.: March 2003).

³ National Academy of Public Administration, *The Transforming Power of Information Technology* (August 2001).



Background

As noted earlier, in January 2003, we issued a report on training practices of leading private-sector companies.¹ Our study discussed how leaders in IT training from the private sector implemented five key training management processes (aligning IT training with strategic goals; identifying and assessing IT training needs; allocating IT training resources; designing and delivering IT training; and evaluating/demonstrating the value of IT training). These management processes are consistent with those in the Strategic Training Guide. We identified 22 practices distributed across the key management processes. Experts agreed that the practices we identified could result in more effective training management.

¹ U.S. General Accounting Office, *Information Technology Training: Practices of Leading Private-Sector Companies*, GAO-03-390 (Washington, D.C.: Jan. 31, 2003).



How Agencies Provide Training

Federal Agencies Provide IT Training in a Variety of Ways

Agencies use multiple delivery methods, acquire training from multiple sources, and differ widely in the amount of training they provide and the amount they spend. Agencies frequently stated that they provide training through conferences, college level courses, and certification programs. Some provide formal on-the-job training through techniques such as mentoring.

In our earlier report,¹ we identified five key management processes:

- aligning IT training with strategic goals,
- identifying and assessing IT training needs,
- allocating IT training resources,
- designing and delivering IT training, and
- evaluating IT training.

Within each process we identified practices of leading private-sector companies (22 in all) that could improve federal IT training. (Attachment 1 lists all the practices.)

¹GAO-03-390.



How Agencies Provide Training

Agencies report using these practices, but most were not used to a great or very great extent. Of the 22, only 5 were in use to a great or very great extent in a majority of agencies: “Address future skill needs and new technologies,” “Consider the benefits and costs associated with various training design and delivery methods,” “Ensure that resources are allocated for management training,” “Provide IT trainees with the flexibility to choose among different IT training delivery methods,” and “Consider outsourcing training solutions.” These five practices were associated with the following management processes:

- aligning IT training with strategic goals,
- allocating IT training resources, and
- designing and delivering IT training.

None of the practices in the other two management processes—identifying and assessing IT training needs and evaluating IT training—were used to a great or very great extent in a majority of agencies.



How Agencies Provide Training

Management Process: Aligning IT Training with Strategic Goals

As we reported in our earlier report,¹ by linking IT training programs to their overall business strategy, companies can promote staff development that best achieve corporate objectives. Our strategic training guide² further notes that it is essential for agencies to ensure that training and development efforts are undertaken as an integral part of their strategic and performance planning processes, and are driven by these. Strategic alignment establishes clear linkage between the agency's mission and goals and its training and development efforts. As part of alignment, senior management should ensure that training goals and strategies are incorporated into organizational decision making and aligned with organizational goals.

We also noted that a structured and documented process should be developed to ensure that strategic and tactical changes are promptly incorporated into training and development efforts. This can help ensure that training and development efforts are not initiated in an ad hoc, uncoordinated manner, but are focused on improving performance in support of the agency's goals.

¹ GAO-03-390.

² GAO-03-893G.



How Agencies Provide Training

Management Process: Aligning IT Training with Strategic Goals

During our discussions, agency officials typically described informal or no centralized methods of ensuring that IT training supported agencywide goals. Training was usually managed at the business unit level.

- Three agencies provided documented plans or procedures for aligning agencywide IT training with strategic plans.
- Five additional agencies reported that agencywide alignment takes place, but they did not provide plans or documented methods.

In our earlier report, we identified the following three practices used by leading companies to align IT training with strategic goals.

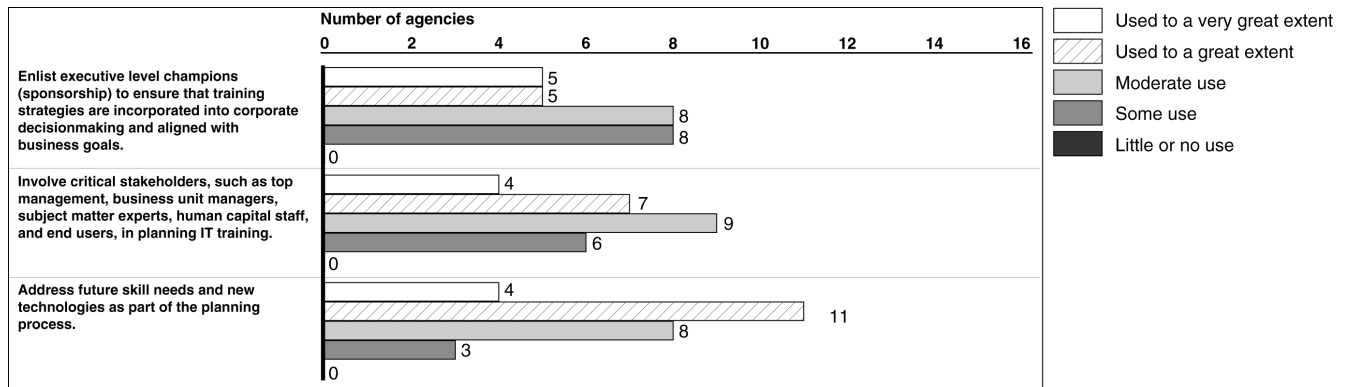
Align IT training with business goals	<ul style="list-style-type: none">• Enlist executive-level champions (sponsorship) to ensure that training strategies are incorporated into corporate decisionmaking and aligned with business goals• Involve critical stakeholders, such as top management, business unit managers, subject matter experts, human capital staff, and end users, in planning IT training• Address future skill needs and new technologies as part of the planning process
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How Agencies Provide Training

Management Process: Aligning IT Training with Strategic Goals

For the “aligning” process, only one of the three practices—“Address future skill needs and new technologies”—was reported as being in wide use: that is, used to a great or very great extent by over half (15 of 26) of agencies.



Source: GAO compilation of agency provided data.



How Agencies Provide Training

Management Process: Identifying and Assessing IT Training Needs

As we have reported in our earlier report¹ and our strategic training guide,² planning and preparing training and development efforts are key to positioning federal agencies to be able to address current problems and meet emerging demands. For example, skill needs may change because of new initiatives, new technology, market forces, workforce attrition, or organizational restructuring. Part of this process must include a systematic method of determining what skills and competencies currently exist and what is needed to address future demand and assessing the implications of any gaps. These activities are aligned with Clinger-Cohen Act³ requirements.

Our earlier study also noted that gathering information from various levels of the organization allowed managers to better assess training needs. We further noted that industry experts and practitioners were beginning to recognize that IT training should focus on broader career development needs, as well as skill-specific training needs.

¹ GAO-03-390

² GAO-03-893G

³ 40 U.S.C. § 11315(c)(3).



How Agencies Provide Training

Management Process: Identifying and Assessing IT Training Needs

During our discussions, agency officials frequently reported that the identification of training needs was employee-driven through the use of individual development plans (IDPs) or discussions with supervisors. Training needs were typically assessed at the component or program office level. Some IT training managers reported that they assessed training needs based on immediate priorities, such as the need to perform a system update. Generally, agencies had not developed a comprehensive or systematic process for identifying and assessing IT training needs.

In our earlier report, we identified the following practices used by leading companies to identify and assess IT training needs.

- | | |
|--|--|
| Identify and assess IT training needs | • Identify and document competencies/skills required for each job description |
| | • Maintain a current inventory of skills |
| | • Address overall career development issues as well as skill-specific training issues |
| | • Perform a gap analysis to determine where training is needed |
| | • Use self-directed tools, such as individual development plans, to give employees responsibility in assessing their development needs |
| | • Use a single portal to give staff and managers access to training and career development information |

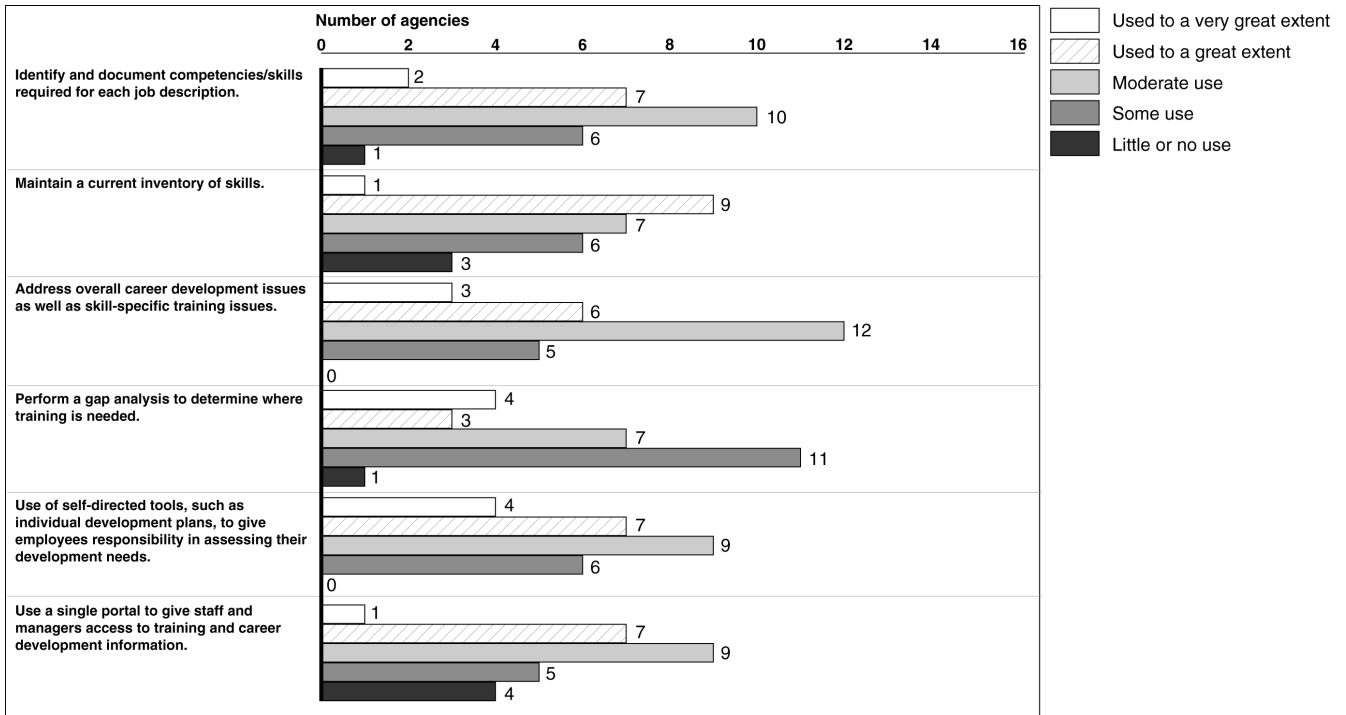
None of these six leading practices were reported as being in wide use: that is, used to a great or very great extent by over half the agencies. (See next slide.)



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How Agencies Provide Training
Management Process: Identifying and Assessing IT Training Needs



Source: GAO compilation of agency provided data.



How Agencies Provide Training

Management Process: Allocating IT Training Resources

As we reported in our earlier report,¹ training must compete with other priorities for federal resources. It is important that federal agencies prioritize and manage resources to ensure that training projects are effectively identified and implemented.

During our discussions, agency officials reported use of a variety of different processes for prioritizing and allocating resources for IT training. Among those mentioned were building training into plans for new projects so that training was considered part of the investment process; assigning priorities to certain subject areas, such as project management or security; and considering the benefit and costs of various training delivery options.

¹ GAO-03-390.



How Agencies Provide Training Management Process: Allocating IT Training Resources

In our earlier report, we identified the following practices used by leading companies to allocate IT training resources.

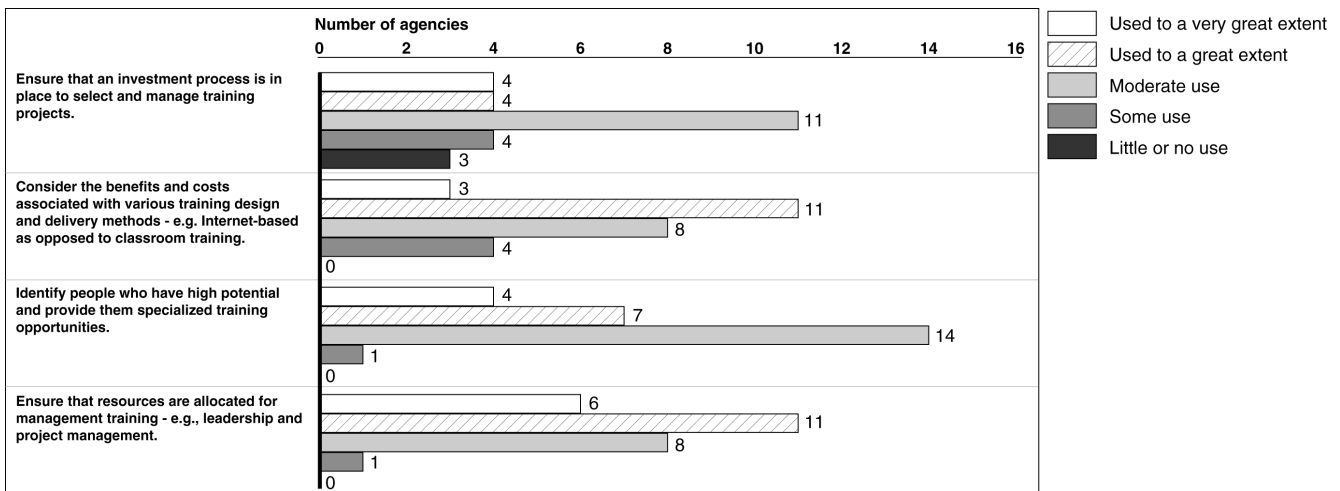
Allocate IT training resources

- Ensure that an investment process is in place to select and manage training projects
 - Consider the benefits and costs associated with various training design and delivery methods—e.g., Internet-based as opposed to classroom training
 - Identify people who have high potential and provide them specialized training opportunities
 - Ensure that resources are allocated for IT management training—e.g., leadership and project management
-



How Agencies Provide Training Management Process: Allocating IT Training Resources

Two of the four leading practices in the “allocating resources” process were reported as being in wide use—“Consider the benefits and costs associated with various training design and delivery methods” (14 of 26) and “Ensure that resources are allocated for management training” (17 of 26).



Source: GAO compilation of agency provided data.



How Agencies Provide Training

Management Process: Design and Delivery of IT Training

As noted in our earlier report¹ and strategic training guide,² after needs are determined and resources allocated, training should be designed, developed or purchased, and delivered to recipients using an appropriate mix of methods. It is important that the design and delivery process helps to ensure that employees learn during the training and apply the new knowledge on the job.

During our discussion, a majority of the agencies (15) stated that they develop little or no IT training. Most agencies reported that they either send staff to external courses or have vendors deliver IT training in-house.

Only one agency did not permit staff to choose among a variety of delivery methods. Classroom or hands-on training was generally preferred over e-learning, especially for technical topics, but e-learning was often cited as cost effective. Advantages cited for classroom training include the ability to ask questions, availability of hands-on practice, and ability to get away from workplace interruptions and distractions. Advantages cited for e-learning include lower cost, avoidance of travel, and ability to work at one's own pace. In general classroom/hands-on training was seen as better for more technical topics, and e-learning more appropriate for general topics and review.

¹GAO-03-390. ²GAO-03-893G.



How Agencies Provide Training Management Process: Design and Delivery of IT Training

Agencies frequently stated that they provide training through conferences, college level courses, and certification programs. Some provide formal on-the-job training through techniques such as mentoring.

The training areas most often reported as receiving emphasis are security and project management. Enterprise architecture and investment management were also frequently cited.

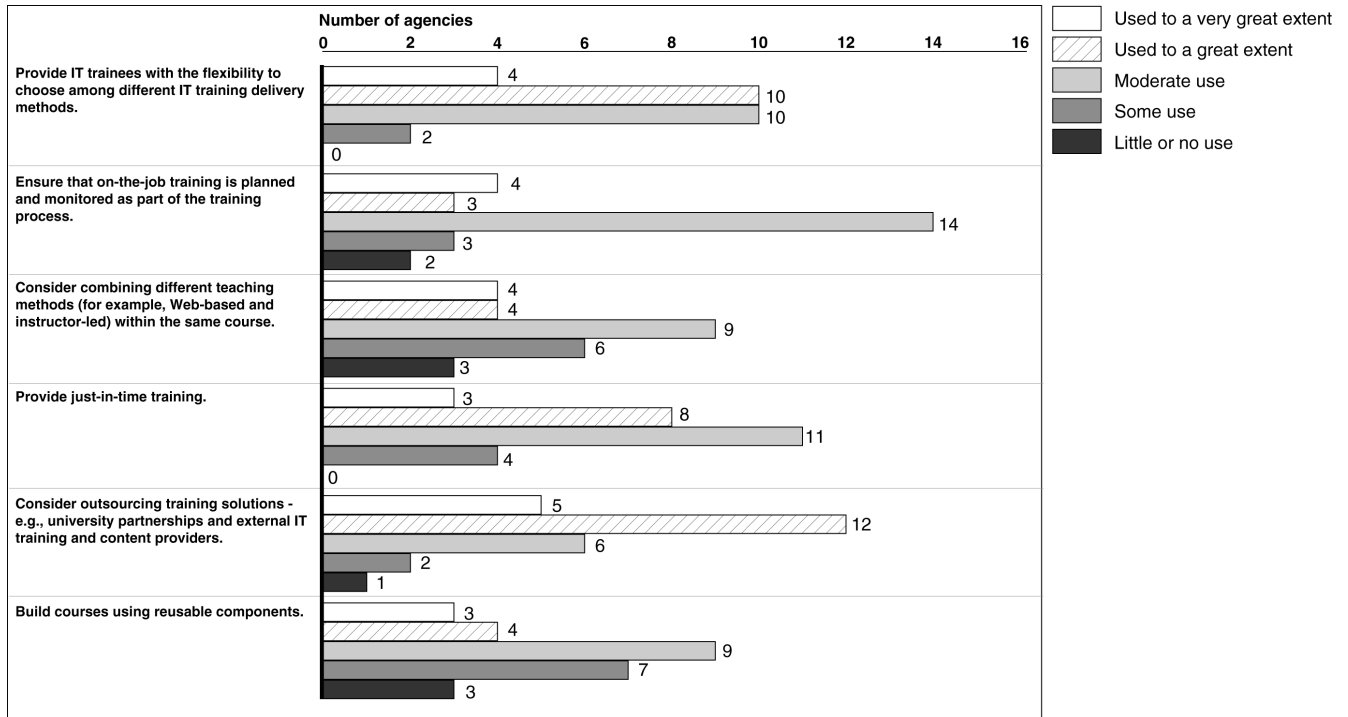
In our earlier report, we identified the following practices used by leading companies to design and deliver IT training.

- | | |
|---------------------------------------|---|
| Design and deliver IT training | <ul style="list-style-type: none">• Provide IT trainees with the flexibility to choose among different IT training delivery methods• Ensure that on-the-job training is planned and monitored as part of the training process• Consider combining different teaching methods (for example, Web-based and instructor-led) within the same course• Provide just-in-time training• Consider outsourcing training solutions—e.g., university partnerships and external IT training and content providers• Build courses using reusable modules |
|---------------------------------------|---|

Two of these six leading practices were reported as being in wide use—“Provide IT trainees with the flexibility to choose among different IT training delivery methods” (14 of 26) and “Consider outsourcing training solutions” (17 of 26). (See next slide.)



How Agencies Provide Training Management Process: Design and Delivery of IT Training



Source: GAO compilation of agency provided data.



How Agencies Provide Training

Management Process: Evaluating IT Training

As noted in our earlier report¹ and strategic training guide,² evaluating IT training involves assessing the extent to which training and development efforts contribute to improved performance and results. Agencies should systematically plan for and evaluate the effectiveness of their training and development efforts in order to manage scarce resources. Evaluation results should be incorporated into planning, design, and implementation of training efforts. If training is not evaluated, agencies risk misallocating resources and cannot ensure that they are meeting training objectives.

¹ GAO-03-390.

² GAO-03-893G.



How Agencies Provide Training Management Process: Evaluating IT Training

Agencies should use systematic, multilevel approaches to collecting performance data. We have reported on one commonly accepted model that identifies the following five levels of evaluation.¹

- Level One** Participant reactions
- Level Two** Extent students have advanced in skills, knowledge, or attitude
- Level Three** Changes in students' work behavior due to training
- Level Four** Effect on achieving organizational goals
- Level Five** Return on investment

¹ GAO-03-893G.



How Agencies Provide Training Management Process: Evaluating IT Training

Based on our discussions with agency training officials, we found the following:

- Although all the leading companies in our earlier report were going beyond obtaining participant reactions (level one), less than half of the federal agencies (11) were performing evaluation activities above this level, even within agency components.
- Some content testing is being done. For example, e-learning courses provided by vendors may include tests. Certifications, such as Microsoft or Cisco, provide evidence that training content has been learned.

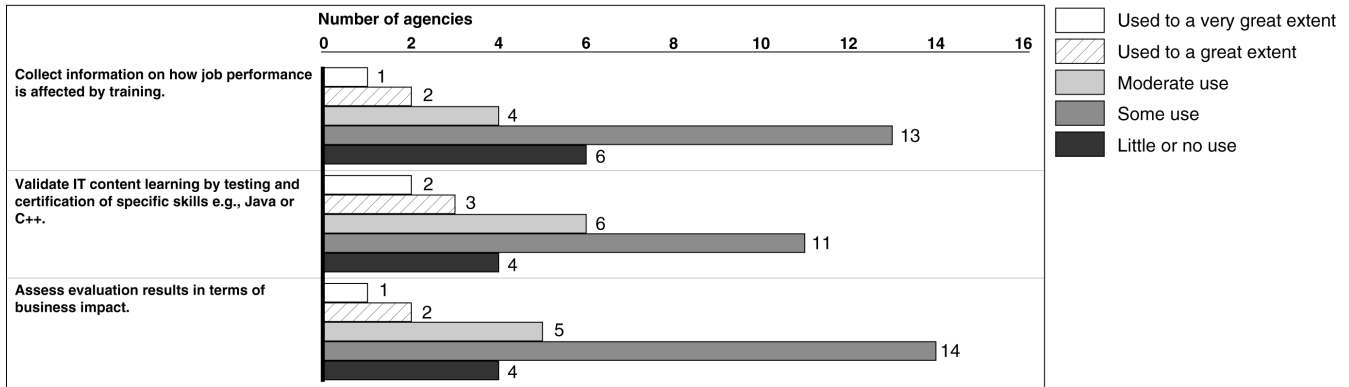


How Agencies Provide Training Management Process: Evaluating IT Training

In our earlier report, we identified the following practices used by leading companies to evaluate IT training.

Evaluate/demonstrate the value of IT training	• Collect information on how job performance is affected by training
	• Validate IT content learning by testing and certification of specific skills—e.g., Java or C++
	• Assess evaluation results in terms of business impact

None of the three practices in the “evaluating IT training” process were reported as being in use to a great or very great extent by more than half the agencies.



Source: GAO compilation of agency provided data.



How Agencies Provide Training

Training Programs and Initiatives Available to Employees Governmentwide

In addition to agency-specific training programs, several federal agencies and other entities have programs or initiatives to provide IT training or training resources to employees governmentwide.

OPM's Gov Online Learning Center (GoLearn). The e-training initiative is one of the e-government initiatives in the President's Management Agenda. The Gov Online Learning Center, part of the e-training initiative, will serve as a source for online training and strategic human capital development for all federal employees. OPM also plans for the GoLearn Web site to provide tools that will allow human capital specialists and employees to match an employee's professional and individual development to available courses and services. The site includes competency-based workforce development roadmaps specifically for IT workforce occupations.



How Agencies Provide Training Governmentwide Programs and Initiatives

National Defense University's Information Resources Management College (IRMC). IRMC offers graduate level education in information resources management to military and civilian personnel. Areas of concentration include strategic planning, leadership/management, capital planning and investment, performance and results-based management, architecture, information assurance and security, and e-government. Students represent multiple communities including Chief Information Officers (CIOs) and other agency officials. Through agreements with various universities, IRMC students can earn 15 graduate credits towards master's and doctoral programs.

USDA Graduate School. The Graduate School provides IT training to approximately 10,000 federal IT professionals a year. Although associated with the U.S. Department of Agriculture, it has its own governing board and receives no federal funds. Its instructors are independent contractors.



How Agencies Provide Training Governmentwide Programs and Initiatives

The CIO Council has efforts in IT workforce development.

The federal Chief Information Officers (CIO) Council's Workforce and Human Capital for Information Technology Committee (formerly called the Education and Training Committee) is charged with examining workforce planning, recruitment and retention, and career development; it serves as one of the government's key advocates for strategies to recruit, develop, and maintain an effective federal IT workforce. The following are some of its workforce development initiatives:

Clinger-Cohen Core Competencies. The committee developed a listing of Clinger-Cohen core competencies to assist government agencies in complying with Clinger-Cohen Act requirements and to serve as a baseline to determine required course and curriculum training development requirements in the information technology field. The competencies are updated biennially; the most recent update included "enterprise architecture" as a new competency area.



How Agencies Provide Training Governmentwide Programs and Initiatives

IT Workforce Development Roadmap. An online career development tool designed for current and prospective federal IT workers, the IT Roadmap was developed by the CIO Council. The tool, currently hosted on GoLearn, assists IT professionals to identify competency recommendations, identify relevant training, and build long-term career plans.

IT Workforce Skills Assessment Survey. Also known as the Clinger-Cohen Assessment, this survey was conducted via the Internet in September 2003 to collect information regarding employee IT competencies, skills, certifications, and specialized job activities at federal agencies. This voluntary survey asked IT employees to assess their own current proficiency in a set of general and technical competencies and IT-related skills; it also asked employees to indicate broad certification areas in which they currently possess a recent certification (past 3 years). The survey also asked respondents to estimate the amount of time they spent each day on 10 different specialized job activities (e.g., IT project management, IT security or information assurance). Agencies can use the survey results to satisfy the Clinger-Cohen requirement for a workforce assessment and to respond to Office of Management and Budget (OMB) requirements for budget submissions. OPM plans to use the survey results as part of its efforts to analyze the personnel needs of the government relating to IT and information resources



How Agencies Provide Training Governmentwide Programs and Initiatives

management. The IT workforce population for this survey consists of both traditional and nontraditional IT-related job series.¹ The voluntary survey achieved a 26 percent response rate.

CIO University. A consortium of universities offering graduate level courses that directly address the Clinger-Cohen core competencies for IT professionals, the CIO University is sponsored by the CIO Council and administered by the General Services Administration (GSA). As of November 2003, 289 individuals have received CIO University Certificates, and an additional 150 individuals are expected to complete the program in 2004.

STAR Program. The Strategic and Tactical Advocates for Results (STAR) Program is a cross-discipline, strategic leadership course sponsored by GSA and the CIO Council. It is a one-week course offered to mid- and upper-level federal managers in the information technology (CIO), finance (chief financial officer), program (chief executive officer), and procurement areas of an agency. The program covers the following topics: leadership, program and project management, capital planning/investment process, technology and e-government, security, government and Congress. As of November 2003, approximately 225 mid- and upper-level federal managers have completed the program.

¹ E.g., GS-2210, GS-391, and GS-1550, as well as GS-301, GS-340, and GS-343.



Obstacles to Effective IT Training and Strategies for Dealing with Obstacles

Almost all agencies cited funding and the amount of time that training requires during normal work hours as common obstacles to providing and receiving effective training.

Agencies reported various strategies to address these obstacles. These strategies include

- building training requirements into project and program planning;
- increasing the use of e-learning and other delivery methods to reduce costs;
- encouraging training during nonwork hours (specifically, training recipients cited working with their supervisors to accommodate a study schedule and to leave work early for training); and
- prioritizing individual training requests.



Factors to Consider in Preparing for Future IT Training

Agencies reported various IT factors that need to be considered in preparing for the future:

- Rapidly changing technology: this drives changes in skills requirements and curricula. For example, employees holding certifications may need frequent and costly recertifications.
- An aging workforce: retirements can lead to loss of skills and expertise.
- The need for more project management and contract management expertise.
- The need to address federal initiatives, such as e-government and enterprise architecture.
- An increasing emphasis on cyber security.



OPM Progress in Issuing Governmentwide Policies

The E-government Act of 2002 requires agencies to have IT training programs that

- have curricula covering a broad range of IT disciplines;
- are developed and applied according to rigorous standards; and
- are designed to maximize efficiency, through the use of a variety of training methods.

To provide oversight over these programs, the act requires OPM, in coordination with OMB, to issue policies to promote the development of performance standards for training, and to evaluate agency implementation of the provisions cited above.

OPM officials stated that they are working on draft guidance related to performance standards, but the draft is currently on hold. OPM plans to coordinate with OMB, the CIO Council, and the Chief Human Capital Officers' Council and to complete draft guidance in the fourth quarter of fiscal year 2004. They also told us that OPM is in the final stages of issuing a report on governmentwide IT training that sets out a framework for their implementation strategy. OPM announced milestones for issuing policies in its response to a draft of this report.



OPM Progress in Issuing Governmentwide Policies

OPM has made little progress in evaluating agency implementation of the E-Gov Act provisions cited above. OPM cited evaluation activities that it plans to do. One of these—coordinating and reviewing the ongoing expansion of GoLearn, STAR, and CIO University course offerings—would address curricula. However, OPM did not identify planned evaluation activities that would address development standards or efficiency. Further, OPM provided no milestones for evaluation activities.

OPM said that it will consider incorporating the leading practices cited in our earlier report as appropriate in future guidance promoting uniform implementation of the E-Gov Act's provisions by agencies.

Until policies are established that promote the development of performance standards for training, and progress is measured against these standards, agency and OPM oversight of federal IT training programs will continue to fall short of the expectations established in the E-Gov Act with respect to standards.



Conclusions

- Federal agencies provide IT training in a variety of ways.
- Governmentwide training programs and initiatives are available to the IT community.
- Agencies face the difficult obstacles of finding the funds and time to provide effective IT training, and they continue to explore new ways of dealing with these obstacles. In addition, agencies must consider factors such as rapidly changing technology and an aging workforce to effectively plan for the future.
- Agencies report using the leading practices that we identified. However, most practices were not used to a great or very great extent, particularly in the area of training evaluation. Increased use of these practices can result in more effective training management.
- Until OPM issues policies promoting the development of performance standards for training and measures progress against these standards, its oversight of federal IT training programs will continue to fall short of the expectations established in the E-Gov Act with respect to standards.



Recommendations

We recommend that, as part of OPM's oversight responsibilities under the E-Gov Act, the Director of OPM

- Issue IT training policies, consistent with our strategic training guide, that promote development of performance standards for training and encourage agencies to use the leading practices that we identified, and
- set specific milestones for evaluating agency implementation of the E-Gov Act IT training provisions cited above.



Attachment 1. Leading Practices

Align IT training with business goals

- Enlist executive-level champions (sponsorship) to ensure that training strategies are incorporated into corporate decisionmaking and aligned with business goals
- Involve critical stakeholders, such as top management, business unit managers, subject matter experts, human capital staff, and end users, in planning IT training
- Address future skill needs and new technologies as part of the planning process

Identify and assess IT training needs

- Identify and document competencies/skills required for each job description
- Maintain a current inventory of skills
- Address overall career development issues as well as skill-specific training issues
- Perform a gap analysis to determine where training is needed
- Use self-directed tools, such as individual development plans, to give employees responsibility in assessing their development needs
- Use a single portal to give staff and managers access to training and career development information

Allocate IT training resources

- Ensure that an investment process is in place to select and manage training projects
- Consider the benefits and costs associated with various training design and delivery methods—e.g., Internet-based as opposed to classroom training
- Identify people who have high potential and provide them specialized training opportunities
- Ensure that resources are allocated for IT management training—e.g., leadership and project management

Design and deliver IT training

- Provide IT trainees with the flexibility to choose among different IT training delivery methods
- Ensure that on-the-job training is planned and monitored as part of the training process
- Consider combining different teaching methods (for example, Web-based and instructor-led) within the same course
- Provide just-in-time training
- Consider outsourcing training solutions—e.g., university partnerships and external IT training and content providers
- Build courses using reusable modules

Evaluate/demonstrate the value of IT training

- Collect information on how job performance is affected by training
 - Validate IT content learning by testing and certification of specific skills—e.g., Java or C++
 - Assess evaluation results in terms of business impact
-



Attachment 2: Departments and Agencies Providing Information

Agency for International Development	Department of Justice
Department of Agriculture	Department of Labor
Department of Commerce	Department of State
Department of Defense, Office of the Secretary of Defense	Department of the Treasury
Department of the Army	Department of Transportation
Department of the Navy	Department of Veterans Affairs
Department of the Air Force	Environmental Protection Agency
Defense Information Systems Agency	General Services Administration
Department of Education	National Aeronautics and Space Administration
Department of Energy	National Science Foundation
Department of Health and Human Services	Nuclear Regulatory Commission
Department of Homeland Security	Office of Personnel Management
Department of Housing and Urban Development	Small Business Administration
Department of the Interior	Social Security Administration



Attachment 3: IT Training Statistics

Statistics and data Issues

Time and money spent by agencies on IT training varied widely. Based on agency responses, for fiscal year 2002, a majority of agencies (14 out of 23) provided at least 5 to 6 days annually in IT training, on the average, for IT staff members. The average annual amount spent on IT training per individual IT staff member ranged from \$301 to \$2109.¹ (See the next two slides for a distribution of all agency responses for the amount of time and money spent on IT training.)

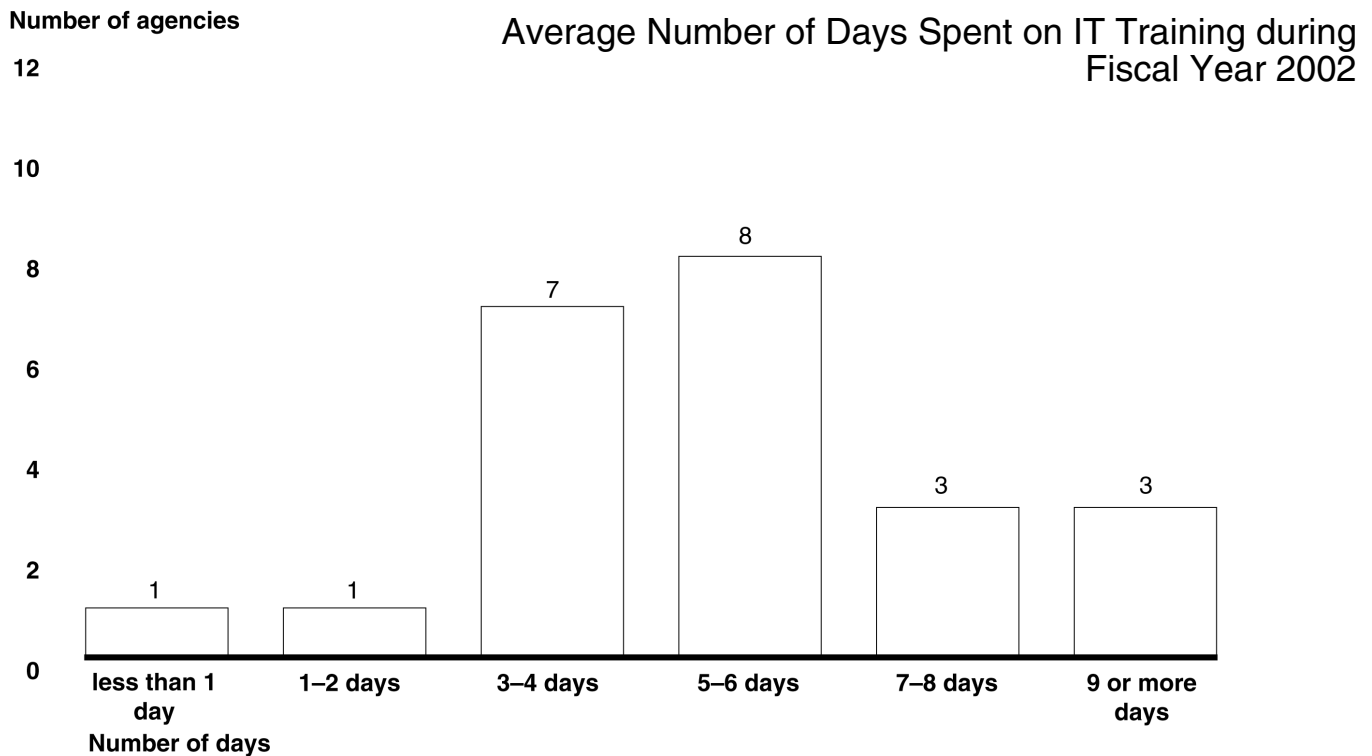
However, agencies had difficulty reporting such statistics, because they had incomplete or limited management information on IT training. Specifically:

- Four agencies reported that they do not track the number of IT staff trained. In discussions, agency officials noted difficulties in identifying all their IT staff, because the various IT job series do not include all staff performing IT functions.
- Nine agencies reported that the data they provided were incomplete (i.e., did not include all agency components).
- One agency reported that it was unable to separate contractors from federal employees.

¹Calculated on the basis of all training dollars against all IT staff, not just those that received training.



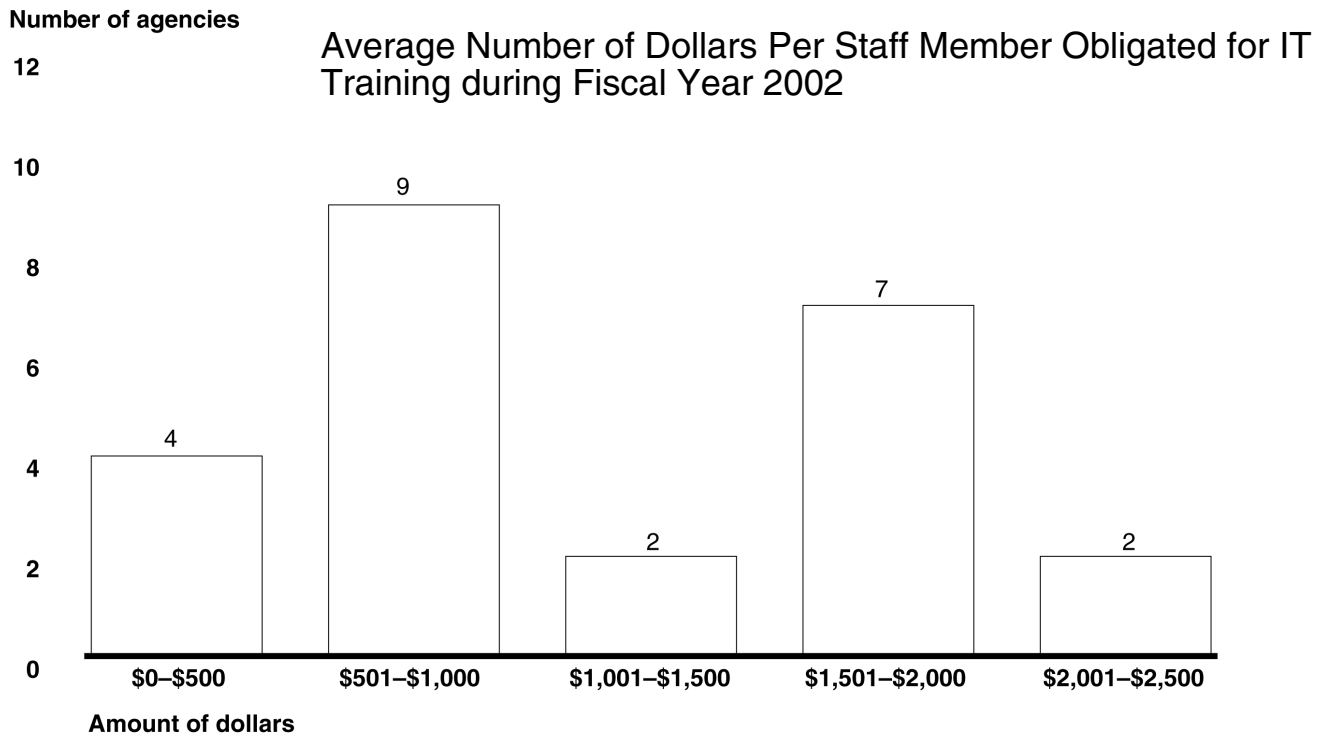
Attachment 3: IT Training Statistics
Days Spent on IT Training



Source: GAO analysis of agency provided data.



Attachment 3: IT Training Statistics
Dollars Spent on IT Training



Source: GAO analysis of agency provided data.



Attachment 4: Case Studies

Although agencies in general were not making wide use of the leading practices, agencies identified examples in which effective use of these practices is resulting in more effective training management. We provide five case studies of these examples in this attachment.

Identifying Needs

- The Department of the Navy developed a career management tool for its workforce.
- The Department of State established a monetary incentive program to retain employees with necessary skills and to encourage employees to acquire professional skills and certifications.

Allocating Resources

- The National Aeronautics and Space Administration (NASA) created a program to develop project managers.



Attachment 4: Case Studies

Design and Delivery

- The Department of Homeland Security (DHS) established a reusable content strategy that allows leveraging existing material through multiple courses and various delivery methods.

Evaluating IT Training

- Interior's National Training Center has a method for estimating the value of IT training.

No examples were identified of the effective use of practices in the management process "Aligning IT Training with Strategic Goals."



Navy Five-Vector Model Helps Staff Manage and Advance Their Careers

Practices Illustrated

- Identify and document skills
- Address career development & training
- Use self-directed tools

Background

Because the Navy places a high priority on career development and training, it created a comprehensive career management program that its workforce can access worldwide to enable their success.

Challenge

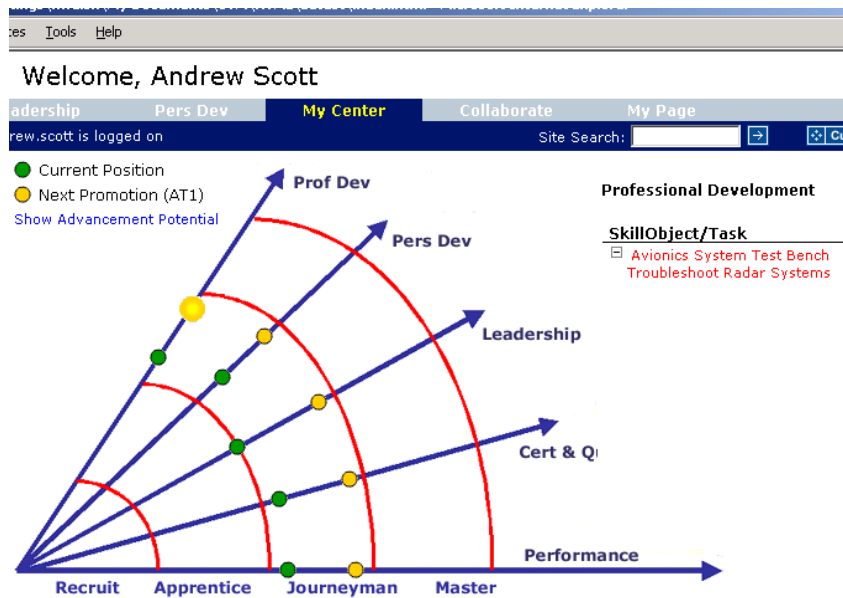
To provide training and career management tools to a workforce that is highly decentralized, complex, and widely dispersed.



Attachment 4
Identifying Needs: Case Study 1

Solution

The Navy developed the Five-Vector Model, which users access via its knowledge portal (www.nko.navy.mil). The tool is used to track, guide, and evaluate career development efforts for positions that include IT professions.



Source: Department of the Navy.

As shown, there are five proficiency areas (“vectors”) in which staff skills and abilities are evaluated:
 (1) professional development,
 (2) personal development,
 (3) leadership,
 (4) certifications and qualifications, and
 (5) performance.

In each proficiency area, personnel may advance through four levels from recruit to master.



Attachment 4
Identifying Needs: Case Study 1

Solutions (cont'd)

Users can graphically view advancement opportunities from their current position to the next position, map their skill levels along vector points, track individual skills inventory, and link their position in conjunction with training requirements. Users may also conduct career advancement searches for planning purposes.

Reported Results

The Navy reported that it can more effectively manage its workforce planning and development efforts. Personnel and supervisors report satisfaction in better managing training and career.



Attachment 4
Identifying Needs: Case Study 2

State Department Implements Skills Incentive Program for Critical IT Skills

Practice Illustrated

- Address career development and training

Background

Because the department is dependent on a stable and highly trained IT workforce to support an array of technically sophisticated functions, a high priority was placed on training and development.

Challenge

To increase the IT workforce's expertise and skills base while maintaining a low turnover rate.

Solution

The department established a schedule of incentive allowances ranging from 5 to 15 percent of base pay to retain employees with necessary skills and to encourage employees to acquire professional skills and certifications.



Attachment 4
Identifying Needs: Case Study 2

Solution (cont'd)

- Bonus of up to 15 percent for highly valued qualifications, such as Cisco Certified Systems Engineer or an approved master's degree.
- Bonus of up to 10 percent for such qualifications as Certified Information Systems Security Professional or approved bachelor's degree.
- Bonus of up to 5 percent for such qualifications as USDA Graduate School Webmaster Certification or Certified Lotus Notes Systems Administrator.

Reported Results

The department maintains a stable and highly trained workforce. Since inception of the program,

- 72 percent of eligible IT employees applied for program enrollment, and
- 61 percent of those who applied were approved.

Before the program started, less than 20 IT staff were certified as Microsoft System Engineers. As of October 2003, 345 have been certified.



Attachment 4
Allocating IT Training Resources: Case Study

NASA targets resources to develop a cadre of skilled project managers.

Practices Illustrated

- Ensure that resources are allocated for management training—e.g., leadership and project management
- Combine different teaching methods
- Provide just-in-time training

Background

NASA is a highly project-based organization with a workforce made up of nearly twice as many contractors as civil service staff. In an environment where both the number of projects and their complexity is increasing, NASA requires skilled, qualified project managers.

Challenge

To develop a cadre of employees with the proper management skills to deliver projects within cost and on schedule.



Attachment 4
Allocating IT Training Resources: Case Study

Solution

NASA established the Academy of Program and Project Leadership (APPL) program in 1997 to increase program and project management capabilities and competencies. APPL provides professional development services to individuals and teams through a blended learning approach that integrates career development, performance enhancement, and knowledge sharing.

- **Career development:** Addresses the development of project management competencies and skills. One resource, the Project Management Development Process (PMDP), sets standards for achieving baseline competencies for program and project managers. PMDP also specifies a set of required coursework at each level of development for participants.
- **Performance enhancement:** Provides support to the individual or project team when needed, extending the learning environment beyond the classroom to deliver just-in-time support directly to new and existing project teams through activities such as mentoring and executive coaching.



Attachment 4
Allocating IT Training Resources: Case Study

Solution (cont'd)

- Knowledge sharing: Promotes leadership development through mentoring and teaching.

Reported Benefits of APPL

Career development. Project managers are better prepared in advance of project need.

Performance enhancement. Project team probability of success is enhanced by the delivery of just-in-time knowledge.

Knowledge sharing. A knowledge sharing community of project leaders is cultivated within the agency.



Source: NASA.



Attachment 4
Allocating IT Training Resources: Case Study

Reported Results

Overall, NASA reported the following benefits of this program:

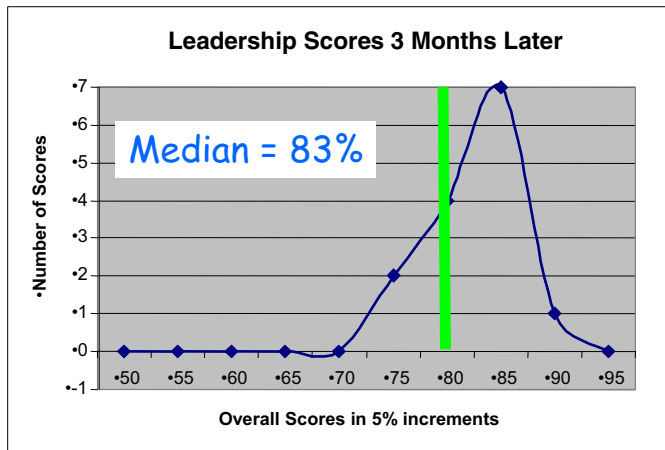
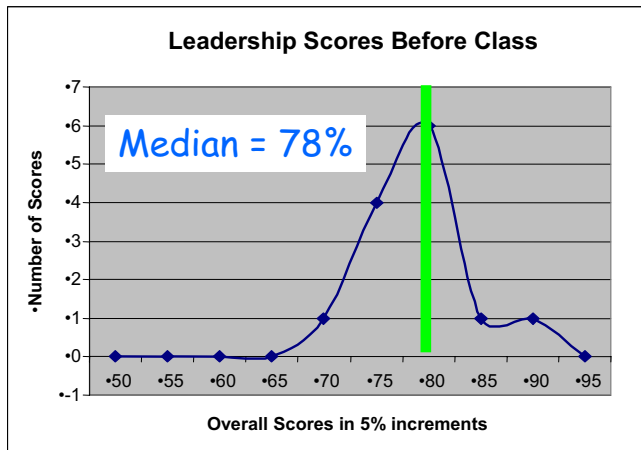
- NASA project managers are better prepared to meet the challenges of today's project environment through the three APPL business lines.
- APPL meets the needs of a diverse group of NASA project managers by providing a full spectrum of products and services.
- Project managers can customize their professional development based on their skill level and amount of experience.
- APPL participants improved their scores on assessments that measure performance in project management areas such as leadership and teamwork (see next slide).



Attachment 4
Allocating IT Training Resources: Case Study

Reported Results (cont'd)

Participants take baseline assessments before taking APPL classes and can choose to take a re-assessment to capture trend metrics on performance.



Source: NASA.

The median score on the APPL Leadership Assessment for participants who chose re-assessment after 3 months improved from 78 to 83 percent. APPL considers 80 percent to be the minimum acceptable effectiveness rate and plans to revisit participants whose scores fall below the minimum and encourage coaching and re-assessment. For additional information on NASA's APPL program, see www.appl.nasa.gov.



Attachment 4
Design and Delivery: Case Study

DHS's Reusable Content Design and Development Strategy Offers Flexibility in Choosing among a Variety of Delivery Methods

Practices Illustrated

- Provide IT trainees with the flexibility to choose among different IT training delivery methods
- Build courses using reusable components

Background

DHS's Technology Training Services office in the Bureau of Immigration and Customs Enforcement (formerly the Immigration and Naturalization Service) provides training design, development, and delivery services to support IT professionals and technical support employees.

Challenge

To provide training through a variety of delivery methods in a cost-effective manner.



Attachment 4
Design and Delivery: Case Study

Solution

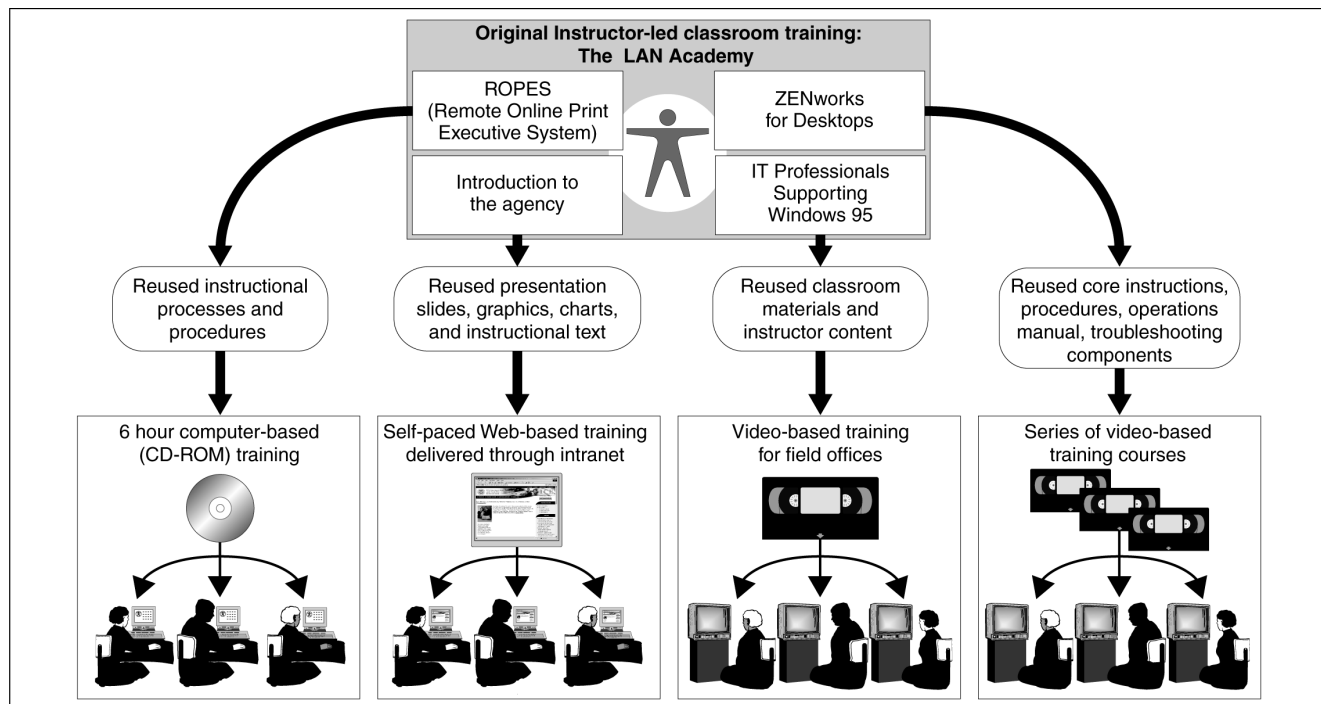
The agency established a standard template for course developers to use in designing and delivering training courses. This approach allowed designers to reuse course content in various courses while using various delivery methods. For example, as the following slide shows, course developers were able to reuse content from components of the LAN Academy instructor-led course to develop four additional courses—all delivered using different media modes.

Reported Results

Course development time and cost were reduced to a fraction of the amount of time associated with designing/developing each course from scratch.



Attachment 4
 Design and Delivery: Case Study



Source: GAO, DHS, Art Explosion (images).

Note: GAO analysis of agency-provided data.



Department of the Interior Uses Test Results to Estimate Training Value

Practices Illustrated

- Assess evaluation results in terms of business impact
- Validate content learning by testing

Background

The Bureau of Land Management (BLM) National Training Center (NTC) provides technical training across all of BLM's natural resource management program areas. Although calculating return on investment is complex and often costly, BLM wanted to answer the question "Are we getting our money's worth?"

Challenge

Implement a process for estimating value of training investment.



Attachment 4
Evaluating Training: Case Study

Solution

NTC estimates the value of training based on how much improvement is shown by pre- and post-testing.

- The “Value of Performance Before” is calculated by multiplying the average percentage score on the pre-test by the average participant salary. (For example, if average salary is \$50,000 and average pre-test score is 50 percent, value before would be \$25,000.) Similarly, “Value of Performance After” is calculated from the average post-test score and average salary. (If the post-test result is 70 percent, value after would be \$35,000.)
- Value before is subtracted from value after to determine “Gain Per Participant” (\$10,000, in this case) and cost per participant is subtracted to determine net value (if cost is \$2,000, for example, net value would be \$8,000).
- Net value is then divided by cost to facilitate comparisons among different training courses.



Attachment 4
Evaluating Training: Case Study

Reported Results

NTC was able to document the value of its training.

Demonstrating the value of courses has helped justify the cost of technology, such as satellite broadcast, used to deliver training.

Courses with low calculated value were flagged for further discussion of their value to the agency.

Note: This process is similar to one recommended by OPM in its publication, *A Guide to Strategically Planning Training and Measuring Results* (July 2000), p. 44.

Comments from the Office of Personnel Management



OFFICE OF THE DIRECTOR

UNITED STATES
OFFICE OF PERSONNEL MANAGEMENT
WASHINGTON, DC 20415-1000

JUN 17 2004

Mr. J. Christopher Mihm
Director, Strategic Issues
United States General Accounting Office
441 G Street, NW.
Washington, DC 20548

Dear Mr. Mihm:

The U.S. Office of Personnel Management (OPM) welcomes the opportunity to comment on the General Accounting Office (GAO) draft report of May 28, 2004, *Information Technology: Training Can be Enhanced by Greater Use of Leading Practices* (GAO-04-791). While the report provides useful case studies, we must take issue with your conclusions about our role and efforts with respect to IT training in the Government.

OPM has not fallen short of the expectations established in the E-Government Act of 2002. The draft report focuses on only one of six statutory responsibilities – issuing policies to promote the development of performance standards for training and evaluating their implementation. That Act also calls for OPM to analyze, on an ongoing basis, personnel needs, to identify training shortfalls, to oversee training administration, and to assess training as these activities relate to information technology and information resources management. Those responsibilities are being carried out by this Agency. In addition, the report fails to acknowledge that the E-Government Act of 2002 calls for OPM to work with the Chief Information Officers Council and the Office of Management and Budget to address personnel needs of the Government related to information resources management.

With respect to issuing policies, the report does not fully and fairly inform the reader as to the status of the policy. The OPM report, "*Report on Existing Governmentwide Information Technology Training Programs*," recommending a Governmentwide IT training framework based upon the IT Workforce Development Roadmap of the GOLEARN system, is in final clearance. With respect to milestones for issuing policy, OPM has not failed to set milestones as alleged by the draft report. The following are the milestones:

- Approval of OPM's *Report on Existing Governmentwide Information Technology Training Programs* (July 2004)
- Meet with CIO Council Workforce and Human Capital for IT Committee to define Committee's role in implementing the Governmentwide IT Training Framework (August 2004)

CON 131-64-4
September 2001

Appendix II
Comments from the Office of Personnel
Management

Mr. J. Christopher Mihm

2

- Draft guidance to promote IT training performance standards (September 2004)
- Finalize guidance to promote IT training performance standards (October 2004)
- Communicate Governmentwide IT Training Framework and guidance to agencies via briefing to CIO Council and dissemination by OPM's human capital officers (November 2004)

We also must take exception with the report's comment that OPM has made little progress in evaluating agency implementation of the E-Government Act provisions. The report fails to acknowledge that an effective program of evaluation, particularly in the area of information technology, is ongoing through the Human Capital Leadership and Merit Systems Accountability division in OPM. OPM's human capital officers, responsible for working with the human capital offices of Federal agencies, will incorporate review of agency use of the Governmentwide IT Training Framework and standards in their regular review of agencies' mandated training programs through the Human Capital Assessment and Accountability Framework (HCAAF), specifically through the Talent Standard and the Leadership and Knowledge Management Standard. The Continuous Learning and Improvement critical success factor under the HCAAF Knowledge Management Standard addresses agencies' training and development programs and strategies. The GAO draft report fails to provide any of this information or context.

Finally, we take exception to the use of GAO's 22 standards as a mandatory benchmark for success or failure of agency IT training programs. Those standards are simply an expansion, and not necessarily a comprehensive expansion, of five traditional activities engaged in by training administrators – mission alignment, needs assessment, resource allocation, design and delivery, and evaluation. Not all of the 22 standards should be considered mandatory, such as enlisting executive-level champions, providing just-in-time training, combining different teaching methods, and building courses using reusable modules. Those are useful strategies and there are alternative approaches to them, but they should not be considered mandatory standards.

Thank you again for the opportunity to comment

Sincerely,



Kay Coles James
Director

Comments from the Department of Veterans Affairs



THE SECRETARY OF VETERANS AFFAIRS
WASHINGTON

June 18, 2004

Mr. David A. Powner
Director, Information Technology Management Issues
U. S. General Accounting Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Powner:

The Department of Veterans Affairs (VA) has reviewed your draft report, **INFORMATION TECHNOLOGY: Training Can Be Enhanced by Greater Use of Leading Practices** (GAO-04-791) and agrees with your conclusions as they pertain to VA.

The focus of this report is on information technology (IT) training for IT professionals. As GAO states, many Federal agencies send their staffs to external training. In addition to using external training courses, VA provides training to IT professionals through its annual Information Security, Information Technology, and the Veterans Health Administration's (VHA) e-Health University conferences. Additionally, VA has embarked on a rigorous effort to ensure that its project and assistant project managers have the necessary project management training and certification. Currently, this effort is focused on managers of Office of Management and Budget (OMB) 300 level projects.

VA also provides access to on-line training for IT staff via VA Learning Online (VALO). Contracted by the VA Learning University, VALO is a web-based campus, which brings training right to an employee's desktop. Whether at home or at work, an employee is able to access the courses he or she desires for training and personal development. VALO currently offers 2,000 courses, many of which are targeted toward the IT technical professional. The target audience for VALO is all VA employees. With VALO, employees can get free quality training in one central place, at their own pace and convenience.

The report does not detail agency efforts to provide training for IT end-users. VA provides significant training to end-users on how to use the various IT applications key to their line of business. For example, training to clinical staffs on how to use Veterans Health Information Technology Architecture (Vista) applications is provided through CD-Rom, web content, conference calls, train-the-trainer, and an in-depth annual hands-on conference, VHA e-Health University.

Appendix III
Comments from the Department of Veterans
Affairs

Page 2.

Mr. David Powner

IT training is an important goal of the Department. This critical training cuts across all VA elements to reach employees and assist them in performing their duties.

Thank you for the opportunity to comment on your draft report.

Sincerely yours,



Anthony J. Principi

Comments from the Department of Health and Human Services



DEPARTMENT OF HEALTH & HUMAN SERVICES

Office of Inspector General

Washington, D.C. 20201

JUN 18 2004

Mr. David A. Powner
Director, Information Technology
Management Issues
United States General
Accounting Office
Washington, D.C. 20548

Dear Mr. Powner:

Enclosed are the Department's comments on your draft report entitled, "Information Technology: Training Can Be Enhanced By Greater Use of Leading Practices" (GAO-04-791). The comments represent the tentative position of the Department and are subject to reevaluation when the final version of this report is received.

The Department provided several technical comments directly to your staff.

The Department appreciates the opportunity to comment on this draft report before its publication.

Sincerely,

A handwritten signature in cursive script that reads "Dara Corrigan".

Dara Corrigan
Acting Principal Deputy Inspector General

Enclosure

The Office of Inspector General (OIG) is transmitting the Department's response to this draft report in our capacity as the Department's designated focal point and coordinator for General Accounting Office reports. OIG has not conducted an independent assessment of these comments and therefore expresses no opinion on them.

Appendix IV
Comments from the Department of Health
and Human Services

Comments of the Department of Health and Human Services on the General Accounting Office's Draft Report "Information Technology, Training Can Be Enhanced by Greater Use of Leading Practices" (GAO-04-791)

While the Draft Report GAO-04-791, "Information Technology, Training Can Be Enhanced by Greater Use of Leading Practices" is found to be generally on the mark, we have concerns with several points contained in the draft report and offer the following comments.

It is difficult to assess the extent of the report's findings relative to the situation at the Department of Health and Human Services (HHS) as there was no specific information regarding HHS included in the report.

We had provided extensive information to GAO about the National Institutes of Health's (NIH) IT training program; however, none of this information was referenced in the report. Therefore, we would like to restate that NIH offers a large and varied selection of IT training courses tailored to the needs of its research staff, far beyond the routine commercially available products. In 2003, the NIH's Center for Information Technology alone offered over 300 different computer courses with more than 10,000 attendees. We believe inclusion of the NIH program, as an illustrative example of a highly successful Federal IT training program would enhance the report's findings.

In a January 2003 report from data gathered in 2001-2002 on IT technology training practices of 12 leading private-sector companies, GAO had identified 22 leading IT training practices. The practices chosen reflect conventional wisdom in training theory such as "enlist executive-level champions" and "document competencies/skills required for each job description." In this report, IT training at Federal agencies was judged by how closely those practices were being followed agency wide. Because GAO used only conventional traits as their criteria, creative programs that effectively meet unique training needs, such as those at NIH, were overlooked in the draft report. Again, we would recommend inclusion of creative programs that meet unique mission needs, such as research, that are not met through routine IT training.

The report criticized that Federal "agency officials frequently reported that the identification of training needs was employee driven." We note this criticism does not take into account that some training needs are appropriately identified at the individual or supervisor level; for example, a researcher or immediate lab chief would best know whether a staff member would benefit from such technical courses as "MATLAB for Image Processing" or "Evaluation Methods in Biomedical Informatics."

When discussing collection of performance data, the report references criteria levels similar to those used in the Kirkpatrick model of training evaluation. It assumes that Level One, "participant reaction," is less valid than higher levels such as "changes in students' work behavior," "achieving organizational goals," and "return on investment

Appendix IV
Comments from the Department of Health
and Human Services

(ROI).” However, training researchers have come to realize that participant reaction is the most valid measure of the value of a specific training experience. This is particularly true for highly educated professionals who have self-directed their educational paths since undergraduate days. ROI and alignment with Enterprise Architecture can be measured and established for broad areas of IT training.

Because of its study design, the report does not provide best practices to meet IT training needs of research professionals and IT practitioners. Thus, implementing the recommendation that OPM should “set milestones for issuing government-wide IT training policies . . . to use the leading practices that we identified,” would ignore the unique training needs of the research environment and adversely impact programs already in place to meet those needs.

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