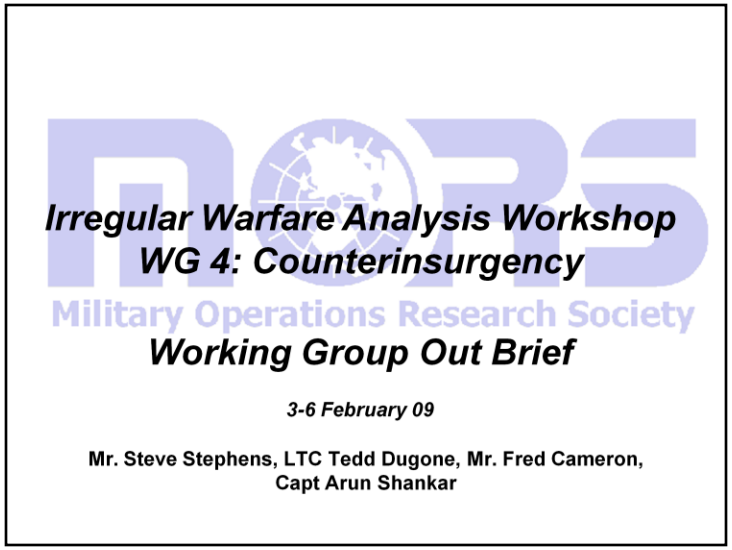
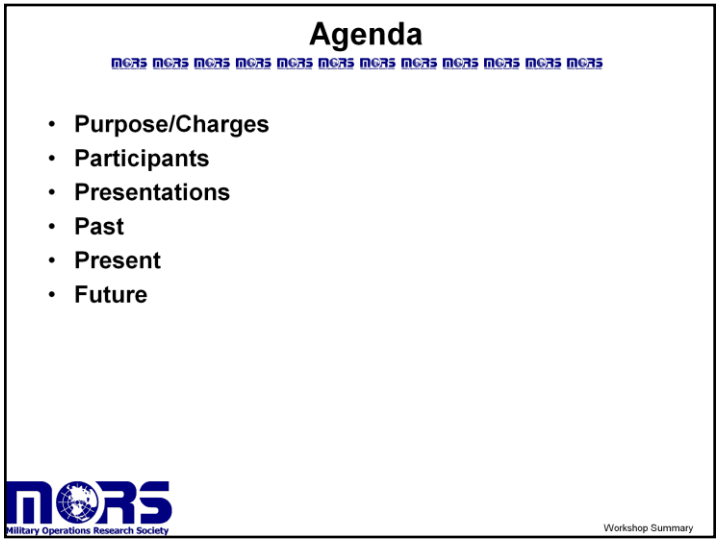
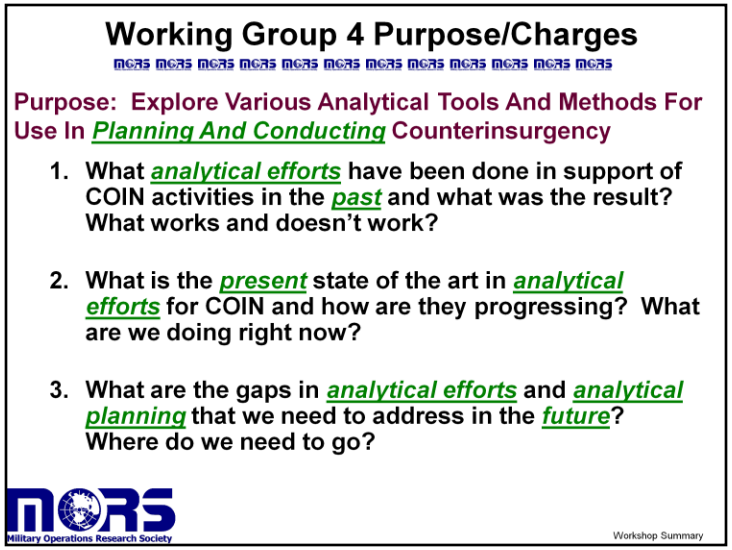



Mr. Steve Stephens, from the Marine Corps Operations Analysis Division and Lieutenant Colonel Tedd Dugone, from the Joint Staff J8 Warfighting Analysis Division were Co-Chairpersons for Working Group Four: Counterinsurgency. Captain Arun Shankar, from the Marine Corps Operations Analysis Division was the Scribe. Mr. Fred Cameron, Operations Research Advisor to the Director General, Land Capability Development, Canada stepped up to the plate and served as a facilitator during discussion sessions.




The organization of this presentation is first, to review the specific charges to Working Group 4, and next, to acknowledge our forty-two participants. The presentations to the working group are then identified followed by our findings, conclusions, and recommendations. Inasmuch as the charges to Working Group Four were given in terms of past, present, and future, we organize our results in past, present, and future.




The charges to Working Group Four can be envisioned as a three-dimensional graph. The two rows are Modeling and Simulation (M&S) analytical techniques and Non-M&S analytical techniques. The two columns are analytical support to U.S. Special Operations Command (USSOCOM) counterinsurgency (COIN) execution and analytical support to USSOCOM COIN planning. Finally, the three planes are the past, present and future. Throughout the discourse it became apparent to our working group, as it did to other working groups, that the problem space also spans across the three levels of war, further complicating the problem.

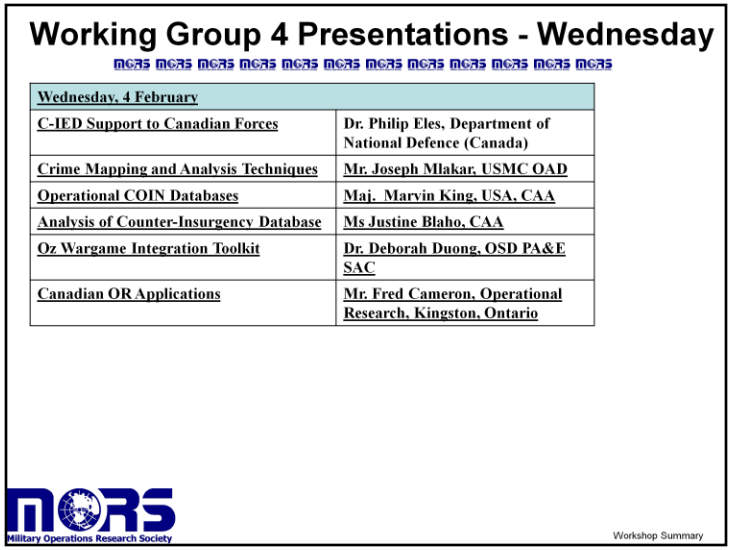

This slide and the following two slides present the Working Group Four participants. The groups level of expertise was very diverse. We could benefit from the expertise of only one social scientist, however. The contribution of our social scientist was indispensable to the group although it would have been useful to have a broader interdisciplinary skill set in the group with regards to the social sciences. Future IW workshops would certainly benefit by spreading the interdisciplinary skills across all work groups.

# Working Group 4 Participants

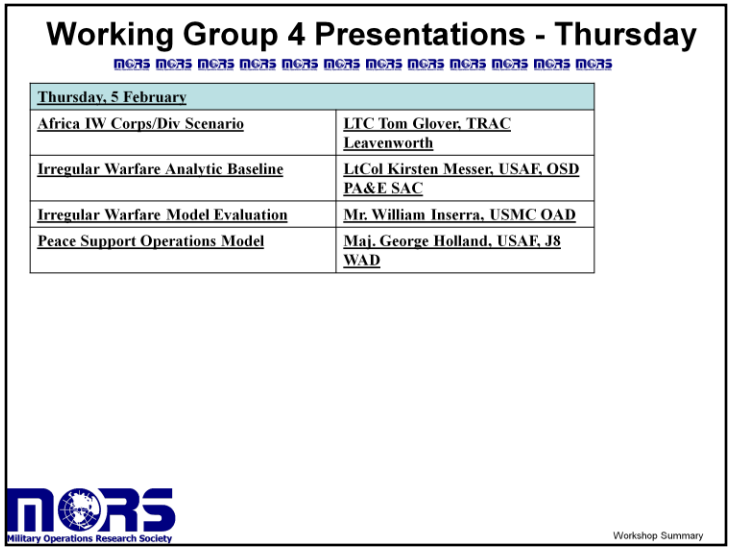
| | | |
|---|---|---|
| Mr. | Dwayne Hill | US Army Test and Evaluation Command |
| Dr. | Seth Howell | JIEDDO |
| Mr. | Bill Inserra | MCCDC OAD |
| Capt. | Chris Jeffreys | HQ USAF A9A |
| Ms | Lisa Kaiser | Center for Army Analysis |
| Mr. | Gregory Keethler | Lockheed Martin Missiles and Fire Control |
| MAJ | Marvin King | Center for Army Analysis |
| Ms | Regina Kistner | Army Material Systems Analysis Activity |
| Mr. | Michael Mazzocco | NSWCDD |
| Lt Col | Kirsten Messer | OSD PA&E SAC |
| Mr. | Joseph Mlakar | MCCDC OAD |
| Mr. | George Monroe | Air Force QDR Office |
| Mr. | Joseph Nowak | U.S. Army TRADOC Analysis Center |
| Mr. | Nicholas Pioch | BAE Systems |
| Mr. | Morgan Polk | SOCCENT/CEG |

# Working Group 4 Participants

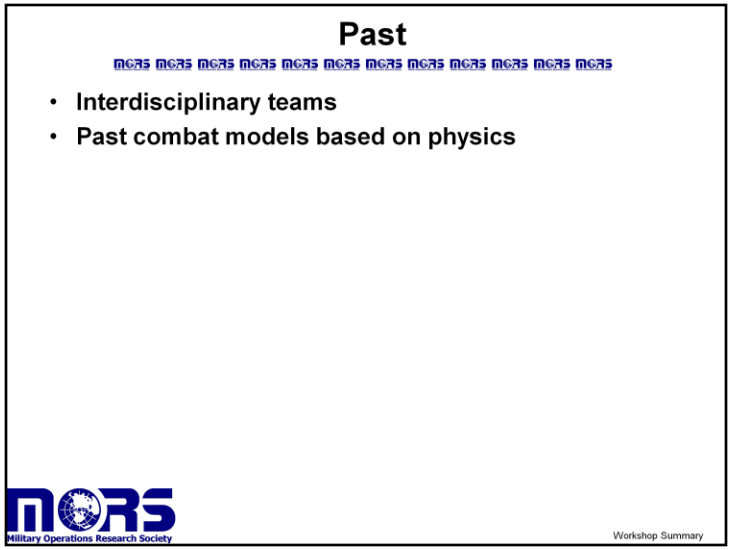
| | | |
|---|---|---|
| LTC | RussellSchott | TRADOC Analysis Center, WSMR |
| Capt | Arun Shankar | MCCDC OAD |
| Ms | Brittlea Sheldon | Northrop Grumman |
| Mr. | Steve Shields | Lockheed Martin |
| Dr. | Adam Shilling | Center for Army Analysis |
| Mr. | Bruce Simpson | SRA Int'l |
| Mr. | Thomas Spoon | Center for Army Analysis |
| Mr. | Cortez Stephens | MCCDC OAD |
| Ms | Pattie Vedder | U.S. Army TRADOC Analysis Center |
| MAJ | BrittianWalker | USSOCOM, J9 |
| COL | Scott Waterman | USJFCOM JIWC |
| Mr. | Robert Wiebe | Boeing Research and Technology |




Our work group benefited from a wealth of professional thought-provoking presentations. We divided the presentations into two groups. The presentations on Wednesday and the discussions that followed focused on non-M&S analytic methods.



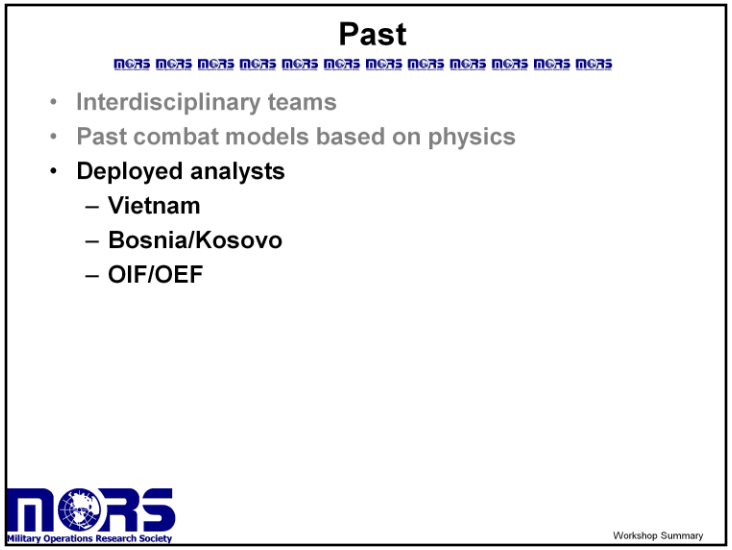

The presentations on Thursday and the discussions that followed focused on M&S analytic methods.




The writer of Ecclesiastes remarked that there is “nothing new under the sun.” The Working Group Four discussions involved interdisciplinary teams, deploying analysts in support of COIN forces and the need for interagency cooperation.

Although we sometimes seem to forget, interdisciplinary (or multidisciplinary) teams are nothing new. The profession of Operations Research began with teams of people from a variety of backgrounds and skills that applied their various abilities to solve military problems. There was no Operations Research discipline as such. Over the years, we have defined operations research as a profession and academic discipline and, in doing so, may have set ourselves apart from our interdisciplinary heritage. Our strong points arise from mathematical and physical science underpinnings. Statistical and optimization techniques take up a lot of room in our ‘tool box.’

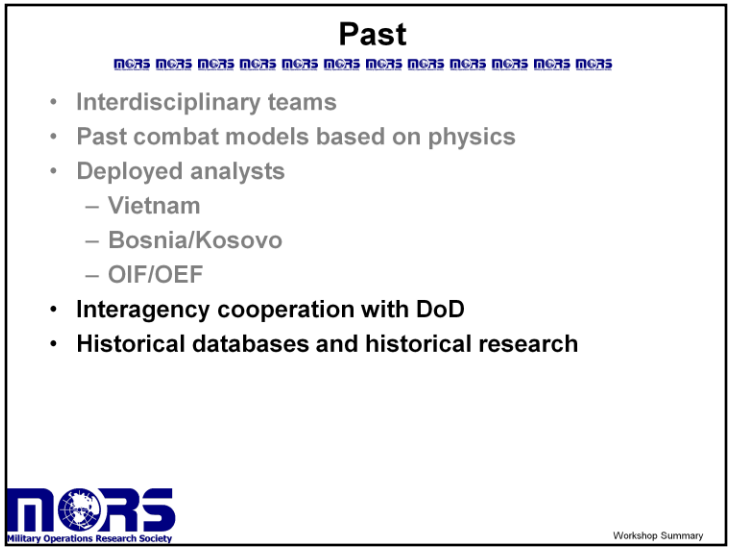
Accordingly, we have filled our analytical tool box with many sophisticated computer simulations of combat. As good as these traditional models are, however, they are rooted in the physical sciences and, unfortunately, do not address the current COIN environment very well.




Likewise, deploying operations research analysts to support warfighters in modern counterinsurgencies is not new. We have deployed operations research analysts to Vietnam, Bosnia, Kosovo, Iraq, and Afghanistan. This has been a good news and bad news story.

On one hand, forward deployed U.S and Canadian analysts in Iraq in Afghanistan have developed creative analytical approaches for assessment, operational database development, discovering improvised explosive device (IED) trends, population polling, social network analyses, intelligence-surveillance-reconnaissance (ISR) network analyses, criminal activity profiling, riverine-intercoastal-operations (RIO) analyses, etc. Forward deployed NATO analysts in the Balkans and Kosovo have analytically assessed levels of criminal activity and ethnic cleansing.

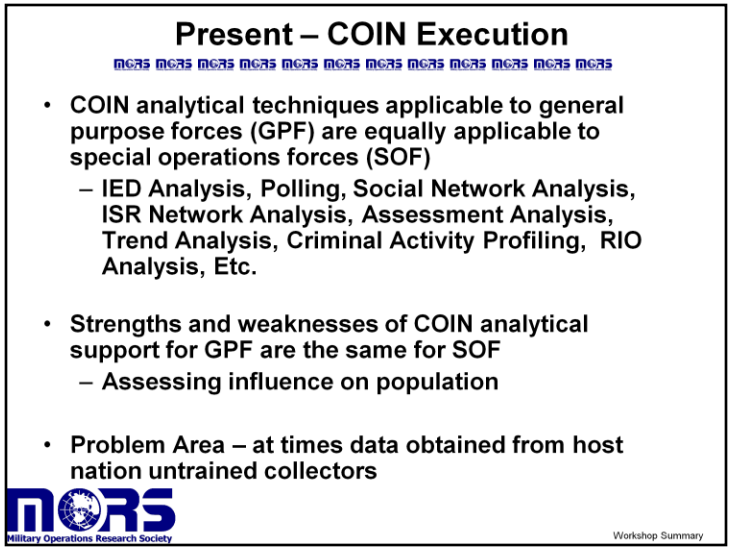
Nevertheless, on the other hand, there is a continuing frustrating inability to address problems and questions that deal with human behavior and the effects of actions and policies on human behavior.




As we have previously deployed operations research analysts to Vietnam, Bosnia, Kosovo, Iraq, and Afghanistan, military forces have coordinated activities with allied forces and other U.S. government agencies, particularly the State Department. Interagency coordination and cooperation, at least in the area of operations, is not a new phenomena regarding COIN execution.

We can look to the past for insights into COIN that may be applicable to today. In particular, we point out the Analysis of Counter-Insurgency Database (ACID) developed by the Center for Army Analysis. ACID is an Microsoft Access database of 90 COIN conflicts spanning the globe and dating from 1944-present. The data in the database comes from The Dupuy Institute (TDI), a historical research institute. CAA is conducting statistical analysis on irregular warfare using the ACID database. Analysts can identify resources needed to fight in certain terrain types by looking at geographical factors in the database. In addition, analysts can identify strategic approaches by looking at factors controlled by the counterinsurgent. Information will be released to the DOD community in which further analysis can be done.

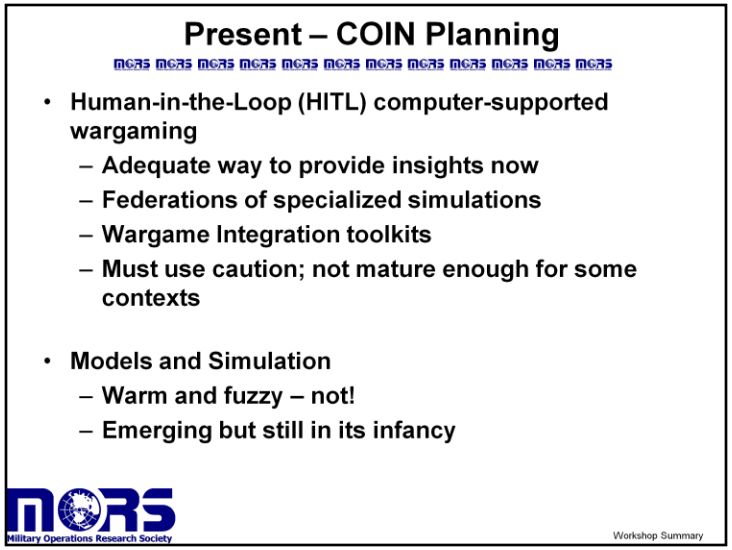
It is also of interest to note that MORS conducted symposia on a two per year basis throughout the Vietnam War. Proceedings from those symposia may be available.




As we have noted, we have deployed operations research analysts in the past to support general purpose forces COIN operations and we are presently deploying operations research analysts in Iraq and Afghanistan. Analysts have developed a wide array of analytical tools and techniques that address COIN problem areas. All of the those analytical techniques are potentially applicable to USSOCOM forces during COIN execution.

Again, as noted earlier, there is a continuing frustrating inability to address problems and questions that deal with human behavior and the effects of actions and policies on human behavior.

An additional problem area that will surface when providing analytical support to USSOCOM forces is obtaining data. Currently, there are many difficulties supporting general purpose forces regarding data provided by U.S. personnel. At best, the data is 'dirty.' Much effort is spent on scrubbing, collating, and verifying 'dirty' data. It is like making sausage. Analytically supporting USSOCOM forces will, more than likely, involve obtaining data from host nation sources, producing even dirtier data.



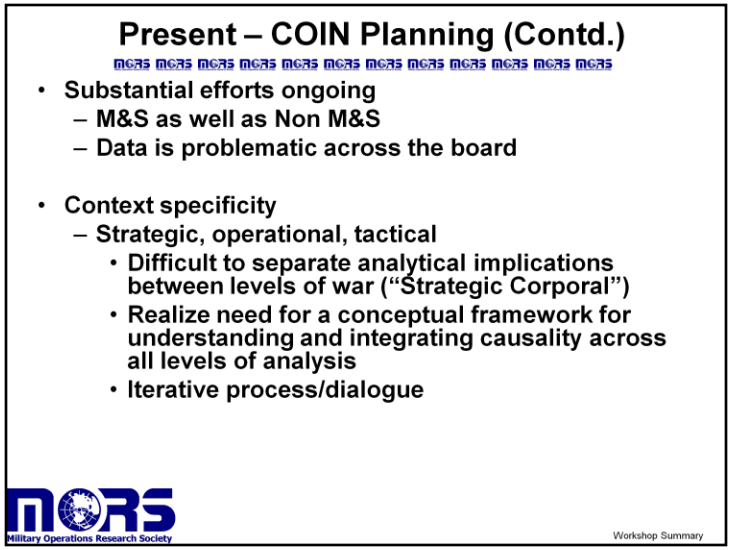

Similarly, analytical requirements for supporting COIN planning are the same for USSOCOM as for other combatant commanders.

Traditionally, a primary analytical technique for military planning has been computer-simulation models of combat. This is not the case for COIN. A good analytical technique for supporting COIN planning now is computer-supported wargaming. Analysts from the Office of the Secretary of Defense (OSD) and the Joint Staff, with assistance from the Services and combatant commanders have developed a way to support wargames with a federation of specialized models, some of which address the political, military, social, economic, infrastructure, and informational (PMESII) aspects of COIN operations. There are wargame integration tools, such as OZ, that increase the efficiency of computer-supported wargames by:

- Integrating wargames, simulations, rule-based systems and data for the purpose of analysis
- Branching the game and recording it for statistical and data mining analysis
- Streamlining the process of using many wargame adjudication modules

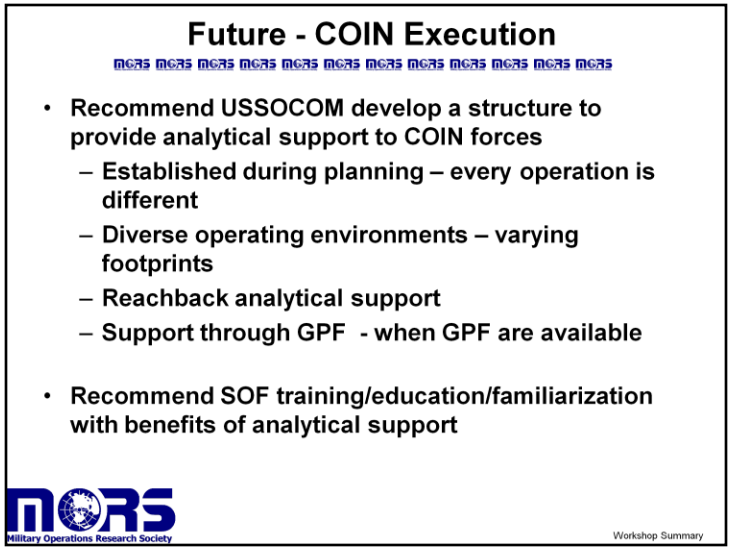
There is a word of warning that has to be mentioned. The use of computer-supported wargames to support COIN planning is context specific. The technology is not mature enough to support some applications (e.g. programmatic issues).

The difficulty stems from the inability of current M&S technology to satisfactorily capture human behavior. Operations research analysts are generally not satisfied with our COIN M&S capabilities. Traditional combat modeling is rooted in the physical sciences and our initial forays into simulating COIN operations have been designed and built in the same mold. It is not working very well. The Department of Defense (DOD) operations analysis community is working hard to improve our capability to where we want it to be, but we are not there yet.




Considerable effort within the DOD operations research community is looking at improving our Non-M&S COIN analytical capability as well as our M&S COIN capability. Obtaining data is a challenging effort in both arenas.

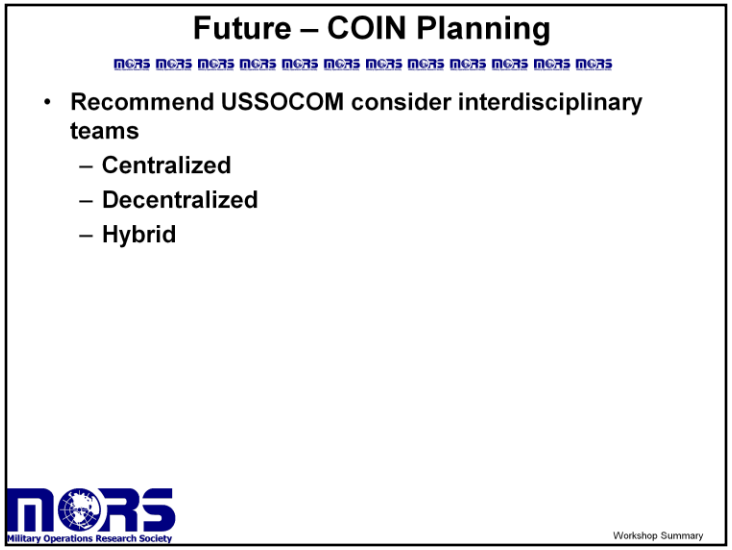
In the past, with our traditional computer combat models, we could address the strategic, operational, and tactical levels of war with different approaches and techniques. This is not the case with COIN. The COIN environment complicates things inasmuch as tactical events have direct operational and strategic impact. Strategic decisions dictate operational and tactical constraints. We, in the DOD operations research community, are realizing the need for a more expansive analytical conceptual framework and are reaching out into the community of social scientists. We are discovering that our linear processes will have to yield in favor of iterative processes that feature continuous dialog with operators and decision makers.




We recommend that USSOCOM develop a structure to provide the same type of analytical support to special operations forces that operations research analysts are currently providing to general purpose forces.

Every COIN operation is unique for general purpose forces and this is especially true for special operations forces. The operational planning phase should establish the why, where, when, and how regarding analytical support for each COIN operation. Forward deploying operations research analysts will not be an option in most cases. Maximizing reachback support and exploiting general purpose forces, when available, are options and other creative ways may surface.

Simultaneously, we recommend that USSOCOM educate and familiarize special forces personnel on what operations research can bring to the table. An excellent example is the analysis handbook for commanders developed by the Center for Army Analysis.

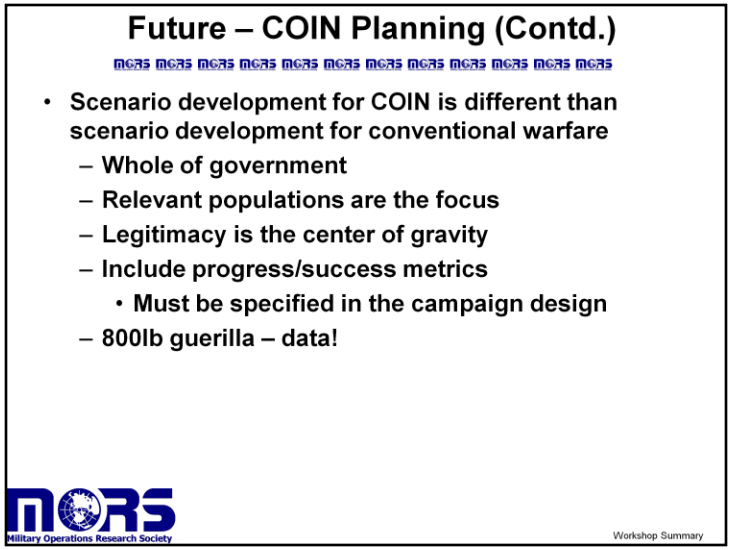



USSOCOM needs to leverage the talents and expertise across multiple social science disciplines to supplement the analytical processes in support of planning. We say more about interdisciplinary teams on a later slide but here we want to point out how USSOCOM could proceed. Centralized, decentralized and hybrid approaches are ways to organize analytical expertise to best support the command.

A centralized approach consists of incorporating dedicated social scientists within the command's analytical team. This approach is expensive to man and maintain. A decentralized approach taps into social science expertise when needed. This approach is more cost-effective, but, presents challenges for archiving lessons learned, sharing information among analysts, and maintaining continuity of analytical approaches. A hybrid approach could consist of a minimally staffing social scientists and acquiring additional expertise when needed.

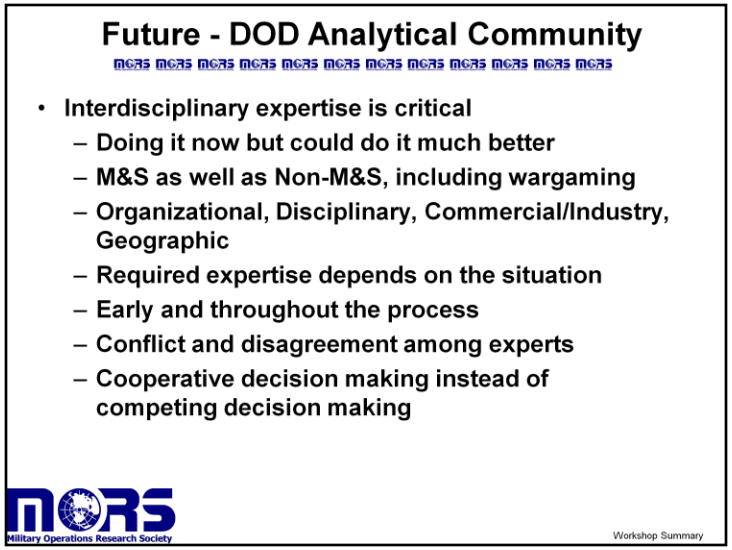
Other techniques include developing a distribution list of experts from the social science communities and leveraging MORS to provide supplemental support.


In addition, we recommend that USSOCOM consider cultivating a conceptual analytical framework based on the triad that Mr. Miller challenged the workshop with during the keynote address. The emphasis is on prediction and prevention and the reliance is on correlation, not causality. Although there are several analytical tools that currently attempt to do this, none are from the perspective that Mr. Miller set forth.




Analytical support for military planning begins with scenario development but scenario development for COIN is more involved than scenario development for traditional warfare. Red and Blue orders of battle will not suffice – cultural maps of relevant populations will loom large, as well as identification of the functioning and interactions of interagency and non-government players. Legitimacy, not the enemy force, is the center of gravity in most COIN operations.

A critical aspect is that COIN scenario development has to identify progress metrics and success metrics. Moreover, COIN scenario development has to specify data requirements and the sources of data.




The remainder of our findings pertain more to the DOD operations community as a whole than to USSOCOM. The DOD operations research community is, indeed, moving towards a more interdisciplinary approach but we need to do a much better job than we are doing now across the spectrum of analytical tasks and we need to do it at a quicker pace.

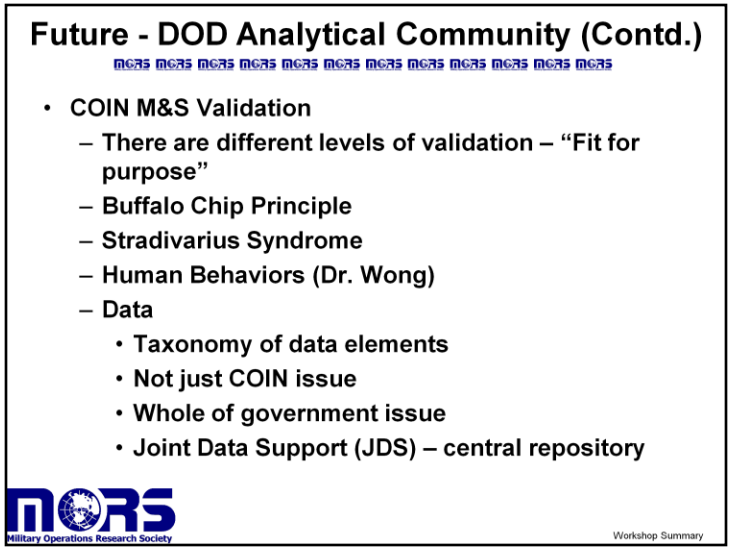
Depending on the situation we will need different types of expertise:

- Organizational (other agencies such as State, Justice, Agriculture,…)
- Disciplinary (other professions such as anthropology history, economics…)
- Commercial (other entities in the operating area such as industry, charities, businesses, relief organizations…)

What is more is that we need this expertise specific to a certain geographic region.

We have to pay better attention to the qualifications of the 'experts' we acquire – just anybody from the State Department will not do, as an example. Nor can we develop our model, wargame, or process then invite outside experts and require that they conform to our framework. True interdisciplinary means that we are interdisciplinary from the beginning through to the end.

Much has been said about the tendency for practitioners of other disciplines to offer different, often conflicting, theories. This is the nature of the world and we have to live with it. An approach is to analytically go down the path each conflicting theory takes us. This is time consuming, but it has been done before.

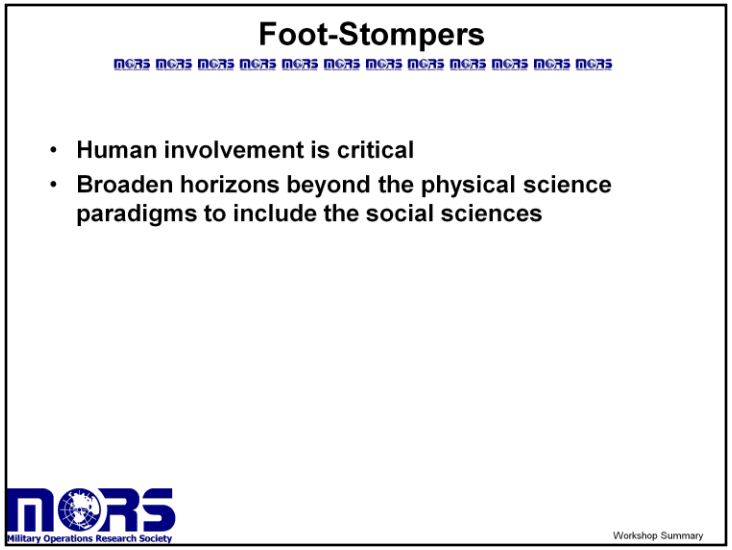



As we in the DOD operations community forge ahead developing and improving COIN M&S, there are things concerning validation that we should bear in mind. First, there are no overarching encompassing COIN M&S validation standards, nor should there be. A COIN simulation is to be validated respective to the specific situation it is to be used in. We must remind ourselves that many of our trusted legacy simulations have never been 'validated' (Buffalo Chip Principle) and that the modeler is just as important, if not more important, than the model (Stradivarius Syndrome).

We should consider a team of experts from academic or professional organizations to validate human behavior simulations, as recommended by Dr. Yuna Wong.

As always, data validation goes hand in hand with model validation. a lot of what we are doing in Iraq and Afghanistan right now can provide data and insight into data validation. TRAC-Leavenworth is looking into that.

It goes without saying that we need a taxonomy of data elements, but that is not new; we have the same problem with traditional combat simulations. Moreover, it is a critical issue with DOD working with other government agencies. OSD, PA&E JDS is working this issue.




Working Group 4 offers two critical take-aways. They are not addressed to USSOCOM, but to the DOD operations research community.

Human involvement in COIN analyses will be a dominant requirement for the near future. We simply cannot automate as much of COIN analyses as we now do with traditional warfare analyses.

We have to realize that we have to go further than bringing social scientists into interdisciplinary teams – we have to expand our minds to understand viewpoints and perspectives that are markedly different from the physical science based concepts we are familiar with.