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## Leader and Team Adaptability in Multinational Coalitions (LTAMC): An International Research Project

Multinational coalitions are a complicated assembly of leaders, teams, cultures, networks, and collaborative systems (Sutton & Pierce, 2003). This complicated assemblage of coalition partners will be required to perform as a team in complex environments that place high demands on the command and control (C2) of forces. Complex environments make adaptive performance more critical than ever. The development of adaptive performance in multinational coalitions can be rapidly advanced by the collaboration of researchers in North Atlantic Treaty Organization (NATO) and Partnership for Peace (PfP) nations. Such a group has been established under NATO's Headquarters, Supreme Allied Command Transformation (HQ SACT), Futures and Engagement Branch through the Concept Development and Experimentation (CD&E) program. Led by the U.S. Army Research Laboratory (ARL) Human Research and Engineering Directorate (HRED), the project is titled "Leader and Team Adaptability in Multinational Coalitions" or LTAMC. The group also operates concurrently as a NATO Research and Technology Organization (RTO) Human Factors and Medicine (HFM) Panel exploratory team on a project titled "Adaptability in Coalition Teamwork" or ACT. The combined CD&E – HFM effort follows the CD&E process and is reported as a project for both CD&E and HFM. This paper presents the LTAMC/ACT program of research.

Theoretical frameworks and models integrating culture to multinational teams and team leadership are limited, but growing. The need exists to leverage what is known about culture, teams, training, and leadership in order to provide a model of coalition teamwork and develop methods and information systems that recognize the importance of political, economic, social, and environmental factors in addition to military strategy (NATO, 1991, 1999). This paper introduces an international research team of NATO coalition partners conducting experiments on both a national and a multinational basis to provide evidentiary data on the impact of culture on teamwork for multicultural teams performing C2 functions. These efforts provide a valuable opportunity for the international research community to synchronize efforts to develop adaptive leaders and teams, an essential component in the development of the NATO Response Force (NRF).

### **Background**

In March 2003, ARL HRED submitted a white paper for consideration as a potential NATO CD&E project. Its aim was to improve the ability of NRF headquarters staff to better perform C2 functions through the understanding of culturally based cognitive differences that impact multicultural teamwork. The RTO HFM Panel became interested in the project September 2003 when the ARL HRED program of multicultural research was presented to Dr. Robert Foster, Office of the Secretary of Defense (OSD) and member of the HFM Panel. In October 2003, a Technical Activity Proposal was submitted to the HFM Panel resulting in the creation of Exploratory Team (ET) 049. ET-049 was recently nominated for transition to a Research Task Group. The concept was approved as a NATO CD&E project in December 2003.

An exploratory meeting to determine international interest in the project was convened by Mr. Van Edelmann (NATO CD&E Project Lead Analyst and Co-chair), and Dr. Janet Sutton (ARL HRED Project Lead and Co-chair) February 2004 at NATO Headquarters in Brussels, Belgium. Eight nations and HQ SACT sent representatives to this meeting. The nations were Canada, Germany, Greece, Norway, Sweden, Turkey, the United Kingdom and the United States. During this exploratory meeting, the project plan was developed. Canada, Norway, Sweden and the United States formally joined the project team while Greece and the United Kingdom opted to participate as observers.

This combined CD&E – HFM project is referred to as Leader and Team Adaptability in Multinational Coalitions or LTAMC. Since the project's inception, the LTAMC team has met seven times, either face-to-face or by WebEx, and collected data at one NATO exercise. The LTAMC project is unique in that its purpose is to conduct national and multinational experiments in order to advance science in the domain of adaptability. The impact of culture on teamwork is the primary focus. Effort includes developing a conceptual model of cultural adaptability for military operations, developing methods for experimentation (e.g. experimental design, reference scenarios, and process and outcome measures), establishing national and international testbeds, and identifying products for use by participating nations that are designed to improve leader and team adaptability in multicultural environments.

The following organizations have attended at least one meeting:

USA	- Army Research Laboratory (ARL) (Lead) - Army Research Institute (ARI) - Air Force Research Laboratory (AFRL) - Naval Air Orlando Training and Systems (NAVAIR ORL-TSD) - Office of Naval Research (ONR)
CANADA	Canadian Forces Experimentation Centre (CFEC)
GERMANY	- IABG - University of Applied Sciences, Koblenz-Remagen
GREECE	HNDGN, Joint Doctrines Branch
NORWAY	- Royal Norwegian Ministry of Defense - Norwegian Defence International Centre - Norwegian Defence Research Establishment
SWEDEN	Swedish Defence Research Agency (FOI)
TURKEY	Office of the Turkish Military Rep to NATO
UK	Defence Science and Technology Laboratory (DSTL)
NATO	- HQ SACT Concept Development and Experimentation (CD&E) - RTO HFM

Membership is open to research psychologists and military specialists from Alliance and PfP nations with interest and expertise in the study of adaptability, culture, teams, problem solving, decision making, risk assessment, uncertainty management, leadership, and transformation.

Research and experimentation information is shared with all project team members and any NATO and PfP nations. Although the project is currently unclassified, it may be necessary

during concept development and experimentation to classify information. If this is the case, a NATO security classification will be assigned to the information or data. Each nation on the project team is responsible for financing its own personnel contributions, administrative costs, and research facilities. NATO funding is available for some projects.

### **LTAMC Project Team**

The following individuals comprise the core group of the LTAMC project team. Team members are briefly introduced in this text. Names appear alphabetically after project leads, Mr. Edelmann and Dr. Sutton.

#### *Van Edelmann, NATO HQ SACT Project Officer*

Mr. Edelmann has been an analyst with the CD&E Cell and now the Futures and Engagement Branch within HQ SACT for four years. As the HQ SACT Project Officer for LTAMC, Van provides NATO and HQ SACT guidance to the team, aids in CD&E planning, co-chairs project meetings with Dr. Sutton, and manages the project's NATO experimentation funds.

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#### *Janet L. Sutton, ARL HRED Project Lead and Co-chair*

Janet Sutton is a Research Psychologist for ARL HRED. She offices at Fort Sill, OK where she maintains a program of research on developing adaptability in leaders and teams in addition to providing human factors support to the US Army Field Artillery School and the Depth and Simultaneous Attack Battle Lab. Dr. Sutton's primary research areas of interest are decision-making and teamwork in military command and control. Her focus is on development of methods and systems to promote rapid formation of effective teams performing command and control functions at the operations level in Joint, Interagency, and Multinational (JIM) environments. She holds a doctoral degree in Experimental Psychology from Texas Tech University in Lubbock, Texas.

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#### *Anne-Lisé Bjornstad*

Anne-Lisé Bjornstad is a research psychologist in the Division for Information Management at the Norwegian Defence Research Establishment (FFI). Her main research interests are within the areas of cross-cultural psychology, organizational psychology, decision making and group psychology. Her work at FFI has ranged from theoretical analyses, building of analytical models, to conducting empirical and experimental research. Ms. Bjornstad is a member of the "Norwegian Organizational Society" (NOS) and the Norwegian Society for Research

Psychologists (NPS). She is involved in a number of activities and forums related to the development and analyses of the NEC-concept in Norway. She holds a “Cand.Polit” degree (i.e. extended master’s degree) in psychology from the University of Trondheim, Norway (NTNU).

*Joan Johnston*

Joan Johnston joined NAVAIR Orlando Training Systems Division in 1990, advancing to Senior Research Psychologist, where she is responsible for managing military training systems research programs that address tactical decision making under stress and team performance assessment and training. Dr. Johnston is also the principal investigator for an Office of Secretary of Defense international cooperation program on Leadership, Commander's Intent, and Operational Readiness in a Net-Centric environment. Dr. Johnston received her Ph.D. in Industrial/Organizational Psychology from the University of South Florida.

*Michael P. Letsky*

Mike Letsky has worked for the Defense Department since 1967 in various capacities involved with missile engineering, operations research modeling and human factors research management. At one time, he provided Operations Research analysis for the development of Navy manpower determination models for the Office of the DCNO (MPT). In 1980 Dr. Letsky became the Chief of Advanced Development Planning at the Army Research Institute within the Army's Deputy Chief of Staff for Personnel before becoming the Research Management Advisor to NI/CNP. In 1998 Dr Letsky moved to the Office of Naval Research to become Program Manager of the Collaboration and Knowledge Management Program. The program is research based and primarily funds academic grants seeking to understand team cognition and team performance. The focus of the program is on knowledge building and problem solving in naturalistic decision making situations. Research transition targets include ad-hoc, distributed teams, consisting of multi-cultural or multi-disciplinary team members responding to time-stressed scenarios and uncertain data sources. Dr. Letsky received his DBA in Operations Research from George Washington University.

*Fred Lichacz*

Fred Lichacz is an Experimental Psychologist with the Canadian Forces Experimentation Centre (CFEC) in Ottawa, Canada, where he provides human factors support to CFEC’s mission of leading the exploration of emerging joint operational concepts and the experimentation of capabilities supporting Canadian Forces transformation. His primary research interests focus on decision-making in both individual and team settings. He has developed and maintained a research program that focuses on the relationship between situation awareness and confidence within complex, distributed information-sharing environments. This work has been applied to the effects of sleep loss on performance, visual search, Uninhabited Aerial Vehicle operations, and distributed C2 settings. Dr. Lichacz received his doctoral degree in Cognitive Psychology from Carleton University in Ottawa, Canada.

*Linda G. Pierce*

Linda Pierce began her Army career as a research psychologist at Fort Sill, OK in 1989 and is currently Chief of the Soldier Performance Division of ARL HRED. The Division scientists and practitioners conduct basic and applied research to improve the acquisition of army systems from concept exploration to system evaluation and fielding. Dr. Pierce's primary research areas of interest are decision-making and teamwork in military C2. She has worked to develop simulation-based methods and measures for leader and team learning and to evaluate human performance in conceptual systems, influencing the design of systems and operational procedures. Dr. Pierce managed the Cognitive Engineering of the Digital Battlefield Science and Technology Objective (CE STO) that resulted in models, methods, and tools to improve battle command. She holds a doctoral degree in Industrial and Organizational Psychology from Texas Tech University in Lubbock, Texas.

*Sharon Riedel*

Sharon Riedel is a Senior Research Psychologist with the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI). She works with the Leader Development Research Unit branch of ARI, located at Ft. Leavenworth, Kansas, where her work involves research on critical thinking skills for military leaders and teams, and facilitating the effective performance of multinational teams and team leaders through training. Dr. Riedel also participates on the NATO HFM-120/RTG, Exploration of the Areas of Multinational Operations and Inter-Cultural Factors. In addition to numerous scientific and professional publications, she is the co-author, with Leonard Adelman, of the book, *Handbook for the Evaluation of Knowledge Based Systems: Conceptual Framework and Compendium of Methods*, published by Kluwer Academic Publishing. Dr. Riedel holds a Ph.D. in Experimental Psychology from Southern Illinois University, with an emphasis in social psychology and measurement.

*Rik Warren*

Rik Warren is an Air Force Research Laboratory (AFRL) Human Effectiveness (HE) Research Psychologist where he has studied general problems of aviation vision, cockpit automation, crew resource management, and decision making. He has participated in studies and workshops to define, refine, shape, and determine the AFRL/HE research portfolio and to ensure that the portfolio is responsive to the needs of the Air Force. Recently, he took on the responsibility for managing the AFRL culture and cognition programs for the purpose of validating mathematical models of culture and adversarial decision making to be used in predicting the effects of Air Force operations. Dr. Warren's other professional activities include editorial board memberships on the journals "Ecological Psychology" and "The International Journal of Aviation Psychology." He is a member of the Psychonomic Society, Sigma Xi, and the International Society for Cross-Cultural Psychology. He holds a PhD from Cornell University where he studied perception and psycholinguistics.

*Arne Worm*

LTC Arne Worm, PhD, is currently assigned to a senior researcher position at the Swedish Defense Research Agency, where he directs research and development in the C4ISR domains. His core research areas are computerized automation, human-machine interaction, control

theory, mathematical modeling, cybernetics, cognitive systems engineering, distributed team decision making, and team training. Major application areas are command, control, communications and intelligence support of joint and combined military operations and emergency management. Dr. Worm holds a PhD in Systems Engineering and Human-Machine Interaction, supported by the Supreme Commander of the Swedish Armed Forces and the National Foundation for Strategic Research.

### **Program of Research**

Experimentation is required to capture knowledge about cultural factors for use in military modeling and simulation, system design, personnel selection, and officer training for the full range of military operations. Experimental venues for the LTAMC collaborative research effort include the NATO Allied Warrior 04 and 05 exercises, the Joint Force Command (JFCOM) Multinational Experiment 4 (MNE4), and a series of national and multinational experiments. These venues are described below.

#### *NATO Allied Warrior Exercises*

Allied Warrior 2004 (AW04) was the first time experimentation was sanctioned by Strategic Allied Command Europe (SACEUR) to be integrated as part of a major NATO Command Post Exercise (CPX) (NATO 2003b). It was an exercise designed to certify the NATO Response Force 4 (NRF 4) capability for the six-month period starting January 2005. In accordance with the overall NRF Military Concept (NATO 2003c) joint NRF C2, embedded in Strategic Command HQ, Joint Force Command (JFC) HQ, and Command Control HQs must provide a high degree of interoperability and the capability to rapidly plan and prepare for deployment during an emerging crisis, as well as the capability to operate as a stand-alone initial entry force for up to 30 days.

The HQs for NRF 4 demonstrated this capability during the planning and conduct of a simulated Crisis Response Operations (CRO) down to the Combined Joint Force Land Component Command (CJFLCC) HQ level. Activities at the joint level included pre-mission training, practicing crisis response planning procedures, mounting the NRF CJFLCC HQ for deployment and establishing the Deployable Joint Task Force (DJTF) and NRF CJFLCC HQs and C2 structure in a theatre of operations beyond NATO's Area of Responsibility (NATO, 2003d). In addition the operation was conducted in an asymmetrical and Nuclear, Biological, and Chemical (NBC) threat environment to exercise and certify the integration and support of the Multinational (MN) Chemical, Biological, Radiological, Nuclear (CBRN) Defence (Def) Battalion (Bn) and the NBC Joint Assessment Team (JAT) (NATO, 2003a). AW04 was the key milestone to certify Combat Readiness for the NRF CJFLCC HQ of the NRF for the six-month period starting January 2005.

At AW04, LTAMC researchers collected data on cultural dimensions, cognitive styles, personality, and organizational issues (see Table 1). Participants were the 76-member DJTF headquarters staff, representing 13 nations. Multiple analyses have been run to-date and a working meeting of the LTAMC team is scheduled for April 2005 to review results and discuss implications for multinational teams performing command and control functions at the operational level, after which a report will be prepared. Members of the LTAMC project will

also collect data at Allied Warrior 2005 (AW05). For AW05 the Deployable-Combined Joint Task Force (D-CJTF) headquarters operations center will be established in Lisbon, Portugal. The purpose of this Allied Command Operations exercise is to certify the NRF capabilities for the period July 2005 – June 2006.

#### *Multinational Experiment 4*

The intent of MNE4 is to assess the military utility of Effects Based Operations (EBO) and related concepts. Relevant to the LTAMC project is that elements of a NATO DJTF will be linked (using the Combined Federated Battle Lab Network) to a “virtual” Static Joint Task Force (SJTF) Headquarters. Thus, MNE4 provides a rich environment in which to study the influences of culture, cognitive style, personality, and organizational structure on leadership, teams, and teamwork. It is likely that instruments used to collect data in this venue will be modified from those previously used in AW04 based on findings from that event.

#### *National Experimentation*

In addition to continued experimentation in NATO and JFCOM venues, LTAMC researchers will also investigate the impact of culture on teamwork in both national and multinational venues. Specifically, a single experimental design will be executed in all LTAMC participating nations to build a baseline of responses from homogenous military teams. Then, that design will be executed with heterogeneous teams comprised of military officers from nations participating in the baseline experimentation. The purpose of this effort is directly linked to the LTAMC charter to enable rapid formation of culturally adaptable multinational teams performing C2 functions for the NRF.

The national and multinational experiments discussed above will be executed using a research testbed built around a commercial off the shelf (COTS) computer game, *Neverwinter Nights™*. This game-based testbed, under development by BBN Technologies, and funded by the United States Department of Defense Modeling and Simulation Office (DMSO), is designed to satisfy the need for an inexpensive, standardized, research instrument able to explore basic research questions on teamwork skills, situation awareness, decision making, task effectiveness, adaptability, and the impacts of personality and cultural traits on these issues. Figure 1 shows a screen shot from the game-based testbed.

Key features of the testbed include:

- Multiplayer capability, both across a local-area-network and the Internet.
- Authoring tools enabling researchers to construct their own scenarios.
- Hooks to facilitate entity control by computational models of human performance.
- Teammates and opponents playable by either humans or human-behavior models.
- Automated data capture mechanisms to collect data for post-experiment analysis.
- Multiple data collection opportunities, including during planning, game execution, and out-of-game surveys.



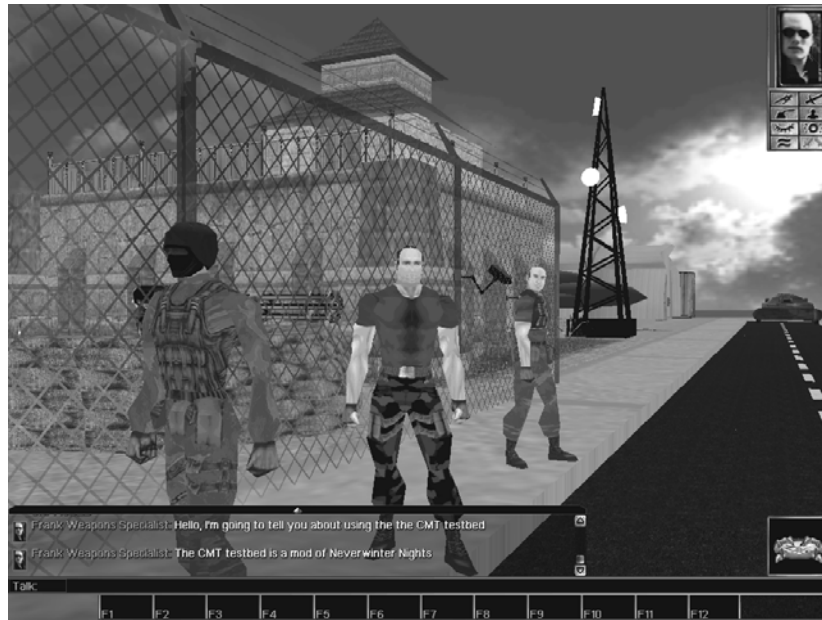


Figure 1. Screenshot illustrating the game-based testbed

The game-based testbed provides an immersive environment in which participants' actions and behaviors can be observed, and related data can be collected automatically. In the experimental scenarios, game play can range from fairly linear and well constrained to much more open and unconstrained, allowing the experimenter to have extensive control over the behavioral latitude available to participants. For more information on the game-based testbed, see (Warren, Sutton, Diller, Ferguson, & Leung, 2004). The tool is scheduled to be delivered to the LTAMC team at the June 2005 planning meeting.

### **Instruments**

Data has been collected for cultural influences on behavior, cognitive style, personality, and organizational variables via questionnaires, observation, and semi-structured interview, and an on-line self-assessment and training tool using the scales listed in Table 1.

Measure	Subscales	Developed By
NCS: Need for Cognitive Certainty		Bar-Tal, Y. (September 1993; 1994).
AACS: Ability to Achieve Cognitive Certainty		Bar-Tal, Y. (September 1993; 1994).
URS: Uncertainty Response Scale	<ul style="list-style-type: none"> <li>• Emotional Uncertainty (EU)</li> <li>• Desire for Change (DC)</li> <li>• Cognitive Uncertainty (CU)</li> </ul>	Greco & Roger, 2001
PNS: Personal Need for Structure	<ul style="list-style-type: none"> <li>• Desire for Structure</li> <li>• Response to Lack of Structure</li> </ul>	Thompson, Naccarato, Parker, & Moskowitz, 1992
PFI: Personal Fear of Invalidity		Thompson, Naccarato, Parker, & Moskowitz, 1992
ICAPS:	<ul style="list-style-type: none"> <li>• Cultural Adjustment</li> <li>• Emotion Regulation</li> <li>• Openness</li> <li>• Flexibility</li> <li>• Critical Thinking</li> </ul>	Matsumoto & LeRoux, 2003
NEO-FFI: NEO Five Factory Inventory	<ul style="list-style-type: none"> <li>• Neuroticism</li> <li>• Extroversion</li> <li>• Openness</li> <li>• Agreeableness</li> <li>• Conscientiousness</li> </ul>	Costa & McCrae, 1989, 1992
Organization-focused semi-structured interviews	<ul style="list-style-type: none"> <li>• Organization and processes</li> <li>• Group roles and identity</li> <li>• Information-sharing</li> <li>• Decision-making</li> <li>• Language</li> <li>• Culture</li> </ul>	Bjornstad, A.L. 2004/2005 (Ongoing development of questionnaire)
Globesmart® SAP: Self-Assessment Profile and Cultural Awareness Training	<ul style="list-style-type: none"> <li>• Independent/Interdependent</li> <li>• Egalitarian/Status</li> <li>• Risk/Restraint</li> <li>• Task/Relationship</li> <li>• Short-Term/Long-Term</li> </ul>	Meridian Resources Associates, 2004; Matsumoto, 2004

Table 1. Instruments used for AW04

Following is a brief description of each instrument:

The *Need for Cognitive Structure* (NCS) scale is a 20-item scale that assesses the extent of an individual's preference for using cognitive structuring to achieve certainty. Higher scores on the NCS reflect a greater preference for using schemas, scripts, and past experiences to make a decision (i.e., a greater need for cognitive structure). Lower scores on the NCS reflect a greater preference for using more complex decision strategies (hypothesis generation, analysis) to make a decision; that is, formulate a hypothesis, evaluate present and past information, make a decision and continually re-evaluate that decision when new information arises.

The *Ability to Achieve Cognitive Structure* (AACS) scale is a 24-item scale that assesses the extent to which individuals are able to apply information processes that are consistent with their need for cognitive structure. Higher scores indicate a greater ability to apply information processes that are consistent with an individual's level of NCS. The expression of an individual's level of NCS and AACS may be impacted by their level of stress.

The *Uncertainty Response Scale* (URS) is a 48-item scale that was designed to predict individual differences in coping with uncertainty. The URS is comprised of three factors, Emotional Uncertainty (EU), Desire for Change (DC), and Cognitive Uncertainty (CU). EU is the degree to which an individual responds to uncertainty with anxiety and sadness. DC is the degree to which an individual enjoys novelty, uncertainty and change. CU is the degree to which an individual prefers order, planning and structure in an uncertain environment. Higher scores indicate greater tendency toward maladaptive responses to uncertainty (EU), greater enjoyment of the unknown (DC), and greater preference for control under uncertain conditions (CU).

The *Personal Need for Structure* (PNS) scale is a 12-item scale. High scores indicate a preference for clarity and structure in most situations, with ambiguity and gray areas proving troubling and uncomfortable. Individuals scoring high on this dimension show a tendency to rely on previously existing stereotypes of target individuals when the target individual's recent behavior was ambiguous or inconsistent with their prior history. High scoring individuals have been shown to fulfill commitments earlier, attesting to the characteristic response to time pressure. Two contributing factors to PNS are the desire for structure (i.e., preference for situations, activities that are structured and predictable) and response to lack of structure (i.e., experienced anxiety and/or discomfort when structure is perceived to be missing from situations encountered).

The *Personal Fear of Invalidity* (PFI) 14-item scale measures one's tendency to react to decision making by being concerned with the possibility of making errors. Heightened concern may lead to vacillation between options, which can be associated with longer response latencies, lessened subjective judgmental confidence, and possible evaluation apprehension. Prior research (Thompson, Naccarto, Parker & Moskowitz, 1998) has suggested that there is a moderately positive correlation between PNS and PFI. High PNS and PFI might be expected to work in tandem in cases where one seeks out structure in order

to clarify what is required in a situation, thereby lowering the likelihood of making an error. That is, one effective means of dealing with anxiety is to provide structure.

The *ICAPS* 55-item scale was developed by Dr. David Matsumoto, San Francisco State University. It measures the following five factors: Cultural Adjustment, Emotion Regulation, Need for Openness, Flexibility, and Critical Thinking. This tool was instrumental in the creation of the Globesmart® online cultural adaptability assessment and training tool used at AW04. Data collected using ICAPS will significantly contribute to building a tool to enable cultural adaptability.

The *NEO-Five Factor Inventory* (NEO-FFI) is a shortened version of the NEO-PI, designed to give quick, reliable and valid measures of the five domains of adult personality:

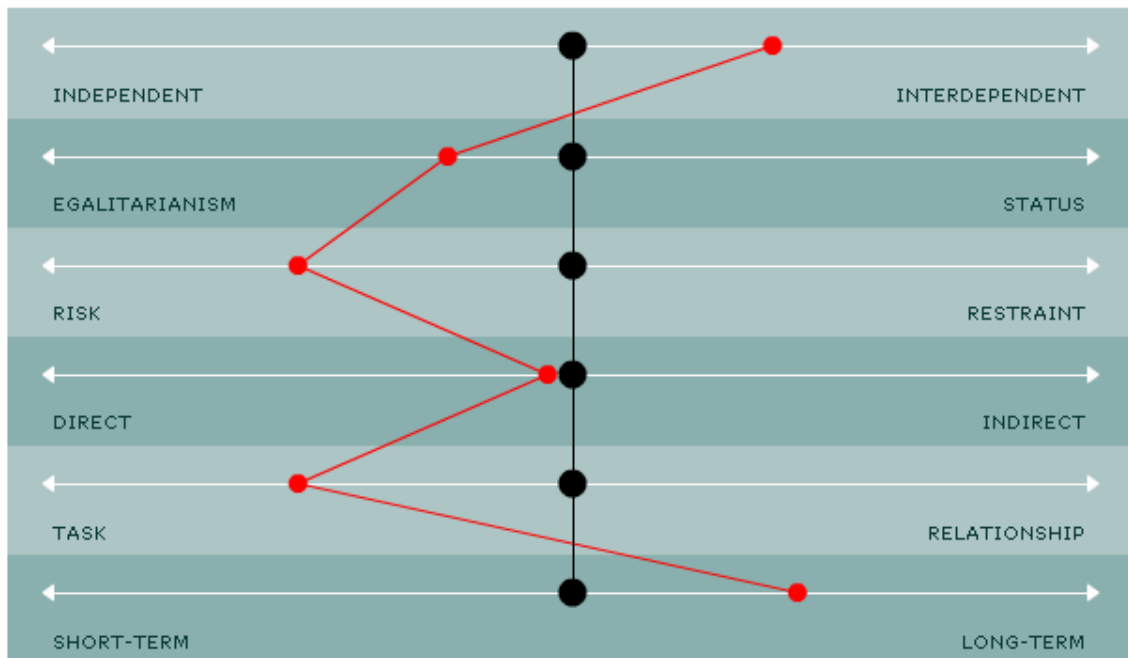
- (1) Neuroticism. Low scores are indicative of one's emotional resilience, calmness, stability, confidence, and independence, whereas high scores indicate a tendency to be anxious, fearful, sensitive, and self-critical.
- (2) Extroversion includes interpersonally based traits such as sociability, assertiveness, dominance, and the tendency to be outgoing, which are reflected in high scores, versus low scores which reflect one's tendency to be reserved, aloof, shy, and solemn.
- (3) Openness. High scores in this personality domain reflect tendencies to be intellectually complex, insightful, original, curious and studious. Low scores reflect tendencies toward illogical thinking and narrow-mindedness.
- (4) Agreeableness refers to tendencies to be tolerant, cooperative, and warm as reflected in high scores versus malicious, harsh, irritable, and insincere as reflected by low scores.
- (5) Conscientiousness refers to traits such as thoroughness, persistence, predictability, rigidity, and dependability as indicated by high scores and potential carelessness, absent-mindedness, forgetfulness, and erratic behavior as indicated by low scores.

*Semi-structured interviews* constituted the first step in the development of questionnaires to measure organizational variables thought to be of importance for cross-cultural cooperation and function in military headquarters. For example: Are there differences depending on culture, organizational structure or roles, language proficiency or inter-group relations? How do organizational variables (e.g., level of hierarchy, level of centralization and decentralization (self-organization), and flexibility between centralization and decentralization) affect intra- and inter-team cooperation, in terms of information-sharing and decision-making? How does the organization affect roles, group processes, and, in turn, cooperation?

The final instrument used for data collection is a *web-based self-assessment tool* that identifies behavioral tendencies associated with six dimensions descriptive of culturally based biases that leaders and team members bring to a mission. These biases, or dimensions, can be characterized as national differences in values along a continuum. Theoretical endpoints of the six dimensions assessed can be labeled (1) independent – interdependent, (2) egalitarianism – status, (3) risk – restraint, (4) direct – indirect communication, (5) task – relationship, and (6) short-term – long-term time focus. These dimensions reflect basic culturally-based values or orientation identified in the culture literature (e.g., Hofstede, 1980;

Schwartz, 1992; Triandis, 1989; Trompenaars & Hampden-Turner, 1998). The name of the web-based tool utilized in AW04 is *GlobeSmart*<sup>®</sup>.

Globesmart<sup>®</sup> is a tool developed by Meridian Resources Associates, San Francisco, California that provides business personnel with quick and easy access to extensive knowledge on how to conduct business effectively with people from 40 countries. At the core of Globesmart<sup>®</sup> is a 36-item Self-Assessment Profile (SAP) tool. Individuals using Globesmart<sup>®</sup> complete the SAP, after which the program plots a personal profile for the individual along the six dimensions. For example, the tool will plot to what degree the individual is independent, has an egalitarian relationship pattern, is risk tolerant, has a direct communication style, is task-oriented, and is short-term-oriented (see Figure 2). Individuals can compare their own personal profiles with the average profile for any of the countries in the Globesmart<sup>®</sup> database. It is understood that while individuals of the same nationality have similar behavior patterns associated with the six dimensions, their behaviors vary by degree depending on where an individual's values fall along a given continuum. Analysis of the data collected via Globesmart<sup>®</sup> on nearly 200 industry teams shows clear cultural patterns supported by high levels of reliability and validity of the survey instruments (Gundling, March 2004; Matsumoto, 2003).



Copyright 2004, Meridian Resources Associates; based on the Matsumoto Self-Assessment Tool, Copyright 2004, Dr. David Matsumoto

Figure 2. Example of a Globesmart<sup>®</sup> Profile

The Globesmart<sup>®</sup> tool was selected because it provides a framework for development of an innovative, self-directed, web-based tool to enable cultural adaptability in staff officers

performing C2 functions in Joint, Interagency, and Multinational (JIM) environments. The concept for creating a tool that goes beyond just raising cultural awareness was validated with a multinational pool of officers conducting a peacekeeping at Stabilization Force headquarters (HQ SFOR) at Camp Butmir, Bosnia-Herzegovina (Sutton, 2003). This tool, named Training Adaptable Coalition Teamwork (TACT), is currently under development by Meridian Resources Associates in conjunction with Dr. David Matsumoto. Its design will enable officers to navigate the challenges of culture during information exchange involving: team tasks, goals and mission, response sequencing, time and position coordination, load balancing, matching resources to task requirements, adjusting activities in response to errors and omissions, and general activity monitoring.

### **Next Steps**

A report of AW04 results is being prepared. In that report, implications of findings for multicultural C2 operations will be discussed. Preliminary analyses of some of the data revealed a three-factor model that describes the relationship between the cultural adaptability, cognitive style, and personality variables under study.

Supported by both HQ SACT and the RTO HFM Panel, it is projected that the LTAMC project will contribute significantly to the body of knowledge in the domain of adaptability. With a primary focus on the impact of culture on teamwork, LTAMC research to develop a conceptual model of cultural adaptability for military operations and an applicable tool will ultimately enable the effective functioning of NRF headquarters teams and other Coalition teams in Joint, Interagency, and Multinational environments.

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