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## 3<sup>rd</sup> Annual E-Learning/SOLAR Workshop Notes

December 4-5, 2003

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## **Welcome/Introductions – Mercedes Sironi**

Mercedes welcomed everyone to the workshop. She went over the changes in the agenda and invited people to a tour of Ames on Friday afternoon at the conclusion of the workshop. Formal introductions were made following the first break.

## **E-Learning at NASA Today–Opportunities and Challenges – Joe McElwee**

### 1. Challenges

- a. E-Gov Initiative-The challenges we face in e-learning may be perceived as either threats or opportunities we can build on. The e-gov initiative is a challenge because it's a presidential mandate that asks us to do what's best government-wide. As an example, the result may not be best for NASA, but should result in savings government-wide. We are expected to participate regardless.
- b. Meeting Expectations-This refers to internal expectations. Years ago, SOLAR's biggest challenge was performance. Now, SOLAR has become so successful, the biggest challenge is meeting customer expectations for delivering their content.
- c. Search for value proposition-Are we supporting the real needs of the agency through SOLAR? SOLAR primarily is used for mandatory training, not to deliver highly relevant technical training. We would like this to change.

### 2. Opportunities

- a. E-Gov Initiative-this initiative is building a wonderful modern e-training infrastructure. As agencies continue to be migrated, more tools and services are coming along and costs are going down. The service is SCORM compliant. Migration does provide us an opportunity.
- b. Human Capital Challenges-Workforce competency-based training is an important approach these days. E-learning has great potential in this area to search and find courses relevant to competency-based career roadmaps. Tools already exist that can support this requirement.
- c. Technology-technology continues to rapidly increase. Each iteration provides more opportunity to support the workforce. Where we are really headed is for e-learning support, to be seamlessly blended into our daily job.

Question 1: Does the current budget allow for some of these things, or are we competing?

Answer: The budget is flat at the agency level. It is not really declining, so that is a good thing.

Question 2: Please comment on the CAIB report.

Answer: The CAIB report posed an observation on the lack of integration and consistency in NASA's approach to management and leadership training. Other training related findings were very specific to the Space Shuttle Program. These latter findings will be program-driven to fix and solve.

I suspect that the report provides us an opportunity. We could provide access to standard courses and build a curriculum to supplement what is already in place.

Question 3: Will you go to each center and ask?

Answer: A team is being created from all centers to ensure collaboration.

## **SOLAR–Status and Metrics – *Steve Rowell***

One question I'd like to answer with this presentation is: what happened since last year?

### 1. Infrastructure

The software changes that were made were done to enable SOLAR to talk to Adminstar. Single Sign On is the fallout of having to have systems talk to one another. The biggest challenge we faced with the interface was interfacing applications that identify users differently. Our goal was to get scores from SOLAR to Adminstar.

### 2. User Enhancements

We added e-mail capability for the administrator reports, course number to the certificates of completion, download page capability for SOLAR media kit, logoff button, and enhanced capability for SME questions.

### 3. Content

This is an area where we've seen a real pay-off. Safety and Mission Assurance courses were upgraded to 508 compliance. We also upgraded and hosted 17 ElementK courses and developed and hosted 29 other courses. As a result, the request for service is shifting from software development to course content development.

### 4. Metrics

The number of tests taken in all disciplines is 66,772 for the period October 1, 2002 to September 30, 2003. We also have close to 63,000 accounts on SOLAR.

The trouble tickets have dropped. The password reset was by far the representative of all trouble tickets. This is an area that we need to deal with and present a solution to the CCB.

Question 1: Since you provide development of web applications, do you interact with OneNASA to ensure same standards?

Answer: No, but we should.

Question 2: Do you have dialog with other ODIN centers to build to standard load?

Answer: In theory, we're supposed to be. There's a need for commonality.

Suggestion: Put something there about standards.

## **Single Sign On – *Steve Rowell***

Single Sign On was conceived as a way to interface SOLAR to Adminstar. There may be other learning systems that will need this common interface. The challenge to tie people's ID has been

resolved with SSO. The SOLAR ID and the Adminstar ID (Social Security) had to be matched. SSO accomplished this link by assigning a common identifier. When UUPIC comes along, it will replace the identifier used by SSO and we'll need to do a global change across systems. The time frame for this is not known.

The Learner Matching Process presented the most challenge (NPPS already interfaces with Adminstar). We plan to remove the year from the DOB requirement.. For contractors, we use a combination of checks. The code has been tightened since we went live. We also monitor twice a day by running reports.

Question 1: How come we are still getting duplicate records?

Answer: You shouldn't be getting duplicates. Our latest run only had a couple of instances that we resolved manually. If you are, please let me know.

Future considerations for SSO include rewording and formatting directions and error messages for clarity, adding a password hint feature, and converting some text into buttons.

Another area that needs improvement is the SSO Login screen. I am working with SOLAR support to get feedback to improve the process. Right now, we are dealing with problems such as the user entering a nickname and the system recognizing it, the POC e-mail being incorrect so the user never gets the approval, etc.

## **SOLAR 2.0 Release – *Steve Rowell***

This presentation will cover the things we need to do next year. Some of those things are: catalog search feature, enhanced metrics, improved survey feedback on the content of the course, data warehousing, section 508 and HTML compliance.

The catalog search feature has become a necessity as we get more and more courses on SOLAR. This is a particular problem when users do not know the name of the course or which discipline to search.

The enhanced metrics will provide metrics for course utilization and are needed to evaluate the use of SOLAR. This information will be used to track the use of COTS as well. The monthly course utilization metrics should include the name of the course, the number of times the course was accessed, the total number of courses accessed, and the number of users that accessed the course.

The survey feedback as it is right now is not helpful to SME's. The course survey results needs to be sent to the SME.

Question 1: Just an observation. I know now that there is a "survey report" on SOLAR that I can run and it will give me the survey feedback on a particular module. Before I found out about this from Mercedes, Terry used to send me the feedback that dealt with the course content.

Answer: There is a survey report and we will go over the types of reports available in another presentation.

Requests have been made for direct access to SOLAR data files. Access to production system files is not practical due to performance reasons. However, SOLAR users need a place where data can be queried. This need is being considered by the SOLAR CCB.

Many of the lower level SOLAR pages are not 508 and HTML compliant. All new courses are run through a 508 validator. If a course is not compliant, we let people know. We try not to put non-compliant courses on SOLAR.

## **NASA Systems–SOLAR/E-Learning/NORS/AdminSTAR–Working Together–Panel Discussion – *Joe McElwee, Steve Rowell, Tony Lopez-* Moderator**

This discussion is an opportunity to talk about the systems. The four applications—AdminSTAR, NORS, SSO, SOLAR—are referred to as “learning systems.” The primary function of AdminSTAR is to be a central repository for all training records. NORS is a complement to AdminSTAR. It is web-based and shares a database with AdminSTAR. SSO is a place to log in to SOLAR or NORS. It assigns a unique identifier. SOLAR is a delivery system for web-based training. The NPPS database updates AdminSTAR and SSO to keep user profile in sync.

So now the question comes up as to how these systems work together. The diagram on slide 6 provides a visual of how the systems are interconnected. The next slide, the learning systems organization shows the basic structure for every agency-wide system that we maintain. The Functional Sponsor (FS) has primary responsibility for funding and functional oversight. He/she may appoint a Program Functional Manager (PFM). The PFM provides functional guidance, approves all requirements changes, and is responsible for functional requirements. The Consolidation Center Project Manager (CCPM) provides budget oversight, approves all system changes, and oversees the technical team. The technical team implements the approved CCR’s, maintains system documents, provides estimates to the CCPM, and formulates technical solutions.

The next slide presents the current organization. Future considerations may include combining the role of the PFM and having one project manager responsible for the four systems. What does it mean? Improved communication between center training professionals and learning systems management, improved communication between technical teams, reduced end user confusion regarding who to contact for what system, and reduced risk of crossover impacts, such as changes to one system adversely affecting the other system. In addition, it would mean improved continuity between CCB’s, streamlining, and build on what we can do for the future.

Question 1: Are there plans for role-based process training? In other words, the system recognizing the user and customizing the page for that user

Answer: This is something that has been talked about for a long time. There are existing tools on the market that can do this. Portal technology is the ideal solution but we have no major budget or approval to implement this just within the e-Learning community. But, it will be here someday.

Question 2: Is role-based learning same as learning paths?

Answer: Yes.

Question 3: Is anyone looking at combining e-learning with knowledge management and mentoring?

Answer: From the e-learning perspective, this is not a new idea. In general, across the agency, there is a lot going on in knowledge management. However, we have not formally bridged the gap between that community and SOLAR. This has a hardware/software and human issue. The human issue is to track where the experts reside and keep this up to date. A portal is also good in this area in that it recognizes you as part of a community of practice.

Question 4: Can it be used as a resource tool?

Answer: It could be a web-based tool that could be linked to SOLAR.

Observation: JSC is kicking their e-learning initiative and will tie it to mentoring. The courses will be available through Netg and there will be access to online mentor. However, this would be a tremendous undertaking for SOLAR to take.

Question 5: What happens when NPPS goes away?

Answer: We have already been talking to the team that will be replacing NPPS. The data they will get will be identical to what they've been getting from NPPS. We have initiated a document for an interface agreement.

Observation: Look at agency directory initiative as an interface. That source will hold CIMS-cyber identity management system.

Observation: Whoever is working on a portal should be notified that there is this team.

Answer: In theory, the agency CIO's office would perform that function.

Question 6: A fifth block on the learning systems slide should be competency management. Can you tell us where it is going?

Answer: The competency management system is getting a lot of attention. The latest expectation at the agency level is to use it to identify critical competency gaps across the agency. It is another HR system that code F manages.

Question 7: I was reading that different centers use competencies in a different format. For example, HQ training page will pull out courses for competency. Other centers don't have this.

Answer: You need to ask this question to the owners of each particular discipline area and/or each center. At KSC, for example, every course is tied to a competency in their competency dictionary. This helps them align training with their mission needs. A lot more work is involved to do this consistency across the agency and we need to get consistency across the level. It will come in time. Standardization will be required.

Question 8: My question deals with current organization vs. future consideration. I like the fact that the CCB's are separated at this time. If you have one functional manager instead of two, will they have time, knowledge or ability to address concerns as far as SOLAR?

Answer: That's a very pertinent question. My instinct would tell me no- at least not at this time. The questions are whether a single person can balance all this—unstable systems, major initiatives—and can we afford to do this. By keeping things separate we can probably offer a better service.

Question 9: Is there a problem with having one CCB for all systems?

Answer: The negative side is that if something happens at the SOLAR CCB and if the person is not on the AdminSTAR CCB, that person needs to have knowledge of both. It's no problem to have them combined at some point, but we need to provide a service to both communities.

Observation: The infrastructure might need to be combined with PFM managing the infrastructure. The other various functions, such as marketing and content development might be better as a separate function to provide support to users.

Answer: We have discussed ways to provide more common marketing and communication services and have a consistent way to communicate on all systems. We might want to expand the e-learning newsletter to do this, or example

Observation: We really need to interact more. When SSO was about to go up, AdminSTAR people were unaware. It's clear that things need to merge. I'm concerned that when you merge, it becomes unmanageable.

Observation: I would like to see a mission statement from the e-learning committee come out as to what OneNASA means within the e-Learning community. If we come up with a standard, it might prove fruitful.

Answer: Analytically, we're clearly doing things in an OneNASA way. However, allowing a center-specific course on SOLAR could be considered contrary to OneNASA. We can come up with one vision. And we can probably improve in this area.

Question 10: This is more of an observation. We used a Web-ex session for a CCB and people were very pleased to use this powerful tool to go over and understand what they were asked to vote for. We discovered that sometimes people voted without understanding the technical issues.

Observation: We agree. We need to get better educated or find methods to better educate people who vote on technical issues.

Question 11: Where does the learning effectiveness piece fit in?

Answer: Through SOLAR, we are systematically doing more level 2 training evaluation. We certainly could be looking at level 3 evaluation in the IT security area since people are taking this course every year. We have a whole new team on training evaluation that is tasked to come up with a standard methodology for the agency. Internally, we have been weak in this area. We really need to provide this support through an automated tool, such as through AdminSTAR.

## **ASTD, 508 and SCORM Standards–Update – *Tony Lopez***

The areas I'll discuss today are SCORM, Section 508, and ASTD Standards as they apply to NASA.

### SCORM

SCORM, instituted in 1997, is a compilation of technical specifications adapted from multiple sources. The first version was released in 2000 and the fourth version is in development. ADL, or Advanced Distributed Learning, uses a common technical framework to achieve interoperability across computers and internet-based learning courseware. ADL focuses on five criteria or “abilities”: Interoperability, Re-usability, Manageability, Accessibility, and Durability. In developing content, it's important to meet the criteria of ADL. The SCORM (Shareable Content Object Reference Model) model is made up of topics, info, media and questions. The goal is to allow materials for all courses to talk to each other. The next slide shows how SCORM works. Each chunk of data is independent of each other. The challenges of SCO are as follows: the individual must have a strong knowledge of SCORM, the coding is very specific, there are LMS requirements, and there's responsibility for SCO maintenance. SOLAR is not SCORM complaint. Some of the newer courses are, but the older courses are not. SCORM is e-learning's future so it's important for NASA to be involved with ADL to be aware of standards for course development.

### Section 508

Effective June 25, 2001, requires all federal agencies to ensure their electronic and information technology is accessible for people with disabilities. The law applies to all federal agencies that develop, procure, maintain or use technology. Where it is not possible to meet the standard, you must identify to what extent 508 will be met. Usually, you start by submitting a Letter of Exemption to your Center's 508 representative. An Undue Burden letter follows justifying your reasons for non-compliance.

Development teams have the responsibility to provide learning strategies with a cost estimate for meeting 508 compliance, include all documentation in electronic form with the final deliverable, and be versed in 508 guidelines. The two next slides is a checklist of accessibility criteria guidelines to follow such as when communicating information using color, is the information provided in a different form for the visually impaired?

The last slide is a list of your Center's 508 contacts.

### ASTD

There are four main clusters of standards for developing content.

Cluster 1 deals with interface standards. Cluster 2 deals with compatibility standards. Cluster 3 deals with production quality standards. Cluster 4 deals with instructional design standards.

Interface standards deal with navigation, orientation, and tracking features. Compatibility standards deal with installation, set up, and uninstalling. Production quality standards deal with legibility of text and graphics, formatting, and consistency. Instructional design standards deal with presence of instructional objectives, presentation, demonstration, and facilitation of

learning, engagement techniques, and assessment of learning. It is very important to have an instructional designer develop your content to ensure adherence to these standards.

Question 1: If an illustration does not add any real value to a course, should you include it anyway?

Answer 1: No, I wouldn't include it. We're talking about generic, including only what's necessary.

Answer2: We find that illustrations make the presentation more engaging. You have 99% of individuals that are visually capable and need to add color and graphics to make the course engaging.

## **Coordinating the Development of an Agency-Wide Course for SOLAR – *Gretchen Morris***

To begin with, I'd like to discuss the crucial role a **Coordinator** plays in developing content. If you notice on SOLAR, there are four physical security courses that are center-specific. Given the ability, foresight, and effort, these courses could have been developed as one agency-wide course. This requires time up front to coordinate. The coordinator should be knowledgeable in course development, the subject to be taught, and be the point of contact. The **Requirements Document** provides the content and course outline, functionality and interoperability to make sure it meets NASA standards. You must also define your **Customer** and try to find a POC from this group that you can work closely with. The last thing needed to begin this task is **Resources**. You will need to estimate what is needed and who will pay.

Your **Development Team** can be in-house or contractor and they should be knowledgeable in the following: web-page design, multimedia, course design, 508 compliance, SCORM, and training concepts.

A **Group of SME's** is also crucial. You need to request a team of people (preferably from each center) who will have the time and expertise to be the subject matter expert. Since the build is different at each center, it is better to get center representation for the important review process. Creating Content is difficult. The saying "It is easier to criticize than to create" is a truism. Outline the learning objectives, decide who will develop the actual course text, and define the process to be followed. It is a good idea for the coordinator to review the course text before sending it to the SME. And, by all means, the text review should be first, before any multimedia elements are created. The review should include the technical, functional, and grammatical review. The sign-off is the last thing you'll do.

## **Awards – *Mercedes Sironi***

Tony Lopez was recognized for his three-year service to the SOLAR program. Joe McElwee was recognized for being a leader, friend, and champion for e-learning. Both received a special recognition award.

## **On-line Learning Tool for Travel Manager – *Gail James***

In response to the training needs of the Ames staff, we took the step to provide real-time training. The goal for Ames was to meet the demands for requesting, approving, reporting and utilizing only the travel system. The initial roll out involved instructor-led training. We used SME's to conduct eight-hour classes for preparers.

One of the lessons learned was that unless the information is used and applied immediately, the retention and knowledge will be lost. We also discovered that there was a training overload. The existing CBT was not user friendly and as a result, we had an influx of Help Desk calls.

One of the learning challenges we dealt with was the large variety of learners. Access to training is also difficult; we lost two primary training rooms. Lastly, competing priorities, such as schedule and job demands, played a role.

The objectives of the learning solution are 1) to provide learning that is task specific to the particular audience member 2) to provide learning that is 24/7 3) to provide learning that structures content for easy reference and review 4) to provide learning that offers practice and feedback to reinforce knowledge transfer.

The e-learning design criteria is as follows: 1) it operates as a standalone or deliverable through any LMS environment 2) content is easily updatable 3) content is structured according to workflow process for easy reference, review, and practice 4) assessment and practices to reinforce are repeatable.

The demo I'm about to show you was contracted with an outside vendor. We also used internal IT folks for the requirements.

These are some of the Learning solution features:

1. Program is customized for ARC Travel Manager user community.
2. Program was built with a tool for content development and is licensed for use in other projects.
3. Design of the e-learning permits adaptation by any Center in the Agency.
4. Standards and methods for e-learning content development (with templates) are now in place for future projects. This translates to lower costs and increased efficiency.
5. Complete development of a program.

The expected benefits include 1) higher level of knowledge retention for better job performance 2) training available 24/7 3) lower cost per learner for training 4) fewer hours of training necessary (module takes about one hour).

The next steps are as follows:

1. Begin testing in mid-December.
2. Have release of version 2.0 in 2004, which will incorporate compliance with 508 accessibility rules.
3. Perform evaluation and refinement.
4. Assess for effectiveness and future application in other areas.

Question 1: Can you tell us who the vendor was and how much you paid?

Answer: Pulse Learning is an Irish company that specializes in e-learning solutions. We paid \$50K approximately.

Question 2: Will you use it as a job aid?

Answer: Yes.

Observation: At the agency, business process comes first and training comes later. Why not use this tool for training and skip the process. Training will derive the process.

Question 3: Can it be placed on SOLAR?

Answer: With respect to SOLAR, I met with the IFM office. The Langley sponsored version of Travel Manager presently on SOLAR does not have strong support. There's a need for better training, but until more business process standardization occurs, the IFM office does not want to invest more in agency-wide training.

## **Reporting and Metrics – *Steve Rowell***

Several reports are available on SOLAR.

The **Training Administrator Report** displays the total number of users, number of tests taken, and number of tests passed for the effective period.

The **Module Report** displays test data for one or all-training modules.

Question 1: Does this report include survey results for the module?

Answer: No (FYI: If you have admin privilege on SOLAR, you can access the “Survey Report”—after you log in—by clicking the “SOLAR Admin” tab on the top right corner of the home page.)

The **User Report** zeroes in on the users who took the test within the discipline. It shows user performance within a discipline

Question 2: Vessie Means brought up this question before. Can the data be reversed on the user report to see which people have NOT taken the test?

Answer: We can tell you, of all the registered users, those who have not taken a test. We can look at NPPS and see who the civil servants are. However, we can't do it for contractors.

Action Item: Vessie Means to put in a 1620 to have a report generated for civil servants that have NOT taken a test.

The **Modules Certified Report** displays certification information for one or all-training modules.

The **Test Effectiveness Report** displays the number of times a question was asked and answered correctly for each test question in a given module.

These are the reports we have on SOLAR and we'd be happy to include other reports you might need. Just let us know.

## **The Learning System's User Support Process – *Hector Garcia***

### Configuration Management

Configuration Management is an ongoing process of identification and management of change to control products as they evolve and change through their life cycle. Configuration Management is management of the "change." Configuration is everything that is part of the system such as software, hardware, documentation, communication networks, etc.

Why do it? Ensure that the stability and integrity of the baseline product (i.e. documents, software, and data) is protected by a mandatory requirement that no revision of the product is implemented until the configuration change process defined has been executed. In other words, we do it to maintain the stability and of the system.

### Responsibility

The CCB is responsible for approval of user enhancements. A suggestion was made yesterday to combine the AdminSTAR CCB and the SOLAR CCB. This is something we'll need to look into to ensure better representation and efficiency.

The ERB is tasked with the technical review and classification of CCRs.

The CCB Chair coordinates and chairs the CCB monthly meeting, approves/disapproves agenda items, votes to break ties, and approves official records of the CCB meetings.

Question 1: Why can't a contractor be a chair?

Answer: I believe a contractor can be a chair.

Observation: We are currently missing a chair for the AdminSTAR CCB.

The CM is generally a contractor and he/she manages the physical configuration of the system.

The next slide shows the configuration management organizational structure. The functional sponsor provides the monetary resources. The program functional managers own and manage the functional requirement specifications of the system. The configuration control board members are the stakeholders. On the other side of the equation, you have Code FT

management, the consolidation center project manager who is the technical process owner and the review board, the engineering review board or ERB, which estimates the resources and implementation impact.

Question 2: Are there 1620's that are not voted on even though they deal with enhancements?

Answer: No, all user enhancement 1620s are subject to a CCB vote. We also look at the cost of implementation. A small fix is approximately 20 hours, medium is 200 hours, and large is 400 hours or more. This is done through the ERB. But keep in mind that the ERB does not have authority to reject, only scope and classify. The CCB has authority to disposition.

Observation: So, suppose I submit a 1620 and, even though I may be reluctant to give it high priority, I give it high priority. Does that guarantee that the CCB will vote on it?

Answer: Technically yes, as long as it is a user enhancement.

### Bug-fixing Process

This could be a call to the help desk or a 1620. If it's determined an emergency—causing a work stoppage—it is fixed immediately. If the system is NOT performing to specification, we prepare a 1620 and classify it as a discrepancy report and schedule to fix it according to the priority classification. If the system is performing to specification, we prepare a 1620 and classify it as a requirement change request and schedule it for a CCB review.

All open 1620's or CCR's reside in the SESAAS page. You can access that page through SOLAR (under the Resources tab).

Observation: There are many unresolved CCRs for AdminSTAR. I see this as a serious flaw to leave them unresolved. I think a process is necessary to resolve CCR's past a certain time line. Either remove them or implement them.

Observation: I see a breakdown in the process as well. People who submit CCR's do not get a response back.

Answer: According to the process, a user will always get a response on the disposition of the 1620. We need to look into the reason why you may not be getting a response.

Question 3: I can point out to a CCR that was submitted in 1999 for a dictionary for AdminSTAR. It has been approved but not implemented. Why not?

Answer: I don't have the answer for that. I will need to look into it and see if it's scheduled on the next release.

Question 4: Can a CCR being considered by the CCB have its status changed manually?

Answer: Yes.

Question 5: So, if it's labeled low priority and it's one that needs to be voted on by the CCB, I can request that it's status be changed from low to high?

Answer: Yes.

Observation: This was something that was never made clear to us before.

Answer: Keep in mind that even if it's high and gets approved, it may not get implemented right away. Also, if it's low, it may not get implemented at all.

Observation: I see that process as a problem that needs to be addressed.

## **Content Development–Applying ID Principles – *Janathin Miller, Dee Quashnock***

If you take the content development model and integrate it with human systems performance parameters, you can get a glimpse of how people learn and perform. More than 70% of difficulties and potential for crisis are human-system interface issues due to erroneous human judgment and lack of adequate technical training. This is according to the NTSB studies. The system engineering process was developed out of necessity. The need for designing systems with emphasis on human interaction, with emphasis on training and safety of users, became apparent as early as 1969, when major human factors programs were introduced into each branch of the Department of Defense and the Department of Transportation.

Phase one of the systems engineering process for content development ISD is analysis, which translates into concept exploration. Phase two is design, which results in program definition. Phase three is development, which involves critical design reviews. Phase four is implementation and evaluation, which translates to concept, prototype, design, full-scale development, deployment, testing and certification.

Some of the common acronyms in content development are RLO (Reusable Learning Object) and RIO (Reusable Information Object). These two refer to XML (extensible markup language). ISS (Instructional Systems Specialist) is the instructional designer, instructional developer, and instructional technologist. DT (Development Team) is the independent working team. SME (Subject Matter Expert) is the functional area expert. Lastly, the HPA (Human Performance Architect) is the HSI (Human System Integrator), HFS (Human Factors Specialist), and HPS (Human Performance Architect). All these acronyms are interchangeable.

Some key standards and guidelines for instructional design are as follows: USAF 50-58-Instructional Systems Development, NAVEDTRA 106D-Navy Education and Training, TRAADOC 70-75-Technical Training Processes and Procedures. These standards are almost like templates and are much more specific than the ASTD standards.

Some key standards and guidelines for human engineering are as follows: MILST 1472F-Human System design Criteria, NASA-STD 300-Human/Systems Integration, MILSTD 1474D-General Design Criteria, MILHDBK-759c-Human Engineering Design, Ergonomic Design, Install and Use, NASA-NPG 8715.3-Safety Program Procedures and Guidelines for Headquarters and Center Directives.

“Potentially, the most complex operating environments, utilizing state of the art HSI Technology are human/machine control rooms for Air Traffic Control (ATC), National Aeronautic and Space Administration (NASA), and the Department of Defense.”

When we look at human/machine interface, we look at the socio-technical systems and the level of complexity by mission areas. NASA systems are rated Level D, which refers to major

technical subsystems. At level D there's a reuse of component types or parts; reuse of learning objectives.

The seven key components of Human Systems Integration are as follows:

1. Human Factors Engineering
2. Training
3. Personnel
4. Manpower
5. Habitability
6. Environmental, Safety and Occupational Health
7. Survivability

The emphasis is very high on human factors engineering. This is where NASA needs to go. In the HSI Model X Axis Dimension Model, training has a relative weight of 40%, human factors 25%, manpower 15%, personnel 10%, survivability 5%, ESOH 3%, and habitability 2% for a total of 100%.

This means that performance on the job is key. Most people that are trained seemed to be trained procedurally. The human elements affect architecture, standards, system design, test, evaluation and assessment. If you look at slide 15 the modality of HS integration is depicted graphically with examples of each component and the areas that are key to human systems integration.

How is HSI applied to training? We want to look at performance, not how many people took a test.

We first defined duties, tasks and subtasks so we can use the training design to anchor job responsibilities, activities, and procedures. We then connected documentation with user training. This step supports structured presentation of technical user information. It is job/task focused, XML repository-based, it ties into EPSS which provides guidance to help get the task done, and enables drill down to work procedures and corresponding steps. We performed deliberate performance assessment, which provides an excellent basis for testing human performance.

## **Gov Online Learning Center–Update – *Dan Costello, Mercedes Sironi***

The Gov Online Learning Center supports the President 's Management Agenda. It is an e-Training Initiative, government-wide resource to support development of the Federal workforce through simplified and one-stop access to high quality e-training products and services. Launched in 2002, it has 86,000 registered users and 60,000 course completions. IT security courses, mapped to GISRA and NIST Requirements are part of the many courses offered. On 2003, the Gov Online Learning Center launched the fee-for service courses. These are vendor courses from Karta, Netg, and SkillSoft. The last launch, referred to as module 3, is an IT Development Roadmap, e-Mentoring, and Initial Standardized Reports.

The site is designed as a virtual campus that houses free and for-fee e-training courses and performance support tools. The free library is composed of 37 courses and 50 electronic books.

Resources include access to Reference Guides, major private and public libraries, and training and education sites.

The IT Development Road Map is a competency assessment and career development tool designed for individuals currently in or interested in the 2210 series-IT Management Specialist. It is a joint development effort between the Gov Online Learning Center and the Federal CIO Council. More Roadmaps for additional disciplines, such as human resources, acquisition management, and financial management, will be launched throughout the year.

I included a slide with the Department of Commerce branded site, <http://e-learning.doc.gov>. The branded site scenario for NASA, not yet implemented, would look similar to this site. NASA centers would access the COTS from the Gov Online Learning Center through this site. Current COTS access is depicted in the next slide. Both KSC and JSC have contracts with Gov Online Learning Center to access COTS from them, and are in the process of kicking-off their COTS programs. GRC, MSFC, GSFC, and LaRC will be moving to the Gov Online Learning Center in fiscal '04. They currently access courses through the COTS vendor site.

### Communication Plan

We are working on a draft communication/marketing plan to support the Training Offices and Learning Centers as they migrate their e-learning activities to a central e-learning environment. The objectives and goal is to ensure a successful migration of learners to the Gov Online Learning Center and assist centers as they market, promote, and communicate news and information about this new resource.

The steps we need to take include the following: develop communications materials, review materials, deliver materials to the centers, obtain learner feedback and document lessons learned.

The communications materials or GOLC Migration Kit will include the following:

1. A timeline for each center to track license issuance
2. Procedures and processes for migrating, including the bulk upload form
3. Pricing of the different libraries
4. Reporting mechanism
5. List of courses from all the vendors
6. Marketing pieces such as a "FAQ" sheet, a "How to Register" sheet, sticker with the GOLC url, poster, and the GOLC User's Guide. These items would be targeted to end-users and are designed for center-wide distribution.

We hope all this will lead to a successful migration, access to a comprehensive library of courses and resources, access to competency assessment and career development, and ultimately support of the Federal Government's e-Training Initiative.

Question 1: Do any of the libraries support Mac users?

Answer: No.

Question 2: Our center is primarily Mac and it's a disservice not to provide access to Mac users. Can you put pressure on the vendors or the Gov Online Learning Center to provide e-training for Mac users?

Answer: The only vendor that has developed a library for Mac users is ElementK, but they currently do not have a contract with Gov Online Learning Center.

Observation: Why don't we contact the Mac Federal Account Executive and see how they're following up?

Action: Dan to contact the Mac Federal Account Executive and follow up with the Mac users group.

Observation: We need to document the fact that none of the courses on GovOnline are available to Mac users. As new libraries become available, we need Mac users to test the courses for compatibility. By documenting unfulfilled need, we'll have a good case to pressure for Mac compatible e-learning.

Action: Dan to ask for Mac users willing to test courses at next e-learning steering committee meeting.

## **Knowledge Management – Douglas Hughes**

### Sharing NASA's Knowledge-NASA Knowledge Management Team

The NASA Knowledge Management Team was chartered by the NASA CIO in January 2000. Jeanne Holm is the lead. We have representatives from each NASA Center and Enterprise and most codes. We are developing strategic partnerships with others like Code F, APPL, and PBMA. Other activities include: Knowledge navigation, lessons learned databases, collaborative technologies, expert locator systems, knowledge sharing activities, recognition, and supporting responses to the President's Management Agenda, Human capital Initiative, e-Government, etc.

Knowledge management is getting the right information to the right people at the right time, and helping people create knowledge and share and act upon information in ways that will measurably improve the performance of an organization and its partners.

Key areas for NASA's KM Strategy are as follows: 1) Sustain NASA's knowledge across missions and generations. 2) Help people find, organize, and share the knowledge we already have. 3) Increase collaboration and facilitate knowledge creation and sharing.

The framework for KM at NASA involves People, Process, and Technology sharing and using knowledge, coupled with supporting activities.

Under People we strive to: 1) enable remote collaboration, 2) support communities of practice, 3) reward and recognize knowledge sharing, and 4) encourage storytelling.

Under Process we strive to 1) enhance knowledge capture and 2) manage information.

Under Technology, we work towards 1) enhancing system integration and data mining, 2) utilizing intelligent agents, and 3) exploiting expert systems.

Supporting activities include education and training, IT infrastructure, human resources, and security.

Let me mention here one of the ways we share knowledge. Storytelling, part of the knowledge sharing initiative, provides a forum for people to share stories. With our partnership with APPL, the best of those stories are published on the APPL site. This has been a very effective means of knowledge sharing, giving people the opportunity to learn from one of their peers.

Another successful tool developed for knowledge management is the Inside NASA portal. The portal is intended for employees and partners, it's customizable, and contains several collaborative tools like secure instant messaging.

Inside NASA [www.insidenasa.nasa.gov](http://www.insidenasa.nasa.gov) consolidates access to frequently used NASA and Web resources in one easy to use place. It can help quickly locate and retrieve information, serve as personalized home page, provide single entry point access to Web-based applications, and enable you to search across NASA web space or the entire Web.

The different search features available include Google, x500, Spacelink, JOINed Digital Library, and multimedia/image search.

The directory to NASA resources includes Business/Administration, Employee Resources, External News, Infrastructure Services, Libraries, Information and Education, Mission and Projects, NASA News and Events, NASA Organizations, and Principles and General Policies.

Looking ahead, we are working on a variety of possible new initiatives and we're continuing to integrate and benchmark best practices.

## **Close**

Notes and presentations will be posted on SOLAR.

Please fill out the workshop survey and return to Mercedes. We will use your comments in planning next year's workshop, especially in selecting topics that are relevant to you.

Thank you for your participation.