Department of Defense

Human Factors Engineering Technical Advisory Group (DOD HFE TAG)

Meeting 71

May 22-25, 2017

Co-Hosts: FAA and DHS

William J. Hughes Technical Center

Atlantic City, NJ

Technical Advisory Group Documentation

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Meeting Theme:

Making Sense of Big Data: The Role of Human Factors Engineering in Surviving and Thriving in a World of Ubiquitous Data

We are moving toward a culture that is increasingly data-driven. New sources of data provide a wealth of information on human and system performance, yet the sheer volume of data can be daunting. Government entities have access to an amazing velocity, volume, and variety of information on systems and the users of the systems. Figuring out how to effectively leverage this data is an issue being faced by all branches of the government. Major corporations are already making progress in this area, using analytics to derive meaningful insights from data and converting knowledge into action. Although the right data at the right time have the potential to improve decision making, lead to new insights, improve operational effectiveness, and save lives, too much data or data that are not organized in the right way can be a liability, overwhelming users and hindering decision making.

- ✓ Technological advances have made it possible to generate large volumes of data, but what do we do with them once we have access?
- ✓ Do we have the tools and expertise to make meaningful decisions?
- ✓ Can we pull data from isolated silos and combine them in ways to dynamically resolve our pressing issues?
- ✓ Are we prepared to meet the challenges of dealing with terabytes or petabytes of data?
- ✓ Do we have insight on how to organize and display data without overwhelming the user?

No single agency has the expertise or budget to address all of these questions in isolation; however, combining knowledge across agencies can significantly boost progress. This meeting seeks to take a broad agency perspective by sharing tools, lessons, and insights for addressing the big data problem.

Contents

Section 1 – Executive Summary

Meeting 71 of the DoD Human Factors Engineering Technical Advisory Group (DoD HFE TAG-71) was held at the FAA William J. Hughes Technical Center in Atlantic City, NJ on May 22-25, 2017. Co-hosted by the FAA and DHS, the theme of this meeting was "*Making Sense of Big Data: The role of Human Factors Engineering in Surviving and Thriving in a World of Ubiquitous Data*."

There were over 250 attendees from the Department of Defense and other government agencies who met to discuss continuing and emerging technologies and associated policies focused on the theme of the meeting. Following a well-established meeting architecture, an opening plenary session was augmented by 30 Sub-TAG sessions and several executive-level planning sessions. As is customary, first-time TAG attendees were invited to attend an orientation session hosted by TAG executive leaders.

The FAA and DHS hosts provided exemplary meeting facilities and support, including a number of interesting and well-attended facility tours. Meeting and logistics support exceeded expectations, and the host agencies received many favorable comments. Additionally, this year's TAG included professional facilitation support (provided by NASA). The goals of providing this new support level were to assist in:

- building upon collaborative efforts
- facilitating information exchange
- describing specific products and benefits of TAG-70 and TAG-71 meetings
- actively facilitating and documenting collaborations that leverage the work of the organizations in attendance

The facilitation support was augmented via an electronic data collection tool that is widely in use across the Department of Defense. Attendees used FacilitatePro, a web-based brainstorming tool, to submit their questions, comments, and most importantly, examples of past, current, and future collaborations that result from the TAG.

As a result of the addition of facilitation support and a focused emphasis (by the HFE TAG executive council), several goals were achieved. Specific attendee feedback was positive with different government agencies collaborating to solve problems and develop standards. Herewith is a sampling of the benefits of the TAG as reported by attendees:

- ✓ A comment from the Human Factors Standardization Sub-TAG indicated the value in re-energizing previous connections with folks from whom they met at TAG-53 which allowed a seamless transition to accomplish updates to existing Standards.

- ✓ During the Unmanned Systems (UAS) Sub-TAG session, a member met an individual who worked at an Air Force Research Lab. Their "side conversation" was extended well beyond the session, and committed to future meetings to support each other's projects.

- ✓ During the SAE G-45 Committee session, one member described how his posture within the G-45 Standards Sub-TAG had been strengthened by becoming a contributing member of the Sub-TAG.

The enclosed document includes additional examples of various on-site conversations, as well as direct comments submitted to the meeting facilitators supporting the DoD HFE TAG to capture collaboration efforts.

Consistent emphasis during the TAG encouraged and supported collaboration to support future projects across the member government agencies. Candid and open discussions were observed between TAG members – not only about meeting agenda topics, but also on ways to improve future HFE TAG meetings and leveraging this unique opportunity for cross-agency collaborations. A strong volunteer approach to the formal process was echoed as a valuable tool for future success.

Immediately following the TAG-71 meeting, the Executive Board received a preliminary report from the facilitation team that included observations and recommendations. The report was well received, and the Executive Board has already begun a review of the TAG organizing documents that will assist them in developing future TAG themes and agendas that will be fully aligned with the group's original organizing purpose.

The DoD HFE TAG meetings are highly beneficial. They provide a unique opportunity for cross-Agency collaborations that leverage the expertise of a diverse community of experts. Attendees, organizers, and stakeholders consistently report a high degree of enthusiasm for continuity of these meetings. The meetings foster collaboration, extend the body of knowledge, and advance the state of the art for human factors engineering.

Section 2 – TAG Historical Perspective

What is the DoD HFE TAG?

The Department of Defense Human Factors Engineering Technical Advisory Group (DoD HFE TAG) is composed of technical representatives from the Department of Defense (DoD), National Aeronautics and Space Administration (NASA), Federal Aviation Administration (FAA) and the Department of Homeland Security (DHS) with research and development responsibility in human factors and related disciplines. There is no limitation on the number of uniform or civilian representatives from the above governmental entities. Representatives from organizations and activities with allied interests and technical experts in special topical areas are also invited to attend specific meetings.

Also participating in the HFE TAG are official representatives from technical societies or industry associations with a stated interest in human factors. These representatives must be credentialed by the HFE TAG before attending. Refer to the Technical Society/Industry (TS/I) site for more information.

Origins

The DoD HFE TAG was implemented by a Memorandum of Understanding signed by the Assistant Secretaries of the Services in November 1976. The purpose was to coordinate and communicate research and development at the working level among the services and other Government agencies involved in Human Factors Engineering. The first HFE TAG meeting convened on August 9–10, 1977 in Fort Washington, Pennsylvania.

Goals

The major goal of the HFE TAG is to provide a mechanism for the timely exchange of technical information in the development and application of human factors engineering by enhancing the coordination among Government agencies involved in HFE technology research, development, and application. The HFE TAG also assists, as required, in the preparation and coordination of tri-service documents, and sponsors in-depth technical interaction, which aids in identifying HFE technical issues and technology gaps.

Scope

Because of the diversity of the subject matter covered by the HFE discipline, the scope of the technical areas addressed by the HFE TAG is broad. For the purposes of the HFE TAG, HFE is defined as dealing with the concepts, data, methodologies and procedures which are relevant to the development, operation and maintenance of hardware and software systems. The subject matter subsumes all technologies aimed at understanding and defining the capabilities of human operators and maintainers.

Composition

The DoD HFE TAG is composed of technical representatives from the Department of Defense (DoD), National Aeronautics and Space Administration (NASA), the Federal Aviation Administration (FAA), Department of Veterans Affairs (VA), and Department of Homeland Security (DHS) with research and development responsibility in human factors and related disciplines.

Section 3 – Summary of Documentation & Report Requirements

Background

The Department of Defense Human Factors Engineering Technical Advisory Group (DoD HFE TAG) is composed of technical representatives from the Department of Defense (DoD), National Aeronautical and Space Administration (NASA), Federal Aviation Administration (FAA), Department of Veterans Affairs (VA), and the Department of Homeland Security (DHS) with research and development responsibility in human factors and related disciplines. In attendance are uniform or civilian representatives from the above governmental entities, representatives from organizations and activities with allied interests and technical experts in special topical areas. Also participating in the HFETAG are official representatives of technical societies or industry associations with a stated interest in human factors. TAG meetings are not open to the general public.

The primary product of the HFE TAG has been its role in technical information exchange and coordination of HFE research across DoD laboratories and other government agencies.

Goal of Facilitated Meetings at TAG

The goal is to build upon collaborative efforts, facilitate information exchange, describe specific products and benefits of TAG 70 and TAG-71 meetings, and actively facilitate and document collaborations that leverage the work of the organizations in attendance.

Requirement

Two on-site facilitators at the meeting (currently scheduled: one week in May 2017 at the FAA Tech Center in Atlantic City, NJ). Facilitators will attend the TAG executive meetings, plenary and special sessions to understand the TAG's operations. Facilitators will hold 2 to 3 sessions during the TAG, including an introductory session to initiate the documentation of benefits and identify the types of information that could be collected during the TAG. This should inspire thinking about future joint collaborative activities. Second (and possibly third) sessions will produce products listed below.

Products During TAG

1) Identification of specific collaborations and specific information exchanges that can be applied to TAG members work that have resulted from the DoD TAG 70 & TAG 71
2) Identification of specific opportunities for collaboration for future work (e.g., joint study or roadmap, list of facilities or tools that can be shared across organizations)
3) Identify the benefits of TAG 70 and TAG71. (e.g., Specific Collaborations, Work or Products that Benefited or were enhanced by the TAG Meeting

After the TAG, facilitators will develop a report that documents the sessions and the three items described above.

For TAG 71: the facilitator will:

- Design and plan the group process, and select the tools that best help the group progress towards that outcome. Tasks may include as a minimum:
    - Assist the HFE TAG Chair in developing the agenda
    - Creating questions and activities related to the desired outcome
    - Develop a process that achieves the goal
    - Use the process to capture tangible benefits of the Department of Defense Human Factors Engineering Technical Advisory Group TAG meeting and identified products as stated above.

- Guide the group process to include the following:

    - Opening
        - Protocols
        - Ground Rules
        - Administrative requirements
        - Process
        - Introductions
        - Ice breaker (if required)

- Conducting
    - Schedule maintenance/Timekeeping
    - Recording
    - Product delivery
    - Focused discussion
    - The participants' contributions are considered and included in the ideas solutions or decisions that emerge
    - Participants take a shared responsibility for the outcome.

- Closing
    - Reporting minutes
    - Product compilation
    - "To-Do" validation
    - Follow-on activities and responsibilities

Prepare a Final Product (Facilitator's Report):

- Ensure that outcomes, actions, and questions are properly recorded.
- Compilation of results delivered to NASA and DoD HFE TAG Executive Council
- Develop analysis and documentation of the session. This should include:
    1) Identification of specific collaborations and specific information exchanges that can be applied to TAG members work that have resulted from the DoD TAG 70 & TAG 71;

2) Identification of specific opportunities for collaboration for future work (e.g., joint study or roadmap, list of facilities or tools that can be shared for collaborations, work or products that benefitted or were enhanced by the TAG meeting)
3) Produce a final attendee list and contact information

Section 4– Summary Report of Collaborations and Information Exchanges

4. The following are comments provided by the NASA tool Facilitate Pro, a web enabled tool for information collaboration and exchange obtained from the attendees of the conference. The questions were focused on collaborations and information exchange while attending HFE TAG 70 & 71. All comments were anonymous if desired and were generally focused for specific sessions.

    4.1. (General comments) Draft language developed in support of ongoing updates to SAE, INCOSE and other industry standards and technical guidelines, best practices, etc., responds to issues identified and addressed during Technical Society / Industry meetings in the context of the HFE TAG. The context is important, as it affords government opportunity for input into the standards/guidelines/practices development processes of the industry associations.

    4.2. (Human Factors Standardization) I had direct ability to re-energize previous connections with folks from whom I met back in TAG 5#, which allowed seamless transition to accomplish Standards update activities.

    4.3. (Human Factors Standardization It is always a pleasure to work with Alan Poston. He is such a kind, wise, and knowledgeable individual especially in regard to MIL-STD-1472. I like the way he handles "issues" with the standard and suggestions. They are always well received and he wants to make sure he understands what it is that is requested and his goal is to implement it. There is no issue that is untouchable!! I think 1472 is in good hands with Alan!!).

    4.4. (Unmanned Systems) At TAG-70 I met an individual during the Unmanned Systems Sub-TAG who worked at Air Force Research Labs and we had an extended side conversation about our work and how we may be able to support each other. Although no funded work directly resulted from this conversation there were two tangible benefits: First, when I needed sensor video imagery with very specific requirements as part of an SBIR this person was able to provide exactly what I was looking for on very short notice. Secondly, this person also provided access to experienced UAS operators for a separate data collection event.

    4.5. (Unmanned Systems) At TAG-70, I met several individuals from the NASA team; I have maintained contact with each and received guidance on unmanned systems issues. Without TAG, this would not have been possible.

Section 5 -- Summary Report of Collaboration Opportunities for Future Work

5. The following are comments submitted to the FacilitatePro collaboration tool. This tool was used for information collaboration and exchange by the attendees of the conference. The questions were focused on future collaborations and potential work gained while attending HFE TAG 70 & 71. All comments were anonymous and were generally focused for specific sessions.

   5.1. (Poster Session) The first poster presenter I talked with was the network connection I needed to get answers to HFE questions I had regarding developmental testing with MOPP and ECW gear. She was from NATICK. The responses I received from the HFE lead (I think it was after the HFE TAG was over) and the gentleman who was the expert with these environmental clothing was very thorough in replying in his answer and open ended in my contacting him/them again. it is so nice to have that kind of HFE support. In my job I apply MIL-STD-1472 to developmental test items. I am not sure there are many other attendees whose job is similar.

   5.2. (SAE G-45 Committee Sessions) My organization has strengthened its posture with the G-45 Standards committee to become a contributing member as a result of attending the G-45 meetings held in conjunction with the HFE TAG.

   5.3. (Extreme Environments) There is the possibility of collaboration with Public Health and my test facility. We too have issues with the extreme environment of heavy helmets and drivers/operators jumping off of test vehicles. This may not proceed forward if we need to provide a funding site for the work and if this would reflect poorly on management they will not go for it. This is the first time in all my time attending HFE TAGs (perhaps 10 or so years??) that even the possibility of a collaboration has occurred!! This TAG was THE BEST! Sadly, to say it is my last since I will be retiring. I wish you continued success in continuing to lift the bar for the Sub-TAGs and the HFE TAG!!!

   5.4. (HFE/HSI Session I) As a result of one of the presentations on DCGS-A HSI scorecard, my office will be able to collaborate with the presenter to exchange information to benefit the HSI standards update and to apply lessons learned and feedback to improve the presenter's HSI tool (i.e., the HSI scorecard).

   5.5. (HFE/HSI Session II) The "Introduction to the Department of Transportation Human Factors Coordinating Committee (HFCC)" was a great overview of this effort. I work on related topics for the DoD and will be reaching out to this group to at the very least communicate my work in another forum and possibly collaborate. I'd likely never have known this committee existed had they not briefed at the TAG.

   5.6. (HSI MIL HDBK) This was a great overview of this important effort, and I'll be reaching out to be a part of this work. I'd not have known this project was underway if it had not been presented at the TAG.

5.7. (HSI MIL HDBK) My organization has strengthened its posture with the Standards/MIL HDBK committee to become a contributing member as a result of attending the meetings held in conjunction with the HFE TAG 71.

5.8. (HSI MIL HDBK) I will be actively engaging people with experience with non-Program of Record/Rapid acquisition programs to facilitate the work I am doing on one of the authoring groups #2 (SOW/RFP development) to assist assessment of HSI requirements across various program types. I was able to get the names of 3 individuals to solicit help in improving this area of the MIL Handbook, which was only possible by attending this session and being a part of the discussion.

5.9. (Human Factors Standardization) My organization has strengthened its posture with the HFE Standards committee to become a contributing member as a result of attending the meetings held in conjunction with the HFE TAG 71.

5.10. (Human Factors Performance Measurement I) My office had an interest in the human performance measurement. This session was directly applicable to my understanding of the current state of the topic, and learning about the future challenges for the topic to mature. I also was able to make connections with individuals conducting R&D in the area to use as a resource for future Q&A.

5.11. (Trust in Autonomy) My office had an interest in the autonomy and unmanned systems arena. This session was directly applicable to my understanding of the current state of the topic, and learning about the future challenges for the topic to mature. I also was able to make connections with individuals conducting R&D in the area to use as a resource for future Q&A.

5.12. (Unmanned Systems UAS) My office had an interest in the autonomy and unmanned systems arena. This session was directly applicable to my understanding of the current state of the topic, and learning about the future challenges for the topic to mature. I also was able to make connections with individuals conducting R&D in the area to use as a resource for future Q&A.

Section 6 - Summary Report of Future HFE TAG Meetings Suggestions

6. The following are comments submitted to the FacilitatePro collaboration tool. This tool was used for information collaboration and exchange by the attendees of the conference. The questions were focused on future HFE TAG meetings and suggestions. All comments were anonymous and were generally focused for specific sessions.

    6.1. (General) DODDIR 3000.09, dated 21 Nov 12, amended 8 May 17, specifies requirements for human-system integration for autonomous weapons systems. The directive has been briefed to the Technical Society / Industry (TS/I) Sub-Tag. The sense of the participants is that industry does not now know how to meet the requirements of the directive. As result of the most recent briefing in Atlantic City, the Sub-Tag is contemplating hosting an online web conference to enable and facilitate continued collaboration among industry participants pursuant to an effort to identify specific improvements that might be considered during the next update of the directive. The idea is to identify and disseminate the minimum set of user interface features that are necessary and sufficient to meet the requirements set out in the directive.

    6.2. (Plenary) Recommend adding more time in between, and even staggering start and stop times. This offset creates more opportunity for dialogue and networking in between the formal sessions. There are also ad hoc meetings that were beneficial, but were difficult to squeeze in to only a 15-min break. Networking and collaboration activities can't be assumed to occur during post-TAG (evening, non-mandated), social activities. This comment would apply across scheduling for all Sub-TAG and formal sessions.

    6.3. (Plenary) There should be a better balance of male and female speakers during the Plenary Session. There were no women on the panel for TAG 71 and only one woman that spoke at the TAG 70 Plenary; Faith Chandler (NASA). We have too many brilliant, well-spoken women within the field of HSI to have none of them represented on the main stage.

    6.4. (Plenary) The plenary session was far too long and no one was managing the time of the speakers. If there is going to be a theme, consider having each plenary speaker speak to that theme. Additionally, clearly Q&A time is very important to the attendees so a significant portion of time should be dedicated to that. Whoever is facilitating the plenary session needs to manage the time of the speakers so that each speaker has equal time to share their thoughts.

    6.5. (Poster Session) The posters should not be submitted to specific SubTag sessions. There should be a separate POC to review poster submissions since the posters are not presented during the SubTag sessions (e.g., the posters were on display in the cafeteria for TAG 71). The posters should be accepted if they fit any of the SubTag themes or the overall TAG theme.

6.6. (SAE G45 Session) I recommend to align a future G-45 committee meeting with the next TAG. There was benefit for having most parties physically present to exchange and dialogue vs being mostly remote (virtual).

6.7. (HMN&S Workshop I) My office was interested to learn about HSI tools. This workshop provided a hands-on experience to become more comfortable with a modeling tool, and report back about the tools advantages.

6.8. (HMN&S Workshop I) I recommend having a similar M&S workshop with the same general format of 1) introduction to tool; 2) presentation on the application of the tool to some end state/study result; 3) working session to collectively solve a problem/use case.

6.9. (HSI MIL Handbook Working Group) I would maintain the same session for an update on the HSI Standards/MIL HDBK committee held in conjunction with the next HFE TAG.

6.10. (Human Factors Standardization) It was a benefit to have the HFE Standards meeting aligned with the HFE TAG. Most participants were physically present to exchange and dialogue vs being remote (virtual).

6.11. (Modeling & Simulation I) I found the Discussion Topics format to be very useful. In the future, the time for them should be expanded to more than 2 sessions.

6.12. (Unmanned Systems UAS) It would be beneficial to understand what state and local governments are doing in these fields. There was one local presenter at this conference, and that proved insightful.

Section 7 – Identification of Benefits of TAG 70-71

7. The following are comments submitted to the FacilitatePro collaboration tool. This tool was used for information collaboration and exchange by the attendees of the conference. The questions were focused on benefits of HFE TAG meetings with specific collaboration, work and products as the focus for comments. All comments were anonymous and were generally focused for specific sessions.

   7.1. (General) DODDIR 3000.09, dated Nov, 2012, identifies requirements for human-system integration with autonomous weapons systems. Yet, the HF community was largely uninvolved in preparation of the directive. The topic has been considered in two sessions of the Technical Society / Industry SubTag. It is anticipated that technical interchange among TS/I members and government members begun in the most recent SubTag meeting will continue. These collaborations will result in draft policy language that could be considered for the next update to DODDIR 3000.09.

   7.2. (Plenary) Based on my affiliation with OSD (from DASD-SE), I was in the unique position to appreciate the OSD R&D presentation by Dr. Petro. During a break amidst the Plenary session, I was able to introduce myself to Dr. Petro, and facilitate an exchange that will lead to a meeting between the two OSD offices, Research/Development and Systems Engineering, where Dr. Petro will be formally introduced with DASD-SE leadership. This exchange will foster collaboration between the two OSD offices.

   7.3. (SAE G-45 Committee) My organization has strengthened its posture with the G-45 Standards committee to become a contributing member as a result of attending the G-45 meetings held in conjunction with the HFE TAG 71.

   7.4. (HFE/HSI Session I) My office was interested to learn about the latest in HSI tools. As a result of one of the presentations on DCGS-A HSI scorecard, my office will be able to collaborate with the presenter to exchange information to benefit the HSI standards update and to apply lessons learned and feedback to improve the presenter's HSI tool (i.e., the HSI scorecard).

   7.5. (FHE/HSI Session II) Steve Dorton's use of war gaming to elicit information and explore concepts has use in initial HSI for the development of systems.

   7.6. (HSI Mil Handbook Working Group) My organization has strengthened its posture with the Standards/MIL HDBK committee to become a contributing member as a result of attending the meetings held in conjunction with the HFE TAG 71.

   7.7. (HSI Mil Handbook Working Group) I made connections with SMEs or other individuals to actively collaborate and contribute to one of the authoring teams as a result of this session at HFE TAG 71.

7.8. (Human Factors Standardization) It was a benefit to have the HFE Standardization meeting aligned with the HFE TAG. Most participants were physically present to exchange and dialogue vs being remote (virtual).

7.9. (Human Performance Measurement I) My office had an interest in the human performance measurement. This session was directly applicable to my understanding of the current state of the topic, and learning about the future challenges for the topic to mature. I also was able to make connections with individuals conducting R&D in the area to use as a resource for future Q&A.

7.10. (Trust in Autonomy) My office had an interest in the autonomy and unmanned systems arena. This session was directly applicable to my understanding of the current state of the topic, and learning about the future challenges for the topic to mature. I also was able to make connections with individuals conducting R&D in the area to use as a resource for future Q&A.

7.11. (Unmanned Systems UAS) At TAG-70 I met an individual during the Unmanned Systems SubTag who worked at Air Force Research Labs and we had an extended side conversation about our work and how we may be able to support each other. Although no funded work directly resulted from this conversation there were two tangible benefits: First, when I needed sensor video imagery with very specific requirements as part of an SBIR this person was able to provide exactly what I was looking for on very short notice. Secondly, this person also provided access to experienced UAS operators for a separate data collection event.

7.12. (Unmanned Systems UAS) My office had an interest in the autonomy and unmanned systems arena. This session was directly applicable to my understanding of the current state of the topic, and learning about the future challenges for the topic to mature. I also was able to make connections with individuals conducting R&D in the area to use as a resource for future Q&A.

7.13. (Unmanned Systems UAS) At TAG-70 and TAG-71, I was able to establish relationships with other agencies and leverage existing research and programs to build a better program at my agency. The networking at this meeting is incredibly helpful in completing my agency's mission.

Section 8 – Additional Attendee Comments, Ideas, or Suggestions.

8. The following are comments submitted to the FacilitatePro collaboration tool. This tool was used for information collaboration and exchange by the attendees of the conference. The question was open-ended to allow attendees to provide additional feedback on the HFE TAG. All comments were anonymous if desired.

   8.1. (General) Many people traveling from out of town may not have access to a printer and it would be nice to have hard copies of the agenda and sessions to review and make notes on.

   8.2. (General) More than one presentation that were held in the smaller classrooms easily qualified for presentation in the auditorium, based on the numbers of attendees. I thought ours on HSI more than adequately qualified and I would much rather have made my presentation in the auditorium. Recommend a process to ensure that presentations that are going to be heavily attended be given priority for presentation in an auditorium-like room (if available).

   8.3. (General) I emailed you all my comments about this past HFE TAG. Please feel free to share that with anyone else. I think the Operating Board was going to be a recipient. I think it was the best I have ever attended. I wish you continued success. Connie Whitener.

   8.4. (Poster Session) I was not able to fully engage in the poster session during the lunch hour. I think this was a scheduling issue that didn't allow the poster owners to be fully present. I have seen other implementations of the poster session being placed in the open area between meeting rooms AFTER a lunch session so people can more fully participate, not requiring a choice between lunch or seeing posters. Most people choose to eat!

   8.5. (HMN&S Workshop Session I) The session was a bit compressed to accomplish the objectives.

   8.6. (HMN&S Workshop Session I) I would suggest forcing attendees to group as a pair or 3 people to one computer to facilitate collaboration and exchange amongst the participants. I had a better, more productive experience by teaming up with someone who was smart enough to bring their own computer!

   8.7. (HMN&S Workshop Session II) I found OpenSim fascinating. My background is Modeling & Simulation, not Medicine. I am uneasy with the model in that (many of?) the parameters cannot be measured empirically such that "trial and error" are necessary to make the model perform "realistically."

   8.8. (Human Factors Standardization) Realistically, the discussions such as the ones we have at the Standardization sub-TAG can only occur at the TAG. Overarching conversations

about standards, handbooks, and other efforts are greatly enhanced by having so many SMEs in the same room. The opportunity to bounce ideas off a variety of experts in different domains, and to learn about other work in our field is invaluable. Alan Poston does a great job shepherding these various efforts.

8.9. (Human Performance Measurements II) LT Biggs discussion of the "Airport Scanner" software app was very interesting. I see the benefits of the large data set it generates, however; I am think it has limited use when applied to actual, trained Transportation Security Officers (TSO).

8.10. (Trust in Autonomy) The CAD B room was too small for this group's level of interest. there appeared to be a good 40+ interested, so I would plan for more space at the next venue

Appendix A – Attendee List and Contact Information

EXECUTIVE COMMITTEE

Chair (Army)	Jeffrey Thomas jeffrey.a.thomas132.civ@mail.mil
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Appendix B – Summary Report of TAG-71 Feedback (TAG Executive Council)

DOD HFE TAG - Executive Committee Meeting Minutes
Date: 22 May 2017
Location: CAD B 1500-1650

Attendees

First Name	Last Name	Organization
Vicki	Ahlstrom	FAA
Rick	Arnold	Naval Medical Research Unit Dayton
Tandi	Bagian	VA National Center for Patient Safety/ Human Factors Engineering
Helen	Fuller	VA National Center for Patient Safety
Rebecca	Iden	SSC PAC
Katrina	Jacobs	VA National Center for Patient Safety
Bill	Kosnik	USAF
Janae	Lockett-Reynolds	DHS
Rachael	Lund	NSWC Dahlgren
Stephen	Merriman	SAE G-45 Committee
Bonnie	Novak	OSD
Cynthia	Null	NASA - NESC
Barbara	Palmer	SAE G-45 Committee
Ben	Petro	OSD
John	Plaga	USAF
Sarah	Simpson	VA National Center for Patient Safety
Daniel	Wallace	NAVSEA 05W
John	Warner	HQDA HS2 Directorate
Dawn	Woods	Natick Soldier Research , Development and Engineering Center

The meeting was called to order and participants were welcomed by Mr. Jeffrey Thomas, Executive Committee Chair. Mr. Thomas then introduced Dr. Ben Petro, Acting Director, Human Performance, Training, and Bio Systems (HPTB) Research Directorate, Office of the Assistant Secretary of Defense for Research and Engineering (OASD).

Dr. Petro delivered opening remarks and appreciation to Co-Chairs and Hosts. The purpose of the remarks was to highlight Inter-Agency cooperation and share guidance with the Committee. He expressed appreciation for grass-roots efforts to bring practitioners together to collaborate. Dr. Petro indicated that the level of advocacy and support for the HFE TAG remains high from an OASD perspective. The value in the HFE TAG lies within the insights from the meeting, and subgroups are helpful in understanding the priority challenges. Through the HFE TAG, the OASD is better equipped to participate in the DoD Joint Human Engineering Systems Integration Committee which sets policy in the areas of training, acquisition, logistics, and operations. Dr. Petro shared that OASD is undergoing a reorganization (re: Section 901). This may result in three undersecretaries – Research and Engineering, Acquisition and Sustainment, and Management. A tiger team was commissioned to determine the division of activity for the Undersecretary. Their

findings and recommendations have been reviewed and approved internally, and are currently being reviewed by OMB and the Hill. Research and Engineering functions are well represented in the plan. Implementation plans are being developed and implementation will occur over the next 6-9 months. Dr. Mason will be backfilled at the General Officer/Flag Officer/Senior Executive Service Level in the next 6-9 months. It was highlighted that the changes will not have a significant impact on the support of the DoD HFE TAG. Dr. Mason emphasized that HP and Bio systems are critical. These functions cannot be done individually at the Service Level. It requires a more collaborative approach. DoD HFE TAG is the only forum where practitioners of a select community can share best practices.

Mr. Thomas asked - What could the DoD HFE TAG do to assist with your approval process, provide input and answers? There was a comment that a value-added – ROI exercise had been conducted in the past. This is still valuable and a proactive stance would be beneficial.

The next topic of discussion was the status of the Human Factors Engineering/Human Systems Integration success stories. There was a short discussion on information papers and success stories that were submitted in the past. It was noted that the approval process would be smoother if plans for upcoming meetings were determined earlier. Committee members agreed that next year's meeting should be decided at the next Executive Committee meeting. In addition, the conference approval components will be shared with the Executive Committee by OASD to facilitate faster development of the conference.

OASD indicated that it is helpful for the director to be able to quickly respond to questions (ex. ROI.) White papers are helpful. OASD likes to receive information proactively about progress to increase knowledge and awareness. Leadership likes to participate in keystone events, but awareness is key 6-9 months out. Intentional connectivity to the community creates a sense of value about this activity and builds advocacy. Success stories should be focused on big themes like autonomy, big data, and CYBER to help focus the stories on areas that are of big importance in the government.

Strategic capabilities development is relevant the TAG. Communication should be focused in the five theme areas. Within the community of practice, sharing of information and capturing connections and successes are key. An individual commented on the need to better define members and keep an actual list of members. First-time TAG attendees are confused by how to become a member and maintain membership.

The procurement and funding for the membership is an issue. Each member organization pays approximately $30K, but transferring the funds was an issue. This is no longer an issue as there is no funded position to coordinate. Now reliance is primarily on OSD. The Executive Committee determined the need to codify success factors (i.e. TAG Coordinator, updating the membership List, etc.).

- *ACTION – Determine the right approach to memorialize membership lists, history of TAGs. In the past, the contract ended and the institutional knowledge was lost.*

- ❖ *Observation – follow-on surveys at regular intervals (60, 90, 180 days) are needed. There should be architecture to collect data regularly.*
- ❖ *Observation – Establish a BaseCamp or SharePoint site to capture institutional knowledge.*

VHA was encouraged to share information about how they have engaged with TAG. This will be a good case study for TAG in terms of challenges and/or strategic roadmapping. Tandi Bagian is the contact for this activity.

There was discussion regarding expanding the Chair positions to include other civilian agencies. This discussion provoked a variety of responses and is detailed below:

- Bill Kosnik– The charter is currently a DoD charter. This Chair only rotates to DOD agencies. We would like to rotate the chair positons to civilian agencies. Do the other federal agencies want to take on that responsibility? The flow of the conversation is as follows:
- Does civilian chairing outside the DoD complicate things with OSD?
- OSD support is needed to sustain and support this activity.
- DoD will still do the paperwork – that won't change.
- This is the DoD HFE TAG –DoD is the umbrella organization and we need to make sure the connection to DoD is not lost, diluted, or damaged. We don't need to lose the top cover.
- Hosting and chairing can be de-coupled. The Plenary is set up by the incoming chair.
- Charter 1976 – Memorandum of Understanding (MOU) was updated in the early 80s. Future updates could be coordinated by OSD and would solidify DoD participation.
- Janae Lockett – Reynolds would be interested in Chairing – DHS
- Bill Kosnik – let's ascertain what the level of commitment and go from there.
- NASA – Yes, don't want to damage the structure
- VAA National Center for Patient Safety – HFE, Yes, but approval process is tough

  - ❖ *ACTION to update MOU/Charter with coordination through OSD. The charter would be updated/modified by someone and circulated with each component service within OSD for comment. Dawn Woods and Daniel Wallace will coordinate with Jeffrey Thomas on this.*
  - ❖ *Motion to rewrite the charter to include non DOD agencies as full members with all the responsibilities – Majority 15 in favor, 0 against, 4 abstentions*
  - ❖ *Result – the action will be pursued.*

The new business portion of the agenda covered a variety of topics detailed below:

1. TAG and Industry Collaboration – Steve Merriman

   a. Technical Society Industry (TSI) Group worked with TAG to facilitate the flow of information from DoD to industry and vice versa (i.e., Human Systems Integration Standard, etc.). The relationship has waned recently, and has resulted in less participation and action. Steve shared that he would like to explore ways to re-build that relationship.
   b. Responses – There is a lack of understanding of the purpose of TSI.

c. ACTION - Plenary Session briefing about what TSI can do for the TAG. Barbara Palmer and Steve Merriman will take this action.

2. Healthcare HFE Special Interest Group – Tandi Bagian

   a. Overall, people are eager to participate. FDA, VHA, and DHA are looking to combine efforts to solve challenges. Information is needed from others on how to do this on a larger scale (i.e., Charter, Strategic Roadmap, etc.).

3. Open Q&A

   a. Rebecca Iden - What is the right time to share issues and concerns? The Operating Board meeting is at the end and there isn't enough time. Jeffrey Thomas decided to use some items from Rebecca's list of issues as discussion points for the Operating Board meeting.

4. Charter and leadership changes will be addressed at the Operating Board Meeting.

   a. The HSI standard is at 95% draft stage. There are limited requirements in training in all areas. In terms of Personnel and Safety/Survivability, there is a two-page list of contractor tasks in Force Protection Survivability and Personnel.

5. Social Media Update

   a. TAG on Facebook – 295 followers, LinkedIn 147 followers and Twitter (86 followers) presence. Key interactions – NDIA, Marine Corps, HFCS, Dahlgren, ARL, Sandia, USA Jobs, Embry Riddle.

Appendix C – Session Agendas

Monday, 22 May

SAE G-45 Committee Meeting	0800-1000	CAD A
Meeting Registration	1000–1100	Auditorium
SAE G-45 Committee Meeting	1000–1100	CAD A
FAA/NASA RTT Follow-up (closed meeting)	1000–1100	CAD B
Meeting Registration New Member Orientation	1300–1450	CAD B
HM&S Workshop	1300–1450	Smart Classroom
SAE G-45 Committee Meeting	1300–1450	CAD A
Executive Committee Meeting	1500–1650	CAD B
HM&S Workshop	1500–1650	Smart Classroom
SAE G-45 Committee Meeting	1500–1650	CAD A

Tuesday, 23 May

Meeting Registration Plenary Session	0800–1130	Auditorium
Introduction of Facilitator Function	1130–1140	Auditorium
Poster Session	1140–1220	Cafeteria
HFE/HSI I	1300–1445	Auditorium
Controls and Displays	1300–1445	CAD A
Training	1300–1445	CAD B
HFE/HSI II	1515–1700	Auditorium
Controls and Displays II	1515–1700	CAD A
Mixed Reality	1515–1700	CAD B
Working Groups	1715–1800	TBD

Wednesday, 24 May

Technical Society/Industry	0700–0750	CAD B
Trust in Autonomy	0800–0945	CAD B
Design: Tools and Techniques	0800–0945	CAD A
Unmanned Systems (UAS)	1015–1150	Auditorium
Modeling & Simulation I	1015–1150	CAD A
Extreme Environments	1015–1150	CAD B
Cybersecurity	1300–1445	Auditorium
Healthcare Special Interest Group – Session I	1300–1445	CAD A
Human Factors Standardization	1300–1445	CAD B
Human Performance Measurement I	1515–1700	Auditorium
Modeling & Simulation II	1515–1700	CAD A
Personnel	1515–1700	CAD B
Service Caucuses	1700–1800	

Thursday, 25 May

Human Performance Measurement II	0800–0945	Auditorium
Healthcare Special Interest Group II	0800–0945	CAD B
Operating Board (closed meeting)	1000–1200	Auditorium
HSI MIL HDBK Working Group	1015–1200	CAD A
Safety/Survivability/Health Hazards	1015–1200	CAD B
Tours (preregistration required)	1300–1730	Location TBD

Appendix D – Planning for TAG 72 (May 2018) – Preliminary Information

TAG 72 will be hosted by the Air Force. Date and location TBD.

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Appendix E – Facilitator Session Notes for TAG 71

NASA Facilitators attended sessions	Not Attended by a NASA Facilitator
New Member Orientation	Plenary Session
HM&S I Workshop	SAE G-45 Committee Meetings
HM&S II Workshop	FAA/NASA RTT Follow-up
HFE I Controls and Displays	Poster Session
HFE II Controls and Displays	Training
HFE/HSI Session I	Working Groups
HFE/HSI Session II	Technical Society/Industry
Design: Tools and Techniques	Trust in Autonomy
Unmanned Systems (UAS)	Extreme Environments
Modeling & Simulation I	Cybersecurity
Healthcare Special Interest Group – Session I	Human Performance Measurement I
Healthcare Special Interest Group II	Modeling & Simulation II
Human Factors Standardization	Personnel
Executive Committee Meeting	Service Caucuses
Operating Board (closed meeting)	Human Performance Measurement II
	HSI MIL HDBK Working Group
	Safety/Survivability/Health Hazards

HFE TAG-71 New Member Orientation

Session Notes:

New Member Orientation – Monday, May 22, 2017 – 1pm – CAD A
Session Chair – Jeff Thomas

The session began with introductions. Each attendee shared their name, organization, a few words about the work in which they are engaged, and one fun fact about themselves.

Jeff Thomas continued with a short discussion about the TAG concept and importance. He shared that the TAG is about connecting and leveraging the cross-section of people who are attending. This networking and discussion results in a stronger community of people working in the Human Factors Engineering (HFE) discipline areas.

Next, Jeff reviewed a portion of the HFE TAG website, and emphasized several of the goals:

- A mechanism for exchanging technical information
- An opportunity to enhance the working level technical information exchange

Other key points:

- The HFE TAG is very focused on communicating in a meaningful way to partners and stakeholders about the ROI and benefits of the TAG.
- Those working in the HFE discipline area must remain relevant, and the HFE TAG supports that continued relevancy. The knowledge exchange that takes place during the HFE TAG creates the "space" for the necessary diverse and wide-ranging discussions. This is particularly important as the discipline continues to lobby for "being at the table" BEFORE and DURING any technical development and implementation.

Jeff continued his discussion by highlighting several of the primary sub-topic areas in the HFE TAG:

- Procedures, Methodologies, and Mechanisms for application of HFE-developed technologies.
- Defining and refining "user interaction" (and provided examples that are a mismatch between HFE perceptions and HFE realities)

Jeff then opened the floor for comments, questions, and ideas from first-time attendees. Following are highlights of the informal dialogue.

- Marines not represented on the HFE web page. Albeit very small player, but we were invited to the workshop because of the huge amount of work and research being done in this arena. Actual Marine Corps work is very cross-disciplinary, international in scope. (Several examples

were provided about work with Germans, Australians, Japanese, Dutch. In particular, the Dutch have done a lot of HFE work and Jeff received a copy of a book written by Dutch researchers). Dutch are very advanced. Discussed various types of funding that is being used. Mentioned "Grunt Works". Visit the website – lots of work being done at the Univ. of Iowa. Marines asked for a photo of Dr. Mason/OSD and Bonnie (and other members of the services that are present) – it will really help with the trip report and follow-on press release – which all leads to more solid ROI and demonstration of the benefit of this TAG. These pictures and write-ups strongly reinforce the idea of collaboration and joint efforts.

Jeff: Thanks for the great feedback. Encourage everyone to get involved, take notes. We're an all-volunteer leadership team (TAG), and are very welcoming of any additional help.

- Bonnie Novak: Several years ago, the TAG lost everything as a result of a website scrub. Might be that someone may have a backup of some/most of the lost information. Have also been discussing some type of shared access (i.e., SharePoint or similar) so that everyone can access this info on the website.

  Jeff: Thanks very much. It speaks to the support question (what does support mean?). It is about the joint photos and collaboration showing who is working together (or that all of the services are working together). Excellent!

- Members of the TAG were given the opportunity to respond to the question -- What does the TAG mean to us as organizers?

  - ✓ Rick Arnold: probably the single best DoD networking opportunity. I'm looking forward to serving as the 2018 TAG chair – it will provide me with the opportunity to point to "people working in particular discipline areas" to enable broader and deeper perspective. Creates parallel universes whereby people can network and connect.

  - ✓ Jeff Thomas: a home for me to explore my interests, meet other like-minded people who were interested in the things I was interested in. It led me to my master's degree in human systems integration. Enabled me to join my current office/lab as a program analyst to do meaningful and impactful work in human factors.

  - ✓ John Plaga: is really a working meeting where people get together and actually work out problems together. Also if there is an area that is not being covered by the sub-TAGs – we have a process to introduce that and the interest area can graduate into becoming a sub-TAG. The TAG is very flexible and open to new and emerging sub-discipline areas.

  - ✓ John Rice: TAG is not exactly a professional conference style, with a call for papers and lots of scrutiny of the paper process. That actually leads the attendees to become passive participants. TAG is not like that – it is not passive. The schedule allows for periods of discussion around thorny or big hairy problems. It gives attendees a chance to go back and report on the problems that were discussed and make a proposal that there be a joint collaboration across the services and NASA.

- ✓ John Plaga: Also a great venue for throwing out various problems and have others begin to work on them or even partner/collaborate on them.

Jeff then opened the floor to first-time attendees, and asked each to share what attracted them to attend the HFE TAG. Following is a summary of the comments from all attendees:

- ✓ What attracted me was the in-formalness, non-academic aspect of the conference. The TAG allows me to get into the room with the users and researchers who are working on the problems in a way that is very encouraging and beneficial toward the development of the project.

- ✓ As a new member, here's what I expect and hope for:
  - Exposure to new tools
  - Have other people see and discuss possibilities of using and proving the tools
  - Opportunity to hear success stories including all of the roadblocks that were overcome along the way.
  - Access to a "point of contact" list including each person's focus areas that are receiving investment funding
  - Opportunities to learn more about existing contract vehicles, sequestration, etc., to be able to collaborate. Would love a list from OSD for matching funding.

- ✓ Comment about intersection of HFE and the medical field. The TAG now has a health, survivability sub-TAG for the 2017 conference. Very positive!

HM&S I Workshop

Session Notes:

HM&S Workshop Session 1 1:00pm-2:50pm Smart Classroom
John W. Ramsay, PhD (Primary Presenter)
Dennis Anderson, PhD

Introduction by sub chair explaining how HFE is working closely with the medical community to support workshop and the ability to tie both.

Members conducted a quick Icebreaker with those around them with a brief introduction and a unique fact about themselves not associated with the TAG. Discussion was lively and the group was ready to learn about this product.

14 Attendees

A majority of the participants had the Open Sim software on their computer and the group shared a couple of the computers in order to follow along with the software presentation/demo. Very much of a presentation, no questions were asked to the group from the beginning. Several were attempting to raise hands and ask questions but the presenter was not looking at the group.

This session is how open the software was the initial discussion, very much a point and click.

Presenter

- Does the software take into account body type?
    - Yes, but the user will have to change the variables for bone or muscle mass in the settings.
- Are ligaments and tendons taken into account on this model?
    - No, just muscle tissue and bone, but if values are known then the user can adjust the variables.
    - All of these elements and joints are part of the model, and you are able to add additional feature. Like a backpack on a full human model and you can add or subtract to the model.
- Is bone mass or density a predesignated feature?
    - Yes, the model you build off of will have predesignated settings but you are able to change the settings in the software.
- Are we able to use our own “boundary mannequin” in the model?
    - Yes, you will be able to design your own features for your own model.
    - Loading a motion, the software gives the user a chance to put movement into the model.

Several tools were displayed so they could determine how the data is changed or modified for different settings.

Models are normally captured in the lab with actual data using movement analysis.

This is a Musculoskeletal model, able to determine if a person is actually capable of conducting the action.

This is a teaching model on display, if you want a specific type of model go the OPENSIM website.

Dennis Anderson Harvard Medical School:

Discussion on how they developed a fully articulated thoracic spine and rib cage using the open source software.

- When developing a model was any CT scans or data taken from moving models?
  - No only still CT scans and cadavers.
- When you performed your adjustments were they significant or did they change?
  - Yes, we used a pattern of size to make consistent model based upon other available literature.

Validation: Are model predictions accurate?

- Compare model of vertebral compressive loading and trunk muscle tension (static optimization and joint reaction analysis). The model allows a static vertebral loading patterns.

- Does the model take into account mass and center of mass as well as inertia?
  - Yes, you can adjust the amount of data needed.

https://simtk.org/home/spine_ribcage

Following the presentation each participant was able to work through a worksheet scenario with the preloaded software:

Conducting an exercise where an ankle injury is possible if a landing on an incline.

Part I--simulate a drop landing and analyze ankle inversion injury risk. What is the maximum subtalar angle during the drop landing? Would an ankle inversion injury have occurred during this landing?

Most people in the group paired up and addressed the scenario, limited questions to the presenter.

When developing a model, are you able to include other models to facilitate impacts of changes or support.

- Yes, each model can be modified to support each study.

Chair Wrap up,
John Ramsay: john.w.ramsay4.civ@mail.mil
Dennis Anders: Danders7@bidmc.harvard.edu

HM&S Workshop Session II

3:00pm-4:50pm Smart Classroom
John W. Ramsay, PhD (Primary Presenter); Dennis Anderson, PhD

Introduction by sub chair explaining how HFE is working closely with the medical community to support workshop and the ability to tie both.

Conducted a quick Icebreaker with the group to support open communication.

A majority of the participants had the Open Sim software on their computer and several of the participants were sharing.

Very much of a presentation, no questions were asked to the group from the beginning. Several were attempting to raise hands and ask questions but the presenter was not looking at the group. Introduction by sub chair explaining how HFE is working closely with the medical community to support workshop and the ability to tie both.

Members conducted a quick Icebreaker with those around them with a brief introduction and a unique fact about themselves not associated with the TAG. Discussion was lively and the group was ready to learn about this product.

12 Attendees

- Newton's second law was the primary discussion. F=m . a

  Forward dynamic and Inverse dynamic

A modification in the presentation schedule was made to allow presenter make it to his scheduled flight.

Dennis Anderson (Harvard Medical)

Developed a fully articulated thoracic spine and rib cage.
Validation: Are model predictions accurate?

Compare model predictions of vertebral compressive loading and trunk muscle tension (static optimization and joint reaction analysis) to previously report in vivo measurement.

Are the studies along the athletic study group? Most are from the orthopedic surgeon.
Electromyography Erector spinal muscle tension predicted by model highly correlated with measured myoelectric activity.
When you are inputting a range of motion, can this model define the model. You want to know motion. Yes, you can put in the range of motion by loading a motion.

File: Load motion: file

- In regards to the parameters, how do you come up with the values and where/how to determine the results?
  - Some of the values are preset but you can adjust.

- With the values, can you adjust for your population?
    - Yes, but it is going to be within a specific range.

Ankle Inversion Sprain exercise:
A majority of the participants had the software loaded on their computer and were able to perform the exercise.

Very Quiet group during session II, they worked independently and were very interested in the product. Some of the off comments were focused on the ability to learn the software in a little more detail and find a way to take it back and utilize the applications.
Some of the concerns were focused on ensuring they had the correct data variables for future models.

HFE Controls and Displays Session I

Date: 23 May 2017
Location: CAD A 1300-1445
Chairs: Marianne Paulsen and Allison Mead

Eric Geiselman, Laurie Quill – Development and Evaluation of a Guidance Display in Support of Precision Airdrop

- On your flight path marker – speed air on the left. Did you consider using an analog or a speed worm that didn't require you to watch scrolling data?
    - Yes - there is a worm that was used.

Captain Clifford Johnson – A Framework for Analyzing and Discussion Level of Human Control Abstraction

- Where do you think the research fell short and how would you deal with it?
    - Applying it to systems – we applied it to every system that we tried. We didn't take the decision tree to a bunch of people and asked them to classify systems due to time and money constraints.
- Direct and Augmented. How would you classify something where the more strategic stuff is decided by the system, but a person carries out the activities?
- Why do you think it's important to classify systems in terms of Levels of Human Control Abstraction or Levels of Automation?

Patrick Mead – Naval Surface Warfare Center Dahlgren – Experience Matters: Why evaluation emerging control and displays technology is hard

- Incorporating training into our usability is a consideration
- Gesture and Eye Gaze – did you instruct people to look?
    - A brief explanation of the technology was provided. More experience yielded a better understanding of latency so the time on the tasks decreased.
- Inter subject variability within the learning curve. Everything was done in subjects so we didn't have to deal with that. Younger gaming user vs. older user. It took out that variability.

Alan Lemon – SSCLANT – Information Sharing Needs for Operators in the Netted Navy

- What impact was there on training?
    - Training was reduced from 2 weeks to 1 hour, even with inexperienced users.

HFE Controls and Displays Session II

Date: 23 May 2017
Location: CAD A 1515-1700
Chairs: Marianne Paulsen and Allison Mead

Timothy White – Mitigating the Effects of Cognitive Overburden with a Dual-Mode Tactile and Bone Conduction System

- Will frequency of vibrations be changed so they can't be sensed?
    - The frequency is reduced in head gear. It's more likely to hear that on the torso belt because you have to have higher frequency on the Torso.
- Has bone conduction been used on helicopter and planes?
    - Most of the uses have been with special forces and chem/bio.
- Skeletal injuries in the Army through Helicopters through low vibrations – lower than 100 hz. SBIR effort is considering safety.
- Tactile, LIDAR, Specialized Flight Conditions – Brown out conditions – Tactile Vest was used to evaluate.

Mitch Tindall - Leveraging Automated Performance Measurement in Complex Scenario-Based Simulation Environments: A Need to Understand Workload and Perceived Quality of Feedback

- Pass fail with the TNR. Adaptive Learning and imbedded remediation. What backlash is coming from people who use pass fail methodologies?
    - Automated Performance Measure as a supplement, but different needs based on the level of training. Instruction early on and later is needed, curriculum is more assessment based. The wing wants the APM to load into a qual. The squadron is more concerned with it helping me to tell the story of what happened during this 4-hour event.
- People at various levels of the command have access and can edit the data. Is there a gatekeeper?
    - Yes – permission was given to wing training officers. Eventually CPRGs will be the only other ones with access. After it is complete, no entity can change the data except the CPRG.
- Is there a way to comment on spikes in the data at that are unexplained?
    - There is a narrative area to describe and account for spikes
- Lessons Learned -System Usability Scale wasn't as fine-tuned. There is another system used to refine. Know where your product is at in its maturity. Make sure to get top down and bottom up buy in.

Betsy Abdeen- Evaluation of Virtual Environment Menu Designs
Marianne Paulsen – Virtual Reality Hands-on demonstration using Samsung Gear VR

- Did you take any performance measurement?
    - We weren't trying to get at performance just preference.

- Can classic menus be overlapped or reconfigured?
    - Consistent finding – people didn't have breadcrumbs to get back. People are sensitive to proximity in virtual environments.

General Comments:

- Have we as a community thought about where Virtual Reality is best applied?
    - The community should develop reasoning and/or a white paper.
    - There is an activity to write a white paper that will become the Navy Standard on when to use VR versus other training.
    - It will be a supplement to the media analysis criteria.
- Criteria
    - Fidelity – what needs to be done in VR versus reality
    - Safety – virtual environment sometimes allows for training in areas that are dangerous in reality
    - Cost
- An algorithm will be developed that will determine the appropriate media
- Stare Dwell time was adjusted in testing.
- Design Guidance – should the different options be looked at to give guidance about what to stay away from? Or should the pros and cons of all be explored?
    - The goal is to develop guidance based on task and proficiency about which level of virtual.
- Gaze Timing – does anything happen to let people know that if they keep looking at something it will be selected soon? Did users report any anxiety in this area?
    - No the tasks weren't risky. The gaze is head tracking.
- 2d vs. 3d software. The guidance said not to do 3d.

HFE TAG-71 HFE/HSI Session I

24 May 2017
HFE HSI Session I Auditorium 1300-1445
Chairs: Rebecca Iden & Liz Haro

Human Factors Evaluation of Hand Held Mine Detectors – Amy Simpson- Defense Science and Technology Group Australia.

51 attendees

- Member of the audience conducted the sim system for the US Army, vest strap connections and sling.
    - The solders did not like the straps because they wanted the ability to get rid of the device in the event of enemy action.

Co-Chair stopped questions for after the presentations and asked all to hold question until the end

Application of Goal Directed Task Analysis to Understand User Goals and Information Requirements. Dr. Rebecca Iden - SPAWAR Systems Center Pacific

56 attendees

Human Systems Integration/Human Factors Engineering (HSI/HFE), Usability Scorecard. Julie Ruck. PM-DCGS-A

52 attendees

- Have you noticed more questions are more important than other in developing your scorecard?

Yes,

- We developed a set of interview questions or script. Developing question from High Risk, Medium Risk, Low Risk.

Very engaged audience during the presentation. After completion at least eight people went up to the presenter to discuss her process.

Presenter provided email and will provide all who would like a sample of the Usability Scorecard.

Data Informed Decision Making for Safety Program Interventions, Cindy Whitehead, Naval Surface Warfare Center Dahlgren.

47 attendees

Group was dismissed, all questions were offline.

HFE TAG HFE/HSI Session II

24 May 2017
HFE HSI Session II Auditorium 1515-1700
Chairs: Rebecca Iden & Liz Haro

Introduction to the Department of Transportation Human Factors Coordinating Committee (HFCC) Kenneth Allendoerfer (FAA) Maura Lohrenz (DOT)

51 attendees

- Do you have best practices documented?
  - No, but that is a good idea, we may be able to leverage each other to and ability to have all agencies document best practices.
- The DOT has a document that describes "what does transportation look like in 30 years"

Visual Analytics, Human Factors and Organizational Issues. Dennis Wightman (DHS)

57 attendees

- Out of all the challenges and how do you deal with them?
  - Looking at the input items then seeing what happened, is there a pathway or organization that support the data.

Panel: Leveraging Design Thinking Concepts to Improve DoD Product Development

Steve Dorton: Sonalysts
Scott Tupper: Sonalysts
Lt Mich Chapia: Undersea Warfighting Development Center
Steve Fultz: Undersea Weapons Program Office

58 attendees

- Rebecca Iden, was there anything you were expecting you did not get, and how would you address that.
  - I did not know what to expect and not sure what he was doing that day. I would have liked to get more set ideas of hard ideas and a list or document or program sponsor that gives what they want.
  - I generally got what I wanted and wanted to keep getting what we wanted to achieve the results. Getting everyone in a room was a great idea.
- Have you found this process was a better way to establish requirements?
  - Yes, the advantages of this process is we received better requirements without looking at old data and attempting to document requirements.
- Are the requirements good and valid?
  - The approach does give a valid requirement or an original idea on why they want the change.
- Are there requirements that are not identified through this process?

  - In our event(s) it answers some of the requirements but not necessarily all. Specifically, we are looking at end user interface or desires. Not the reliability of the systems.
  - We have different mix of individuals from end users and designers or graphic artist allowing the engineers in the room to hear what the end user was looking for.
- How does your process work in a model based design that is expected to be reliable, usable and best value?
  - We do have people in the room who worry about cost but we also ensure when we design a system we have the end user in mind.
  - We keep in mind the cost but also take into account the cost.
  - Not all ideas are understood to be cost effective, those are tabled and approached if needed through the resource sponsor if the idea is worth pursuing.
  - One of the big challenges is this is a drastic change to the display method and ensure the requested changes were actually put into the software change cycle.

An example of a periscope controller that was approximately 20lbs was replaced by an Xbox controller based upon the end user input.

- What is the role of some of the science and technology in this process?
  - If I am an engineer in a very narrow scope and able to participate with end users.
  - Using the end user is able to bring a different approach to the engineer and allow them to focus with the future changes or modification.
- Some of the work we are accomplishing should help the S&T community.
  - Allowing the stuff in the parking lot to go to the S&T community allows future development.
- Old day in the lab had Sig 2 Research, the exploratory researchers were actually developing items to allow possible DoD development. This process allows them to link up the future products.
  - Bringing the developer and engineer together with the end user is important early in the process to help designer.
  - No idea what is already on the shelf and was able to determine or find other alternatives for development.
- How do you bring in the new ideas to the DoD?
  - In order to bring the new ideas to the new systems a Champion was always in the lead. Having an open mind to progress and have the ideas we gathered in this process allowed us to make changes to current submarine systems.
  - A DC rep is usually a participant in the brainstorming event and the war gaming event.

Discussion on Brainstorming process to help establish requirements: They had about 35 participants in the room for the three-day event and quite a bit of time of event and a return rate was about 85% that traveled every six weeks. Value added was determined by all members.

Design: Tools and Techniques

Date: 24 May 2017
Location: CAD A 0800-0945
Chairs: Michael Feary and Chelsey Lever

User-Centered Design Tools and Techniques for Understanding Multi-Echelon Information Needs for Fire Support Command and Control

Pamela Savage-Knepshield, Charles Hernandez

- Surveys and Observations identified improvements – Baseline captured

Integration of Agile and Human Centered Design Development Processes for Safety and Mission Critical Systems.

Christopher Plott – Alion Science and Technology

- Input on User Feedback in iterative design.
- How does one conduct user assessment on partial capabilities?
    - Heuristic evaluations on each sprint and define user stories to set them up in testable ways.

Developing a Risk Management Tool for HSI Analysts

Zachary Zimmerlin

- Why where Manpower, Personnel and Training combined?
    - Common Human Interaction.
- Who are the users – HSI Analysts – AFRL 711th
- User – value that incorporates severity and probability. They aren't separated. Will people self-sensor and choose green to avoid something they don't want to address?
    - This is an analyst tool – if they are evaluated it is on the status of the program. The assumption is that the analyst will accurately identify the risks to have them addressed.
- Output in terms of cross-schedule performance.
    - This is a current issue being addressed. This may be done on a domain level to evaluate essential program risk – cost, schedule, performance.
- Do the questions provide a way for people to get help answering the questions?
    - The tool doesn't do this. It does stimulate you to ask the right questions to your program to get the answers.
- Collaboration Opportunity --The Marine Corps is using a tool very similar
- Have you thought about doing an ordering analysis of the questions – early and follow-up questions?

Army Studies: The Cost of not Accommodating the Warfighter – Chris Plott

- MCAM tool was of particular interest to the group

- Are you prototyping these tools yourselves?
    - We are hoping to test with end users.
- Are the costs databases and other tools part of the catalog? Yes

Unmanned Systems (UAS)

Date: 24 May 2017
Location: Auditorium 1015-1150
Chairs: Tom Alicia and Laura Milham

Human Factors Considerations for UAS Integration within Multi-Jurisdictional Areas - Tiffany Vinson, John Valencia

- The City Council has begun to log the hobbyist related incidents. The policy was written broadly to accommodate changes to FAA regulations.
- We haven't begun to use counter UAS operations. This is an emerging field. We have been looking for case studies – there is not much for civilian use.
- FAA rules prevented anyone from flying anything. FAA is the lead org. for maintaining the safety of aerospace. Our policy will follow the FAA. Local governments can't site people. The local governments have to develop policies to deal with this.
- People don't understand the rules fully. How are you educating them?
    - Public messaging will be used to help the public know where they shouldn't fly.

Social Interaction with Autonomous Agents: Team Perception and Team Building Improve Teamwork Outcomes – Dr. Patrick Mead

- How do we integrate Autonomous Systems into highly complex situations – fighter pilots, firefighters?
    - They are intricately linked on the human side. They are interacting socially. The answer could be the AS lives on your bot and your phone. Maybe they play video games with you.
- What is the threshold by which we accept the limitations of any Autonomous System?
- How long was the training – 2 hours. The teambuilding – 30 min – 1 hour.
- As a society we are more willing to accept that technology is here to help us.

The Impact of Dynamic Multi-Vehicle Autonomy and Advanced Pilot/Vehicle Interface Design on Manned-Unmanned Teaming (MUM-T) Operations – Grant Taylor

- What do you see the advantage of the helicopter pilot controlling versus ground personnel?
    - These UAVs will not be permanent assets on the vehicle. The manned aviator control can enable better speed and clarity of information from the ground control operator to the pilot. Communication networks are limited. They are not good enough to have unmanned platforms act on their own.
- What other applications can this have? Many
- What is the degree of freedom to allow the Autonomy?
    - The human operator can manually intervene and regain control. The ability for the human operator to intervene at a higher level.

HFE TAG-71 Modeling & Simulation I

24 may 2017
Session Chair – John Rice, Ranjeev Mittu & Lee Sciarini

The session began with introductions from the Session Chair and a short introduction from all participants in the room.
36 Attendees, approximately with half the room this is their first TAG.

SubTag Business Meeting: Part 1 Review of HM&S Mission and Purpose, John Rice, John Ramsay
John Rice started with a history of the TAG and a comparison to other Charters or organizations.
The need to collaborate was necessary to continue after the TAG event.
This session was designed to have a little more collaboration with the hope to continue with developing a session topic.
A draft charter was distributed to the attendees to review and discuss with the intention to determine the business rules for the TAG.
Looking to develop small interagency groups to get together and develop possible White Papers for future TAG reviews.
John Rice is intending to have the attendees vote on the written charter.
Looking for volunteers to assume Chair and Sub/Co-Chair positions for next TAG. John Ramsay for Chair, Dave for Co-Chair.
Comment:

- Can the sub tag attempt to reduce the scope and try to narrow down the areas covered?

Decision Support Using an Integrated Human-Exosuit Computational Model Framework., Leia Stirling-MIT/NASA
Open Questions from Presenter when developing exosuits:

- Kinematic fit (Static and dynamic)
- Assessment of sizes required for a population
- Dynamics of motion for operational tasks
- Human energy requirements for operational task
- Potential injury

Point of discussion was based around the NASA Mk III space suit using a design model to determine performance.

- What is the consideration of the gravity?
    - The original model was using earth gravity but when actually conducting test we are able to change to model to reflect the actual environment.
- Why is the data not consistent when making measurement?
    - We are going to measure again and determine what is the difference to determine how the suit variables apply.

John Rice, when can you use a model and when can you not use a model, buy using an open source modeling system (opensim). We need to look for ways to use what is already out there.

Please get together with the presenter

Gaps in Integrated Modeling and Simulation for Hjan Systems Integration Community of Practice. DHS T&S

- One observation in the aviation systems usually the human is the last person to know about the system when installed.
- I assume all Human Factors professionals have models, and I would not normally go to the other agency to see what type of model is in use.
- Quite a few of the people in DHS use to be in DoD and there are many parallels between systems and HSI approaches. How do we leverage across domains?
    - There are policies in place that limit the ability to share ideas with other agencies.
- Is there a way we can put together a list of policies we already know about that inhibit our ability to share ideas?
- With all these different models are we going to be able to interface these multiple models together?
- Often we have to go out to industry our product is usually proprietary solutions.
- Human Factors are not usually not at the front end of the requirements side of the problems.
- Biggest challenge is to get everyone involved in the Human Factors.
- The imprint tool the Army uses does a majority of the interface models and is designed to assist with human interface.

Existing policies that may inhibit the ability to perform Human Factors Engineering and were instructed they could load them on the facilitate pro website.

Helmet-mounted displays in tactical flight platforms, results from recent fixed and rotary wing flight test at OPL, Thomas Schnell-Operator Performance Laboratory (OPL).

Used a virtual reality headset for an actual flight to simulate an operational environment and making changes to determine how the pilot reacts in both fixed and rotary wing aircraft.

- Questions are to be asked during lunch

Barriers to Collaboration and Reuse of Computational Models, John Rice, Rick Severinghaus-Modeling &Simulation Chair/NMSC Chair.

Open Discussion Post Session:

Who really wants reuse to work, but the draw back. Here we consider how incentives may stimulate or impeded reuse.

Healthcare Special Interest Group I

Date: 24 May 2017
Location: CAD A 1300 -1445
Chair: Tandi Bagian

VA Sim Learn Update – Patricio Bruno

- Patient Unit Simulation – Bariatric Lift and Bed – simulating moving the size and weight of the patient. The elevators didn't fit the bariatric structures.

User-Centered Design Process of the Marine Corps Warfighting Lap Expeditionary Medicine -- Chelsey Lever

- With the data collected by the observer controller – what are you doing with the data?
  - Any modeling and simulation runs. The information goes back to the developers so that the next iteration will
- Collaboration – ROI - JTLM – option to leverage that system for this for cost analysis, usability etc.
- Do you do coordination or information with organizations such as Doctors without Borders?

Prototype Design of Real Time Multi-Patient Monitoring System for Critical Air Transport Team (CCATT)

- The cost to optimize the viewer was $250K
- Do you have the ability to go back in time?
  - It can go back up to 72 hours. It can be adjusted back even further. The needs vary.
- Data – are you uploading this to clouds?
  - The data - how to optimize this in low bandwidth environments – compression techniques.
- Are your sensors displays being used as part of the autonomous critical care system?
  - We aren't tied to this- ultimately the goal is decision support. This may be useful with that technology.

Application of Human Factors and Usability Engineering to Medical Devices Development and Review – Hanniebey Wiyor

- Do you see any future for FDA or Contractor Based usability or HFE evaluations?
  - This is currently done by the vendor. Pre market submissions – sponsors – The FDA can allow other testing companies – sponsors. There are only 3 companies that do Human Factors Testing.
- If the intended environment changes – the company has to go back and re-submit

Operating Room Fire Risk Assessment: A Case-Controlled Study – Sarah Simpson

- No time for questions

Healthcare Special Interest Group II

Date: 25 May 2017
Location: CAD A 0800-0945
Chair: Tandi Bagian

Using Natural Language Processing (NLP) to Leverage Text Reports in the VHA Corporate Data Warehouse (CDW) to Support Provider Decision Making for Patient Care --Voogle Notes – Dr. David Eibling

- Available today anywhere – It still needs to undergo the approval process, but it is accessible. Collaboration – innovation project to deal "snowbirds" with Rosalyn Scott, Regional Director, Specialty Care Center of Innovation (West), VHA
- This is an excellent product to deal with healthcare information chaos.
- There could be non-medical applications outside VA – can we do a needs assessment?
    - NASA crew debriefs. Massive amounts of information that we deal with could be aided by this software. Archival data of astronaut healthcare. Iknow should be explored. Iknow/NLP Process could be used by domain experts. This method uses a linguistic algorithm.
- This would be a good product to try for multiple agencies.

Big Data Challenge: Do Multiple Vital Sign Sensors Improve the Prediction of Emergency Blood Transfusion in Adult Trauma Patients

- How do we retain the trauma lessons and experience learned during Operation Iraqi Freedom and Operation Enduring Freedom? Prolonged Field Care 24-72 hours
- Peacetime military care providers will have minimal experience in pre-hospital or acute trauma/critical care.
- What about the ECG changes in addition to the heartrate?
    - We have clinicians that look at the various features and can validate.
- Is the pre-hospital data from transport is available to providers in the shock trauma unit? Not yet.
- Autonomous critical care- extended preservation resuscitation - drain blood, repair and resuscitate or autonomous patient care – helicopter will take care of the patient.

A Systems Approach to Human Performance Improvement in Medical Quality Management - Janae Lockett Reynolds

- Mission Critical Occupations – Health wellness, and fitness for duty. Intersections between Human Systems Integration and quality of medical care.
- What parts of homeland security are in charge of healthcare?
    - Science and Technology Directorate- Office of heath affairs, Medical quality management Branch. Each operational component has a medical quality management function.
- Other organizations – national center for patient safety and all of DoD has done work in this area. This is a potential collaboration area. Connect with Tandi Bagian on this.

General Business

- Moved by Dave Eibling that we accept the proposed charter at written. The charter will be submitted to the executive committee for approval
- Jill Marrion and Miraban Whitmore will act as co-chairs. Virtual meetings to talk about succession, gaps and strategies.

Human Factors Standardization

Wednesday, May 24, 2017 – 1pm – CAD
B, Allen Costen

32 attendees

MIL-STD-1472H, Human Engineering (Dr. Daniel Wallace)

Rewrite is moving along, first draft for most selections are complete. Significant changes with an anticipated release date mid-2018.

- New sections are included in the document.
- Human Performance will not have a complete section, limited traction on getting additional data.
- Is the document going to have excel files to use as a tool, a discussion item possibly for the sub-tag but not defined?
- Will there be a draft submitted an any point?
    - Yes, expect two drafts.
    - Formal review will go on "assist"
    - Recommend it going to the entire TAG or at least Sub-Tag.
- We are getting a lot of questions about touch or handheld devices and going to industry for standards.

G-45 Human Systems Integration Committee (Mr. Steve Merriman)

- Is our hope to have a DoD adoption letter.
    - Yes, several iterations to which will be joint signed.
    - AS-6906 or it may not be AS, anticipate a new number.
- Will it call out specific task, is this the intent?
    - Yes, as close as we can.
- Have you looked at the UK version?
    - Yes, very good version and liked the way it looked.
    - On the Web site available.

DoD HSI Standard Working Group (Mr. Owen Seely)

Serve as HSI best practice for implementing and conducting prime contractor HSI program efforts. Intent is to be tailored and used on acquisition program contracts.

Mil handbook becomes the guidance and practices for Government Program Managers, System Engineers, and HSI Practitioners on how to use the HSI standard Practice (AS-6906)

- Is your plan to have this handbook break down into volumes for roles in an HSI Practitioner?
    - Not familiar with this product but will review and sounds like a good format.
- The Air force sent out a document with HSI Standards.

Looking for participant to help develop the handbook.

- How does somebody know how to develop a DID.

    - No, we do not have a best practice, but the handbook may be a good place to put this standard.

Began Drafting Human Reliability Analysis (HRA) DID and HSI tradeoff analysis DID.
Identify and develop new DIDs and review existing DIDs (Data Item Description)
The DoD Website is active but not being processed, not sure if they were cut or if they are actually working.
Future Project, Implementation phase for Standard, HDBK, and DIDs.
Training/class for standard and HDBK, Publishing, Update CLE062 to include standard and mil-hdbk.
Revise MIL-HDBK-1908 (HFE Terms)
Update MIL-STD-46855
Cancel MIL-HDBK-743A?
More DIDs as needed

- On learning module who has the lead on this and I have not been able to find the control agency.
    - Going to get you a slide of the group.

Development of a Human-Systems Integration Handbook (Mr. Jeff Markiewicz)
Combined with the previous presentation.
Discussion on the Update of DOD-HDBK-743 (Ms. Dawn Woods)
Front matter and the rest with the rest being tables and tables of data.

- Is there and idea to publish this data instead of having it in a document.
    - Yes, we might have an option to find a useful way to publish the data.
- Having the most recent data might be useful but it may be a duplication of data. (on assist)

Several options are available for this to become a better document.

- New students coming from the university have no idea of how or what data is available.

Recommend the new format of 743 be more usable with the front end data.
Discussion on Critical Task Analysis for Operators (Mr. Steve Merriman)
Topic of discussion was to modify the CTA for Operators from a multiple page approach to the following items:
Context driven automatic data handling
Data entry defaults
Positive feedback
Display de-clutter options
Group symbol manipulation
Four level limit for selection menus
Standardization
Two second limit on alert displays
Integrated alerting with decision aids

Three or four action limit (decided by program) for high priority operations.

- The time you spent with the SMEs was your critical path issue.

CTA for Operators?
Or HPO Analysis

Could HPO Analysis be modified to benefit Maintainers, too?

- Job vs System, the job tasks is the fundamental.
- You have the humans the hardware and the software. How did I assess what the human needs to do?
- Take another look at the CTR and update to reflect.
- When you are in a sprint cycle a lot of the elements are in this option of CTR.

Recommend a Task Analysis Summit.

Operating Board

Attendees

- Jeffery Thomas (Chair)
- Richard Arnold (Vice Chair)
- Bonnie Novak (OSD Proponent Rep)
- 20 attendees

Brainstorming Session (pictures of ideas located at the end of the document)

- *Registration Process*
  - *Improve*
  - *Sustain*
- *SubTag Chair/Co-Chair Coordination & Process*
  - *Improve*
  - *Sustain*
- *Abstract End to End Process (Advertisement, Submission, Acceptance, Slides)*
  - *Improve*
  - *Sustain*
- *Information you wanted but did not get from us*

General Comments:

- We do not want to wait an entire year to address issues found today!
- Why was the website not updated as needed prior to the event?
- Why were specific session numbers not counted or stop from being counted?

Discussion:

- Would like to welcome the option to host future TAGs within the next two months determine options.
  - VAA, DOT
- Possible alternative: Chairing a TAG vs Hosting a TAG. Our current Charter limits the Chair to DoD services. Recommend we retain the Chairmanship within DoD and ask other services to assist in Hosting without changing the Charter.
- We need to have a process before an organization becomes a member of the HFE TAG.
- A submission of a signature of the Memorandum of Understanding and be part of the process to include a TAG sponsor.
  - We could use the VAA as a case to set the process for bringing other agencies to participate.
  - John Rice will be willing to assist DOT to bring them in the HFE TAG.
  - The Operating Board has already voted to bring the VAA to the TAG.
- Vote: We provide two courses of action to OSD to pursue pros and cons changing the charter to VAA and other agencies to become the Chair.

        - Have we already had this recommendation before? Definitely has impacts if we change the Charter.
        - What does the Charter say about Membership?
            - The Members who can chair are DoD, members who can host are all who participate at the Agency level.
            - MOA has been required before becoming a member.
        - TAG Membership (Services) vs TAG Affiliation?
- Executive Committee meeting voted Non-DoD agencies could Chair contingent from OSD.
    - Full membership is ability to Host and Chair (Ongoing Discussion)

Voted to table this discussion for three weeks after review of the Charter. (Passed)

- View Draft MOU and Charter

We are a Technical Advisory Group to the DoD proponent. We need to keep this in mind.

- What does it mean to be a TAG to DoD and other agencies? (Jeff's Green Book)

Sub-TAG or changed to Charter or Chair/Co-Chair filled out on the sheet.

Top Three Issues: Sub-TAG Chairs

Sub-TAG Technical Society Industry:

- We lost our role, feeding papers to industry and not the TAG.
- TAG needs to follow policy on Membership attendance by non-government personnel.
- All Sub-TAGs need to go back to roots that have an obligation to our proponent of their Sub-TAGs to advance ideas to our proponent. (issues, concerns, and issues)

Sub-TAG Human Performance Measurement II

- Sub-TAG Chairs have lost control and the abstracts have solicited independent to the Chairs has contributed to the problem. (Overall call is driving, not necessarily the Chairs)

Sub TAG Extreme Environment/Air Force Service Caucus

- Expanded too much beyond Government Agencies. (Declare a government-only session)

Sub TAG Modeling and Simulation

- Had real discussions on issues we had gaps between the primary session.
- We had election and John Ramsay is new Sub-TAG from Army.
- John Ramsay, new Chair, Missed out the mentor program. I hear quite a bit of the history but the knowledge is limited, need mentoring.
- Had a great workshop

Sub TAG VA Healthcare Special Interest Group.

- New members wanted to join TAG and want to learn how.
- 7 VA employees were involved in the process.
- Situational awareness of the social opportunities.
- Non-government question is an issue. (who should be in a session)
- Need time to submit comments
- Outgoing chair of the modeling and simulation - John Rice – we experimentally structured the SubTag. We only accepted three presentations, the rest of the time were discussion s about the way we do mod sim and discussions about issues. I suggest other sub-tags doe this as well. WE don't want to become an organization of passive listening.
- Additional Discussion - A history of the tag should be part of the plenary session or the new member orientation. The new member orientation should be approved upon. Some people don't know they're new members. The new membership session is on an extra travel day. There is also no mentorship for chairs.

Sub-TAG Design Tools & TECH (Chelsey Lever) Environment Integrity

- Chelsey Lever - 2nd year that my Mike Feary, co-chair, hasn't shown up. Start with Cynthia Null – the service chair. Chelsea will chair the session and Bill Merrimen can co-chair. Charlie Dischinger – will contact Mike to see if he has an objection.

Sub-TAG Standardization (Al Poston)

- Communication, need updated website and previous data
- Minute Meetings.
- (Website Update, DoD does not allow PII on website data, limited capabilities. The. Mil website is limited, the other website is contracted and limited)
- Website needs a solution.

Sub-Tag Dawn Woods – Army Rep

- The schedule needs a scrub- Dawn is willing to help.
- Dawn will volunteer to help with Sub-Tag Chair Training. It needs to be formalized. There are written instructions for new Sub-Tag Chairs

Sub-TAG Unmanned Systems

- Need clearer rolls and responsibilities.
- Recommendation – we revisit the charter of each sub-tag and ensure it includes expectations for chairs and co-chairs.

Sub-TAG Control Displays and Cyber- Marianne Paulson

- If something exists and is not working, we need to know why.
- If people sign up and not perform duties, need to identify and clarify
- Revisit charters for each sub-TAG and language to support expectations.

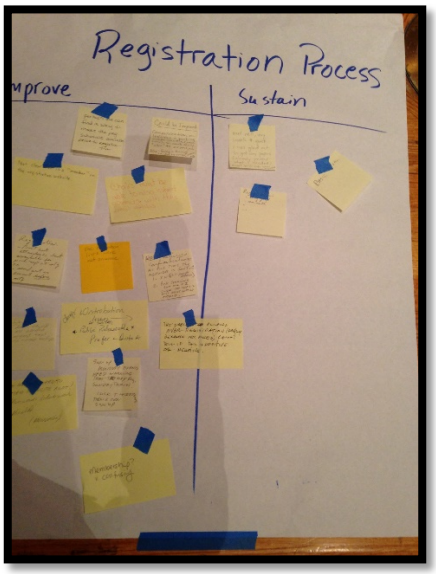
Sub-TAG HFE HIS Benefits and applications

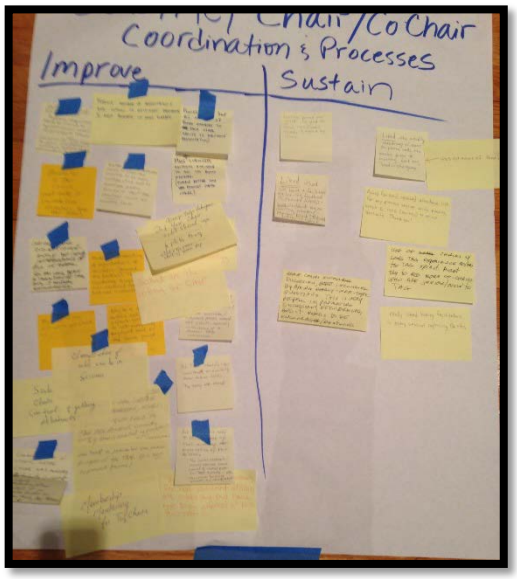
- Shifting time on the agenda is difficult for chair and presenters.
- Checklist and standard email for each chair.
- Determine membership and make it clear.
- Can we add TAG Ambassadors for future TAGs?

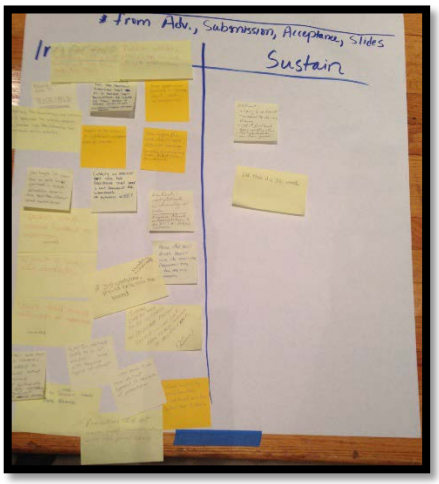
TAG-72

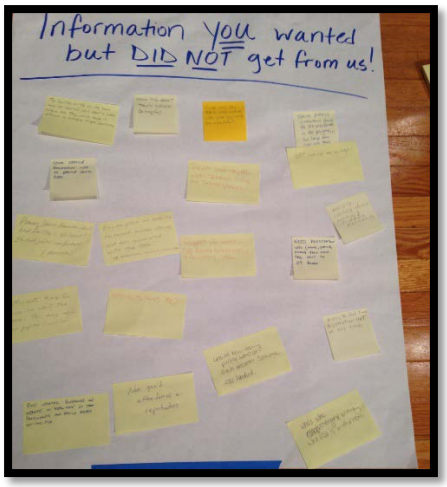
- Chair Rick Arnold, for TAG-72
- Vice Chair John Plaga for TAG-72
- (Ft Walton Beach or Air Force Academy)

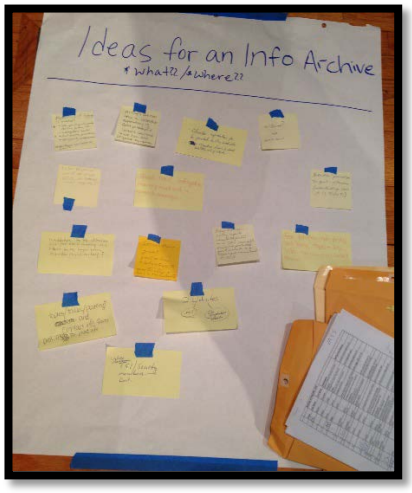
Operating Board Brain Storming Session Results for achievements, and Improvements.

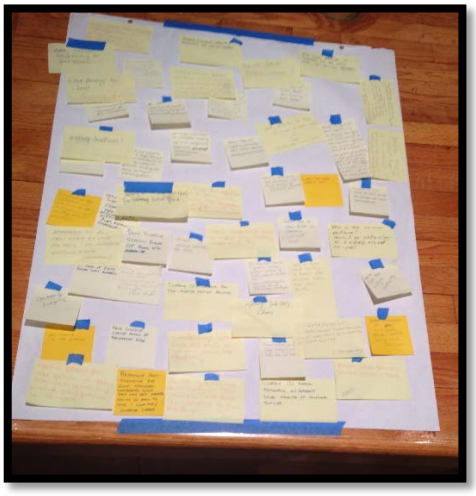












Appendix F Facilitator Biography

Donna Speller Turner

Organization Development Consultant

BIO / SUMMARY

As a certified organizational development consultant, I am focused on supporting you, your team, and your organization with strategies that facilitate professional development and continuous learning--both of which enable higher levels of performance. My expertise as a team coach and meeting facilitator allows me to help you and/or your team achieve focused and specific outcomes that lead to creative strategies for enhanced performance and sustained growth. I am an enthusiastic action-oriented "business coach" who can work with individuals or teams who are focused on achieving their goals effectively and efficiently. I believe in the power of people, and recognize that the solution to business, career, or organizational issues almost always resides within those who know the most about the challenge. I have worked with teams focused on strategic planning, new team start-ups, resolving inter-team discord, and more. An enthusiastic entrepreneur, I believe in strong community involvement, and am particularly interested in programs that enable educational success!

SKILLS

- Expert meeting, conference, workshop facilitation
- Individual and team coaching
- Strategic planning
- Instructor and content provider for creativity & innovation
- Adult learning styles
- Group dynamics
- Systems theory and quality improvement processes
- Advanced consulting methods
- Leadership coaching
- Conflict resolution
- Group process facilitation
- Organization communication processes
- Presentation skills and project management

CERTIFICATIONS/SPECIALIZATION

- Organizational development certified consultant
- Organizational development certified professional
- Certified Practitioner:
  - Myers-Briggs Type Inventory
  - DiSC Behavioral Inventory
  - RGB WorkStyle Preference Inventory
  - Change Style Indicator
  - FiRO-B
  - deBono 6 Thinking Hats
  - Influencing Skills
  - 360 Assessments
  - 4 Lenses Assessment

Contact Information

- Langley Research Center
- 757-864-9209
- 757-285-3820
- Donna.s.turner@nasa.gov

Years in OD

- 21

Education/Relevant Training

- Master's in Management, Organizational Development
- Organizational Development Certified Consultant (ODCC)
- Organizational Development Certified Professional (ODCP)
- Myers-Briggs Type Inventory Certified Practitioner
- DiSC Behavioral Inventory Certified Practitioner
- RGB Workstyle Preference Inventory Certified Practitioner
- NASA Creativity Instructor
- Experienced Meeting, Conference, & Workshop Facilitator
- Founder & Principal, Advantage Business Strategies; focused on management consulting & business development

Myisha Tucker, M. Ed. HRD, PHR

Organization Development Consultant

BIO / SUMMARY

Ms. Tucker is a dynamic consultant with 15 years of experience involving all aspects of human resources with a specialty in organization and talent development. Ms. Tucker excels at delivering solutions focused on helping individuals and organizations achieve their full potential. Her broad experience encompasses change management, talent assessment and development, design and delivery of programs, and strategic planning. Her project experience includes succession management program development, employee and leadership development, executive coaching program management. She has practiced Organization Development in professional services, transportation and government environments, and has extensive experience with complex and diverse workforces. Ms. Tucker holds a B.S. in Business Administration with a concentration in Leadership and Change Management, a Professional in Human Resources (PHR) certification, and an M.A. in Education and Human Development with a specialization in Human Resource Development.

SKILLS

- Change Management
- Succession Management
- Strategic Planning
- Team Development and Process Consulting
- Organization Diagnosis
- Design and Facilitation of Learning and Development Activities

CERTIFICATIONS / SPECIALIZATION

- Slippery Rock University of Pennsylvania: Certificate of Organization Development and Change Management
- Human Resources Certification Institute: Professional in Human Resources (PHR) Certification
- TTI Performance Systems: Certified Professional Behavioral Analyst DiSC
- Basadur Applied Creativity: Certified Basadur Profile Administrator
- Select International: Master Trainer of the Select Interviewing – a behavioral interviewing program
- NASA 540 and EM 360 Certified Debrief Administrator
- Predictive Index: Certified PI Analyst

Contact Information

- Langley Research Center
- 757-864-2969
- 412-716-5576
- Myisha.m.tucker@nasa.gov

Years in OD

- 15 Years

Education/Relevant Training

- Masters of Arts in Education and Human Development with a specialty in Human Resource Development
- Bachelor of Science in Business Management with a specialty in Leadership and Change Management
- Certificate of Organization Development and Change Management

William "Bill" Hewitt

Organization Development Consultant

BIO / SUMMARY

As an organizational development consultant, I am focused on supporting you, your team, and your organization with strategies that facilitate professional development, performance improvement, and continuous learning--both of which enable higher levels of performance. My expertise as a meeting facilitator allows me to help you and/or your team achieve objective outcomes that lead to creative strategies for enhanced performance and sustained growth. I am an enthusiastic action-oriented team member who can work with individuals or teams who are focused on achieving their goals effectively and efficiently. I believe in the power of people, and recognize that the solution to business, career, or organizational issues almost always resides within those who know the most about the challenge. I have worked with teams focused on strategic planning, new team start-ups, resolving inter-team discord, and more. A multi-faceted professional with a substantial background in Training management, organizational development, human resources development, and employee engagement programs with particular strengths in the development and implementation of performance improvement initiatives.

SKILLS

- Meeting, conference, workshop facilitation
- Leadership/executive Consulting
- Individual and team coaching
- Strategic planning
- Instructor and content provider for creativity & innovation
- Adult learning styles
- Group dynamics
- Human Performance Interventions
- Systems theory and quality improvement processes
- Conflict resolution
- Group process facilitation
- Organization communication processes
- Presentation skills and project management
- NASA Lean Six Sigma

Contact Information

- Langley Research Center
- 757-864-7222
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- William.Hewitt@nasa.gov

Years in OD/Training

- 25

Education/Relevant Training

- Master's of Science in Human Resources Development
- Bachelor's of Science in Workforce Education and Development
- Experienced Meeting, Conference, & Workshop Facilitator
- Experienced Instructor and Developer.
- Green Belt Lean Six Sigma