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MORS
Military Operations Research Society

# MORS Workshop
# Personnel and National Security:
# A Quantitative Approach

## Working Group 1
## -- *Recruiting*--

Chair – COL Jeffrey Schamburg, USAAC

Co-Chair – MAJ Nicole Curtis, USMEPCOM

Co-Chair – Ms. Laura Guay, USAAC

26-28 January 2010

# Report Documentation Page

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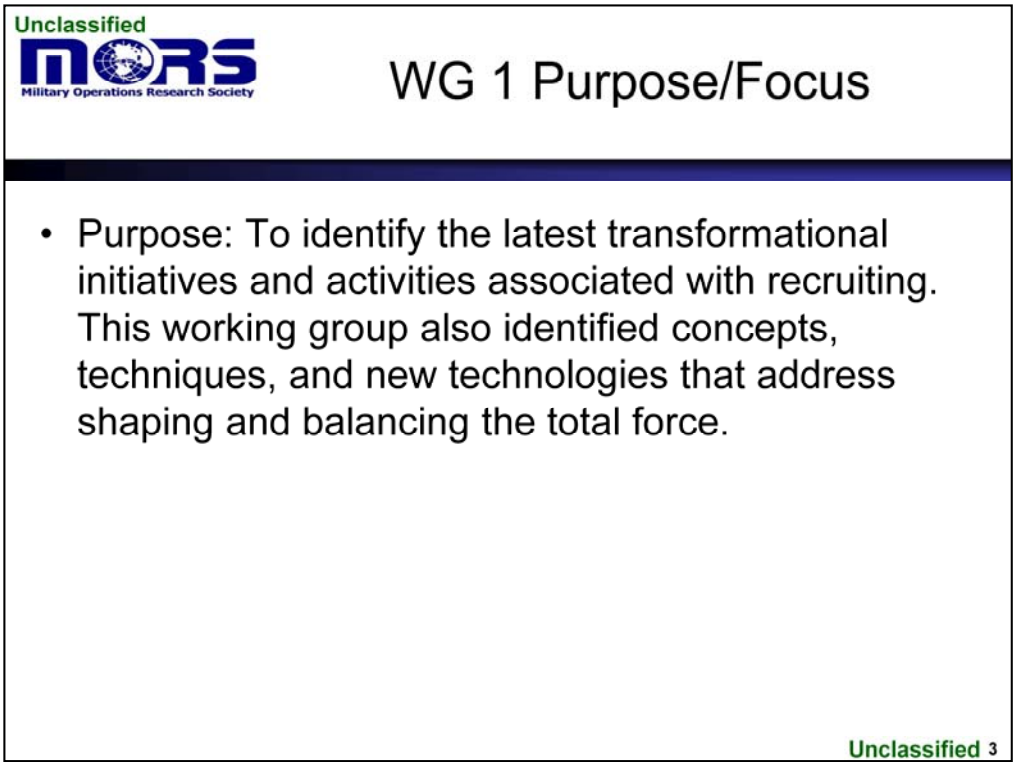
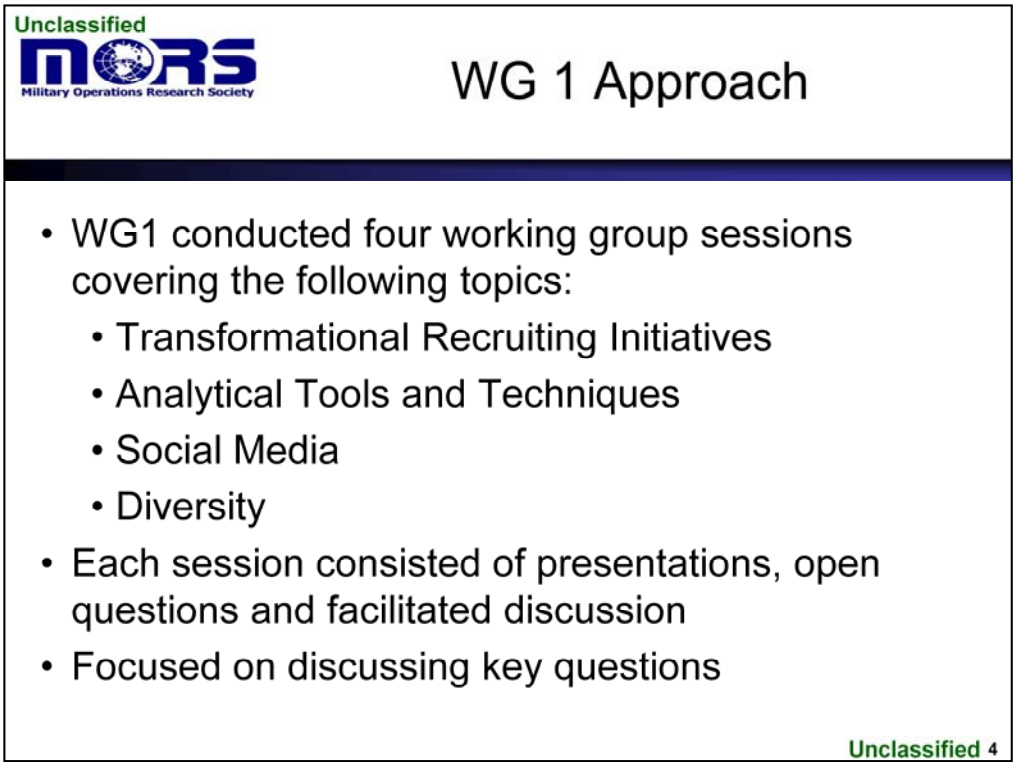
WG1 had 31 participants which included seven cadets from USMA. Ten speakers and two USMA Cadet Capstone teams presented their work during the working group sessions.




The purpose of WG1- Recruiting was to identify new initiatives and activities that would bring significant change, or transformation to the Recruiting community. This group also worked to identify concepts, techniques that focused on providing insights to decisions makers on recruiting our most valuable asset – our people.




WG1 conducted four sessions that covered various aspects of recruiting.

Transformation efforts in recruiting and qualification are imperative to the modernization of processes that were established decades ago. Transformation includes technological advances, cultural changes and improvements in business processes while continuing to focus on the future recruit.

There are various tools and techniques used to obtain the best information to quantitatively support the process of decision making. Through innovated modeling and dashboards these solutions can provide real-time data and strategic metrics that support recruiting and qualification efforts. Often feedback is obtained through surveys and it is critical to develop the proper tools and techniques to address recruiting challenges.

Social media is a form of media designed to provide information through social interactions. Social media's steadily increasing popularity makes it an attractive venue for recruiters to seek prospective candidates even before face-to-face contact is made.

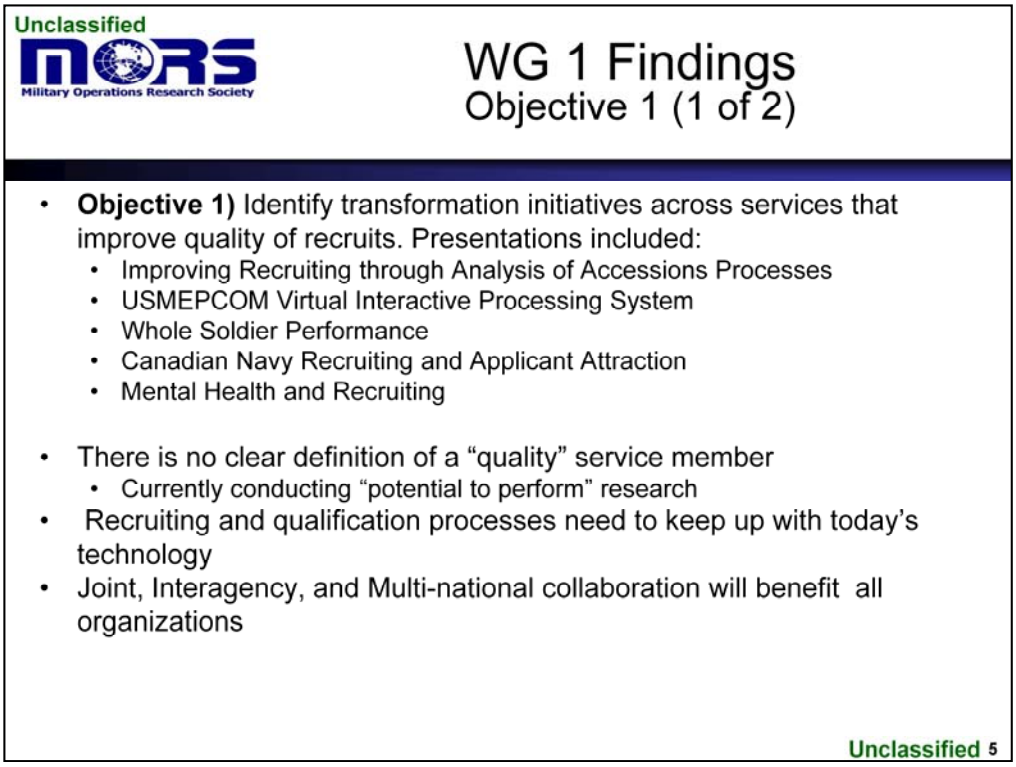
Government agencies strive to recruit a workforce that represents all races and cultures that make up this great Nation. Organizations continue to study specific populations to examine contributing factors to the under-representation of races or ethnic groups.

Each session consisted of presentations, open questions and facilitated questions:

3.1 How will transformation initiatives in recruiting, qualification and accessions impact the quality of Recruits and civilians?

3.2. What are the challenges in seeking and maintaining diversity so that government agencies represent a full set of America's races and cultures?

3.3 How do recruiting services measure the impact of using social media?




Objective 1 focused on identifying transformation initiatives across services that improve quality of recruits and civilians. Presentations included:

-Improving Recruiting through Analysis of Accessions Processes

-USMEPCOM Virtual Interactive Processing System

-WholeSoldier Performance

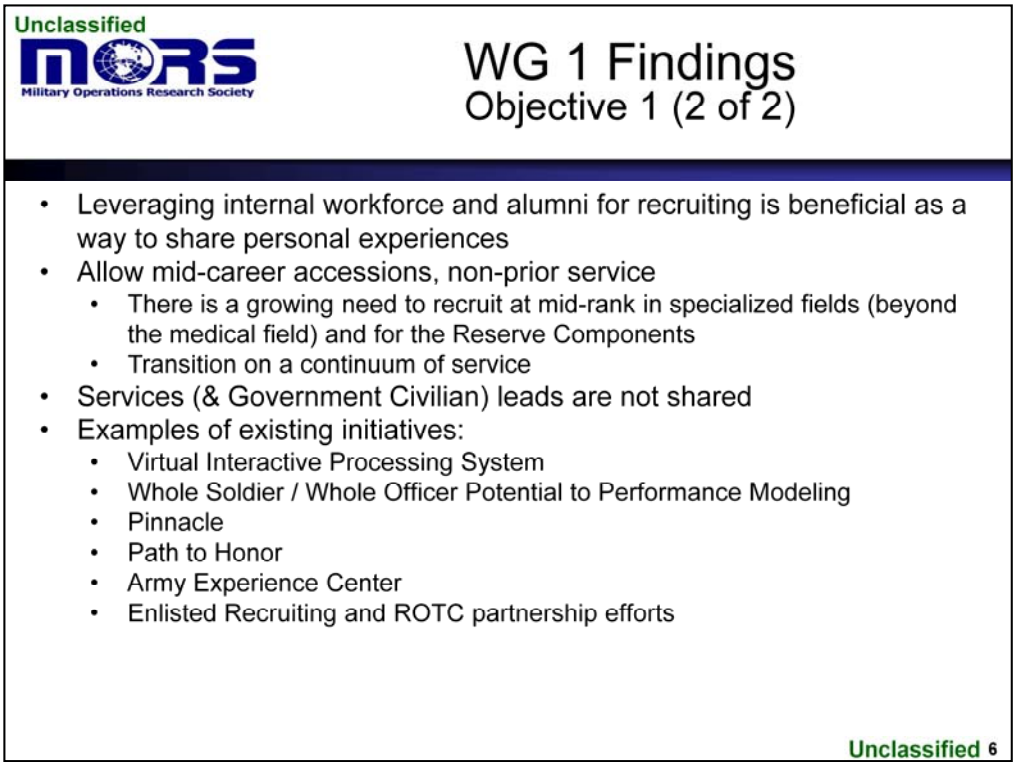
-Canadian Navy Recruiting and Applicant Attraction

-Mental Health and Recruiting

There is no clear definition of "quality." Quality means different things to different people. An applicant who has a High School diploma or obtains a high Armed Forces Qualification score may be a predictor of future performance, but not necessarily performance. Accessions Command and USMA Operations Research Center is currently conducting "potential to perform'" research.

Technology is constantly changing and it is imperative that recruiting ad qualifications processes keep up with the latest advances. Sharing of information is critical among services and other governmental agencies.

Joint, Interagency, and Multi-national collaboration will benefit all organizations in the recruiting process.



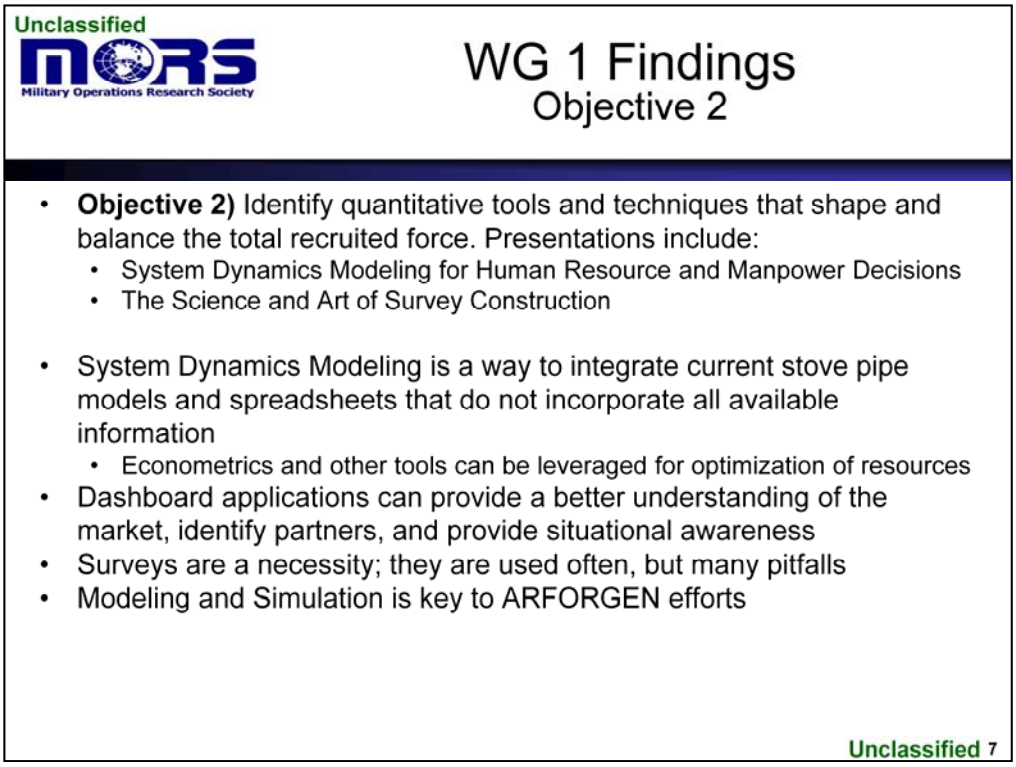

Leveraging internal workforce and alumni for recruiting is beneficial as a way to share personal experiences. This type of sharing of experiences can be outside the efforts of the Recruiting Services.

There is a need to allow mid-career accessions, non-prior service which should focus on recruiting at mid-rank in specialized fields (beyond the medical field) and for the Reserve Components. This can also be applied to service members who wish to transition on a continuum of service

A better way to collaborate among the Services and Government agencies will allow leads to be shared. Currently, there is no system or process to share leads within the Federal Government. A prospect who may not be physically fit for military service may still great potential in other federal service occupations.

These are examples of existing initiatives:

- Virtual Interactive Processing System
- Whole Soldier / Whole Officer Potential to Performance Modeling
- Pinnacle
- Path to Honor
- Army Experience Center
- Enlisted Recruiting and ROTC partnership efforts




Objective 1 identifies quantitative tools and techniques that shape and balance the total recruited force. Presentations include:

System Dynamics Modeling for Human Resource and Manpower Decisions
The Science and Art of Survey Construction

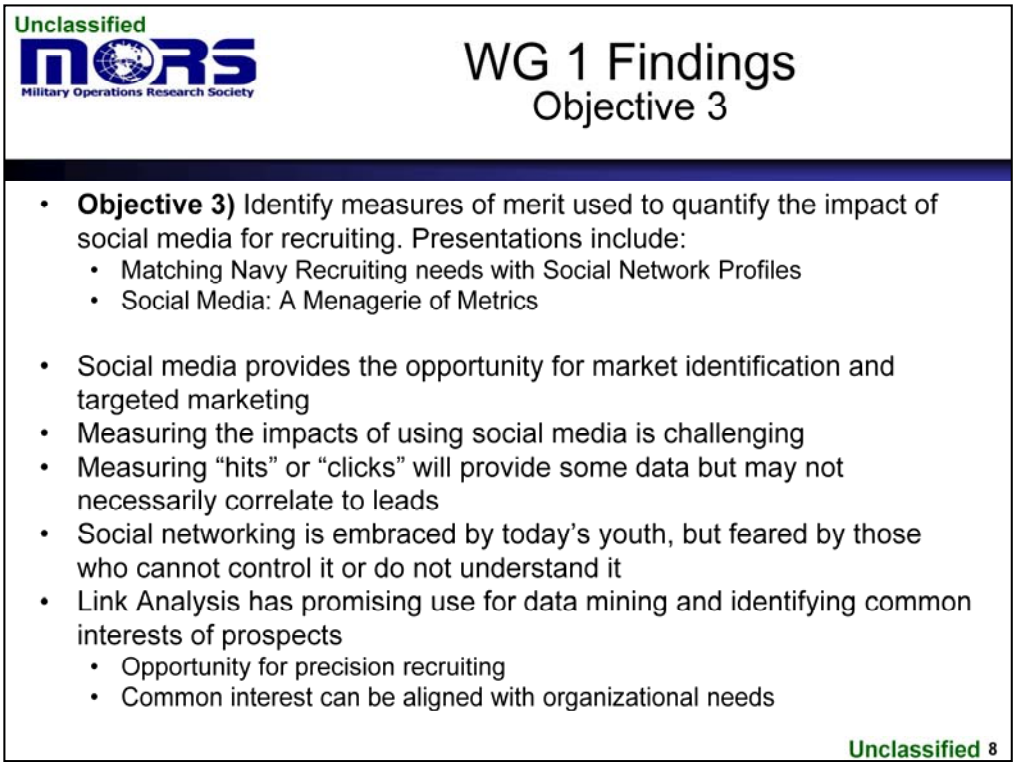
System Dynamics Modeling is a way to integrate current stove pipe models and spreadsheets that do not incorporate all available information. Econometrics and other tools can be leveraged for optimization of resources. An organization may collect data through various spreadsheets or different models, but the data is not collected nor analyzed in a cohesive manner.

Dashboard applications can provide a better understanding of the market, identify partners, and provide situational awareness. Dashboards can also a tool for forecasting and managing resources.

Use of the Enlisted Early Warning System (EEWS, Dr. Larry Goldburg, IDA) is another tool that would be beneficial to the Recruiting community.
(EEWS forecasts GSA enlistments over the next 12 months for all the Services)

Surveys are a necessity; they are used often, but many pitfalls exist. Surveys are normally done because they are cheap and they are quick. However, without the necessary analytic rigor, often, the data collected does not answer the question.

Modeling and Simulation is key to ARFORGEN efforts.




Objective 3) Identify measures of merit used to quantify the impact of social media for recruiting. Presentations include:

Matching Navy Recruiting needs with Social Network Profiles

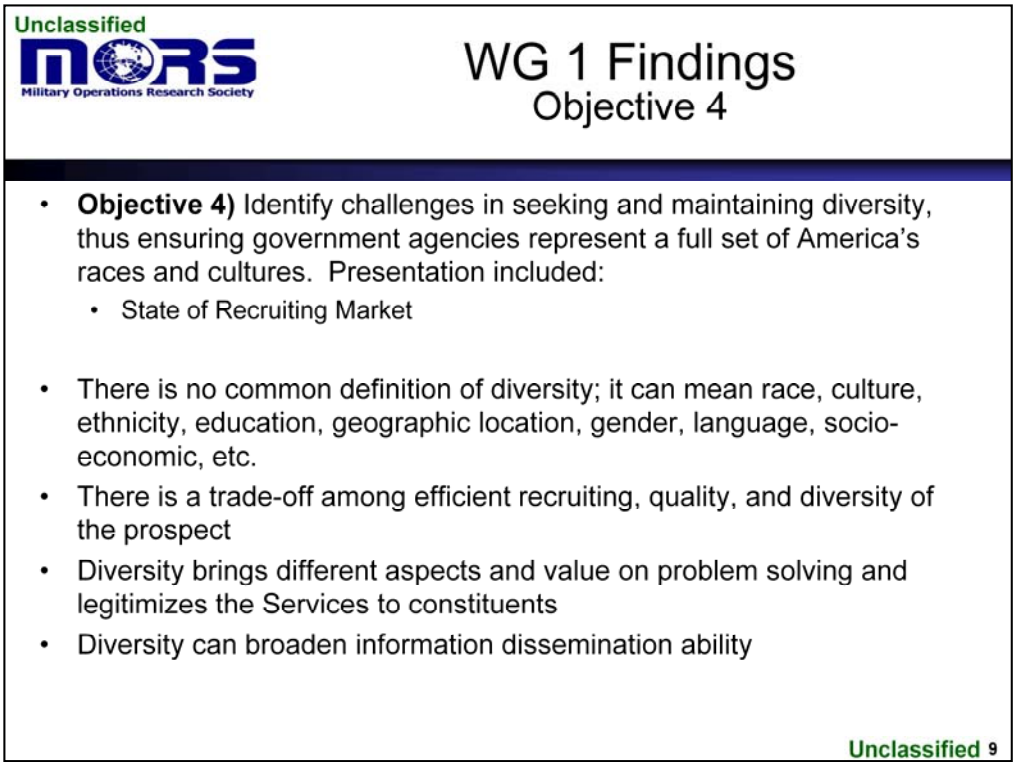
Social Media: A Menagerie of Metrics

Social media is growing in popularity among today's youth. It is critical that Recruiting Services take advantage of the marketing potential. Social media provides the opportunity for market identification and targeted marketing.

However, measuring the impacts of using social media is challenging. Measuring "hits" or "clicks" will provide some data but may not necessarily correlate to leads.

Social networking is embraced by today's youth, but feared by those who cannot control it or do not understand it. The government does not own the software or the application and therefore, cannot control its content.

Link Analysis has promising use for data mining and identifying common interests of prospects. More analysis must be done to consider its impact on Recruiting and future use of the data collected. Link Analysis does provide an opportunity for precision recruiting. In addition, common interest can be aligned with organizational needs




Objective 4) Identify challenges in seeking and maintaining diversity, thus ensuring government agencies represent a full set of America's races and cultures. Presentation included:

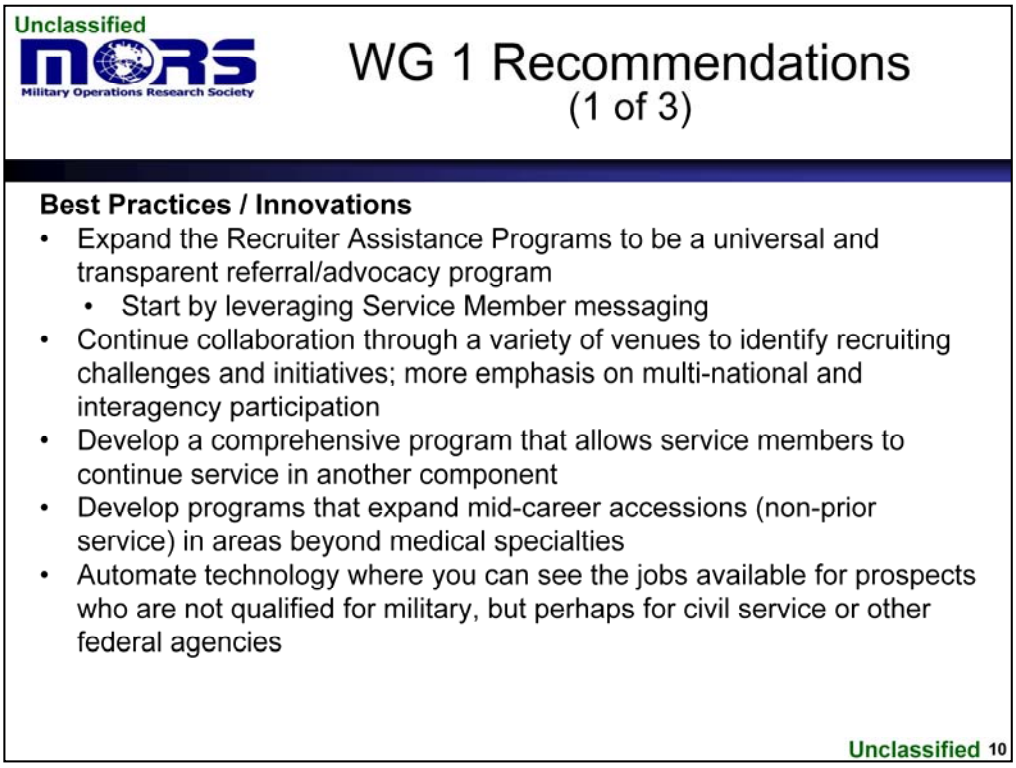
State of Recruiting Market

There is no common definition of diversity; it can mean race, culture, ethnicity, education, geographic location, gender, language, socio-economic, etc. Without common definition among services and within the Federal Government, it is difficult to measure and conduct analysis.

There is a trade-off among efficient recruiting, quality, and diversity of the prospect. Additionally, finding the right balance between diversity and the resources is challenging.

Diversity brings different aspects and value on problem solving and legitimizes the Services to constituents. The goal of diversity within the military is to reflect the diversity that makes up this Nation. Ideally, the Officer Corps should also maintain the same level of diversity as the Soldiers they lead, yet this has been a difficult task.

Diversity can broaden information dissemination ability.




A more deliberate effort in identifying the right applicants qualified for the right job with at the right organization will benefit the federal government as a whole.

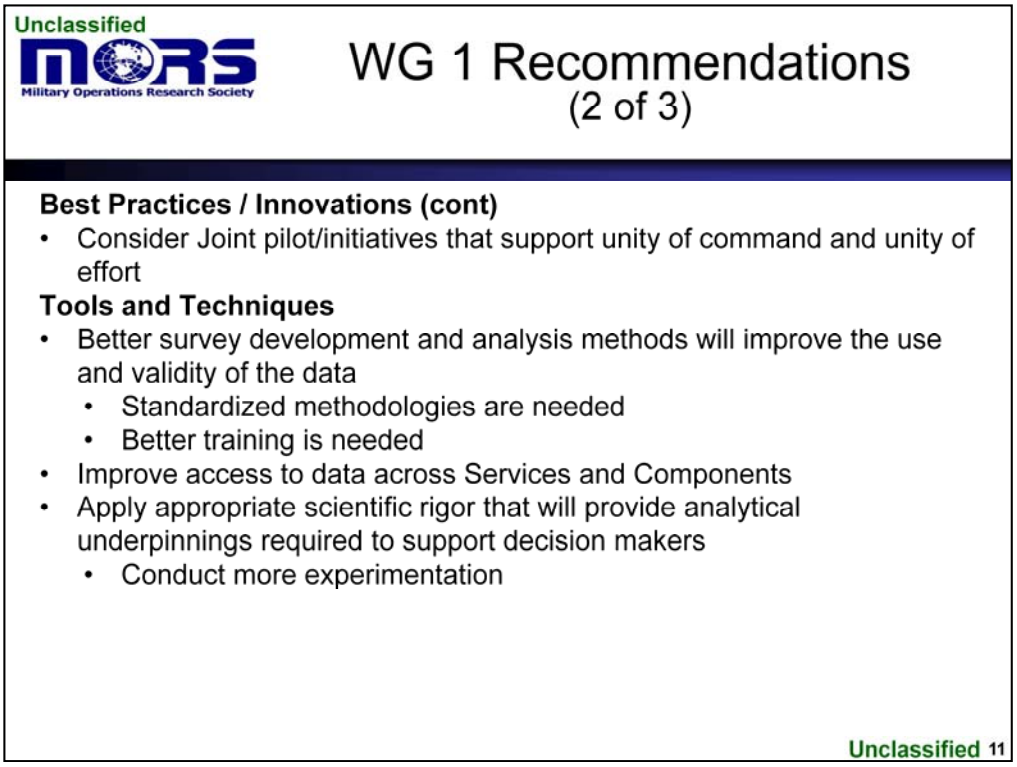
Expand the Recruiter Assistance Programs to be a universal and transparent referral/advocacy program:
Service members can be the best advocates, both face-to-face and on social networking sites. There should be transparency, honesty, and reality.
"Tell the whole story"; pros as well as cons Some attrition in the Service is due to unrealistic expectations of what being in the military is.

Continue collaboration through a variety of venues to identify recruiting challenges and initiatives; more emphasis on multi-national and interagency participation:
We should learn from and leverage what others are doing– other branches as well as other countries.

Develop a comprehensive program that allows service members to continue service in another component:
More flexibility.
Need both a system and a policy(ies)

Develop programs that expand mid-career accessions (non-prior service) in areas beyond medical specialties
Make use of "real world" public sector training, also potentially more "brains" – more shortages expected among hard math degrees (ORSAs, engineers, etc)

Automate technology where you can see the jobs available for prospects who are not qualified for military, but perhaps for civil service or other federal agencies




Consider Joint pilot/initiatives that support unity of command and unity of effort

Work together, share ideas/resources/leads. Collaborate

**Tools and Techniques**

Better survey development and analysis methods will improve the use and validity of the data

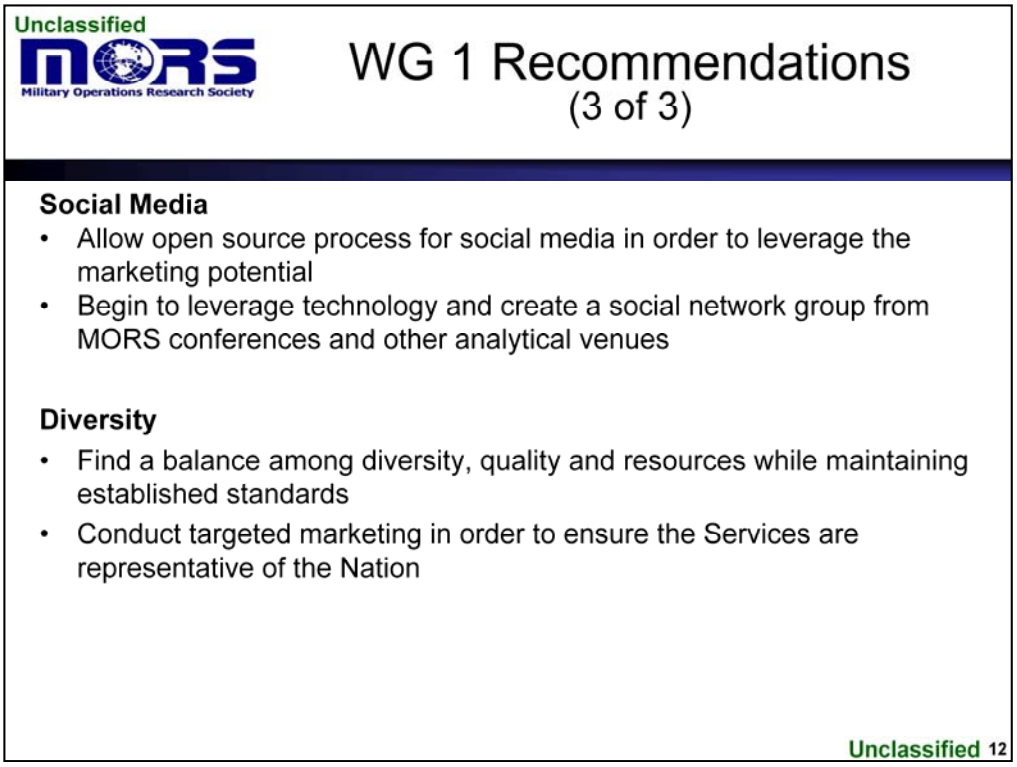
Standardized methodologies are needed

Better training is needed

Improve access to data across Services and Components

Need an authoritative data source

Again, need more collaboration– a common




## Social Media

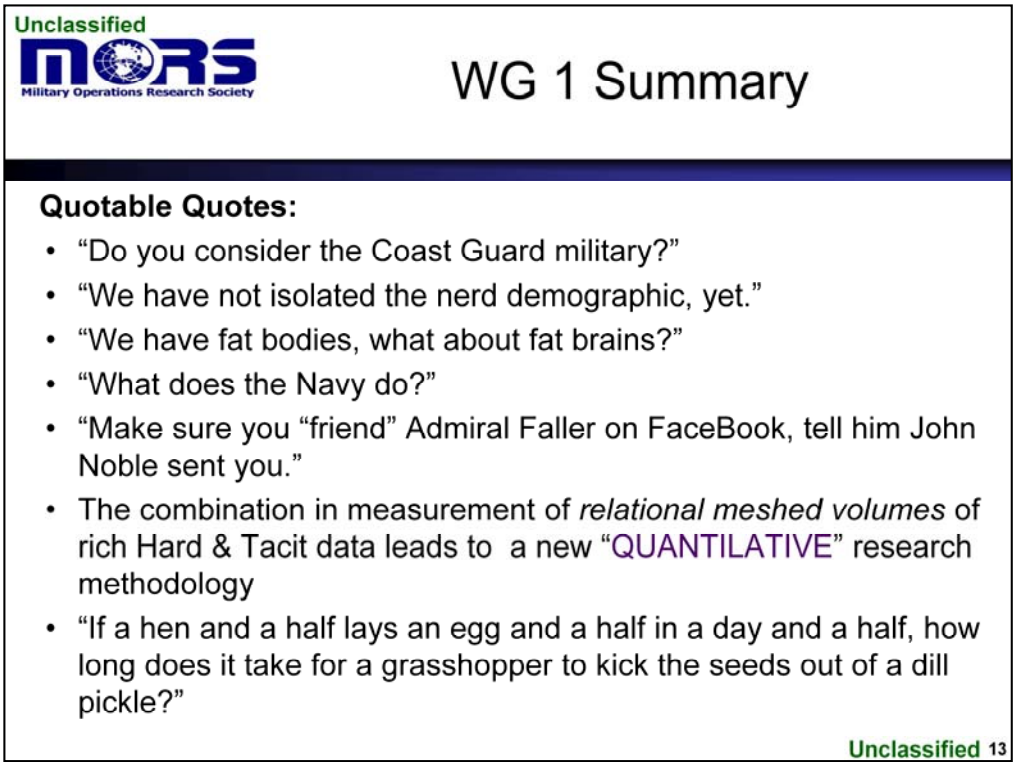
Allow open source process for social media in order to leverage the marketing potential

Need to get past perceived IT barriers– need to adapt/adjust current IT policies and procedures

It's not just an IT problem, it's also a marketing/PR problem

Begin to leverage technology and create a social network group from MORS conferences and other analytical venues

Social media has flourished over the last 5 years– we need to keep up with pop culture and the population we are trying to attract




In summary, continuous collaboration among the Recruiting Services, other Federal Government, and our international partners is critical to the success of Recruiting. Quality and diversity must be defined and we must never stop developing new tools and techniques in which we do our business. New technologies, innovated initiatives, and the collection of best practices are essential to recruiting of our most valuable asset, our people.

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# BACKUP

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# Improving Recruiting through Analysis of Accessions Processes

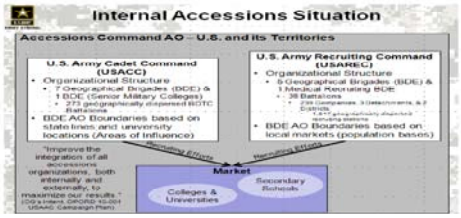
## Problem Description

Overall cost – benefit of recruiting efforts is a concern

- People
- Advertising
- Information Technology
- Fixed recruiting facilities

## Purpose

Improve the efficiency and effectiveness of recruiting operations




## Technical Approach

- Perform literature search investigating both military and private industry practices
- Conduct brain storming sessions
- Identify best practices and innovative solutions to improve the efficiency and effectiveness of recruiting operations
- Take into consideration
  - all facility and overhead costs in
  - all components
  - Officer, Enlisted, and civilian recruiting

## Deliverables

Develop and analyze several courses of action (COA) to improve the coordination of accessions efforts among USAAC

Each COA should:

- reduce or eliminate redundant effort
- integrate market & marketing efforts
- improve the visibility of leads and prospects
- improve the ability of prospects to choose a path that best meets their needs, desires, and potential to perform
- balance the prospect's desires with the Army's needs

Recommend a COA to the Commander, USAAC

Presenter: MAJ Harold LaRock, Center for Accessions Research

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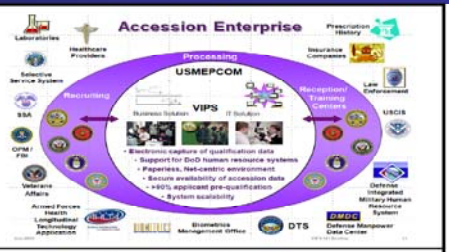
# Virtual Interactive Processing System

## Problem Description

The current MEPCOM process is time intensive for applicants, and labor intensive for Recruiting/MEPS personnel resulting in considerable down time

## Purpose

One part of USMEPCOM's transformation is VIPS which will take processing to the applicant by enabling anytime anywhere processing.




## Technical Approach

Modeling and Simulation

- MEPS Process Model will evaluate "as-is" and "to-be" processes to examine process improvement
- Manpower Study will determine manning requirements as VIPS is incrementally implemented
- USMA Capstone Project of an "Ideal MEPS" will examine current processes and recommend improvements

Strategic Communication Measures

- Developing communication metrics that evaluate how well USMEPCOM is building awareness, partnerships and advocacy with our VIPS stakeholders.

Presenter: MAJ Nicole Curtis

## Expected Results

As part of the Accessions enterprise, VIPS will:

- Reduce accession processing costs
- Reduce attrition
- Improve data quality
- Initiate Personnel Record
- Initiate Electronic Health Record
- Enable anytime, anywhere processing
- Enable business process flexibility, adaptability, scalability
- Enhance data exchange across DoD

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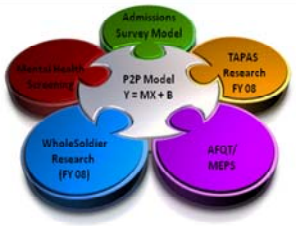
# Whole Soldier Performance

## Problem Description

Develop an application to predict the future performance of a recruit based upon attributes we can observe about that recruit upon their indication of interest in service.

## Purpose

Improve the quality of Soldiers we have while reducing the cost of accessing them.




## Technical Approach

- Identify Data Shortfalls: Officer Candidate vs. Enlisted Soldier
- Surveys for Additional Data Collection
- WholeSoldier Performance Assessment
- Data Mining (Regression, Neural Networks, LDA, SVM etc.) to link Performance to Potential

## Deliverables

- OSUT Success Prediction Model (March)
- In-Unit Success Prediction Model (July)
- Final Briefing and Technical Approach (August)

Presenters: MAJ Rob Dees & MAJ Sam Huddleston, USMA

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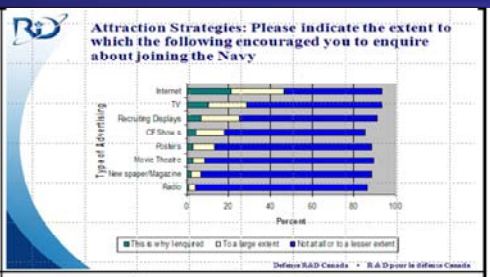
# Navy Recruiting and Applicant Attraction: Preliminary Results

## Problem Description

Recruitment of Navy personnel still continues to be an area of concern

## Purpose

- Identify the factors that attract applicants to the Navy and the reasons why individuals may or may not apply to Navy occupations
- Assess the efficacy of attraction strategies currently in place.




## Technical Approach

The following data were gathered using surveys and focus groups:

- Demographics
- Awareness and influence of attraction strategies (e.g., Internet site, television commercials)
- Influential factors for joining the CF/Navy (e.g., pay, career opportunities, parents, friends)
- Perception of the recruiting process

## Recommendations

- Improve the current recruiter selection process and training program, and build in an evaluation process
- Examine feasibility of an employee referral program
- Develop more targeted TV commercials that can appeal to:
  - technologically or technically inclined youth;
  - those in technical occupations;
  - older individuals/technological training;
- Conduct research with the other environments as well as with the public to examine why they did/did not join the Navy

Presenter: Manon Mireille LeBlanc, PhD

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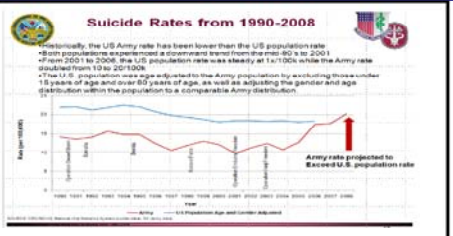
# Mental Health and Recruits

## Problem Description

Operations Enduring Freedom and Iraqi Freedom have numerous behavioral stressors of:

- Multiple and extended deployments
- Battlefield stressors (IEDs, ambushes, severe sleep deprivation, direct combat, etc.)
- Medical stessors (severely wounded Soldiers, injured children, detainees)
- Changing sense of mission




## Key OEF Findings

- *Psychological problems:* 14.4% of maneuver Soldiers met criteria for depression, anxiety, and/or acute stress—higher than 2005 but similar to 2007.
- *Combat exposure:* Higher than previous MHATs.
- *Barriers to care and Stigma*: Maneuver unit barriers higher than previous. Stigma rates held constant.
- *Multiple deployments:* Higher rates of mental health problems and marital problems for multiple deployers.
- *Behavioral health assets*: Understaffed IAW Combat and Operational Stress Control Planning Models of 1:700 to 1:1000 staffing ratio.

Presenter: COL Elspeth Cameron Ritchie, MD, MPH

## Way Ahead

- Integration of services
- Policy changes, education
- Integration with primary care, other portals of care
- Grow number of providers
- Tele-Behavioral Health
- Optimal Reintegration
- Strategic communication
- Re-engineered suicide prevention
- Provider resiliency training
- Mental health organic in WTUs
- Enhanced reintegration strategies
- Mental health organic in Guard/Reserve
- Updated Clinical Practice Guidelines in Pain

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# System Dynamics Modeling Support for Human Resource and Manpower Decisions

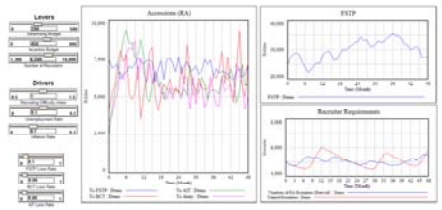
## Problem Description

The Army Human Resource and Manpower community lacks a comprehensive model of the accessions process

## Purpose

Develop a portfolio of System Dynamics-based models that support resource trade-off analysis and policy decision-making

## Model Snapshot



## Technical Approach

- Development Methodology
  - Problem Identification and Definition
  - System Conceptualization
  - Model Formulation
  - Simulation and Validation
  - Policy Analysis and Improvement
- Leverage historical data and elasticities, and existing recruiting force, advertising budget, and incentive budget methodologies

## Deliverables

- Improved Army-wide collaboration among Human Resource and Manpower agencies
- Improved Manning Program Evaluation Group (PEG) and Program Objective Memorandum (POM) recommendations
- Improved quality and timeliness of "what-if" analysis for different mission-resource or policy-outcome scenarios

Presenter: Dr. Bill Bland, Booz Allen Hamilton

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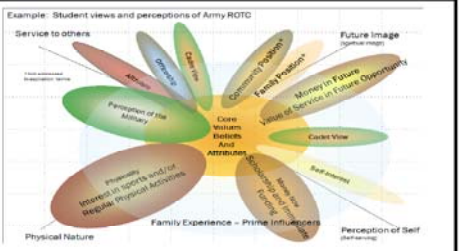
# The Science and Art of Survey Construction

## Problem Description

**Surveys are frequently used when time, costs, or other prohibitions limit the use of experimental or quasi-experimental studies; however, the rigor and exactitude of survey construction and analyses is lacking**

## Purpose

**Identify the common errors in construction, validation, scales and sampling that prohibit results generalization and limit utility**




## Technical Approach

The knowledge of instrumentation, sampling theorem, domain construction and item construction are minimal requirements to construct valid surveys that can be used to generalize and be combined with other research.

When time, funding, legal and policy allow, experimental or quasi-experimental designs provide easier analysis of results.

## Recommendations

1) **Integrate the requirements for risk, scope, and hypothetical underpinnings into the construction, scales and eventual analytics necessary to the level of decision**
2) **Anchored scales provide a higher level of discernment and lowers person-form effects that reduce internal validity**
3) **Binomial or dichotomous variable (Yes, No//Applies, Does Not Apply) and dichotomous branching increase sampling requirements**
4) Not everyone can or should do survey research

Presenter: Dr. Bert Huggins, US Army Cadet Command

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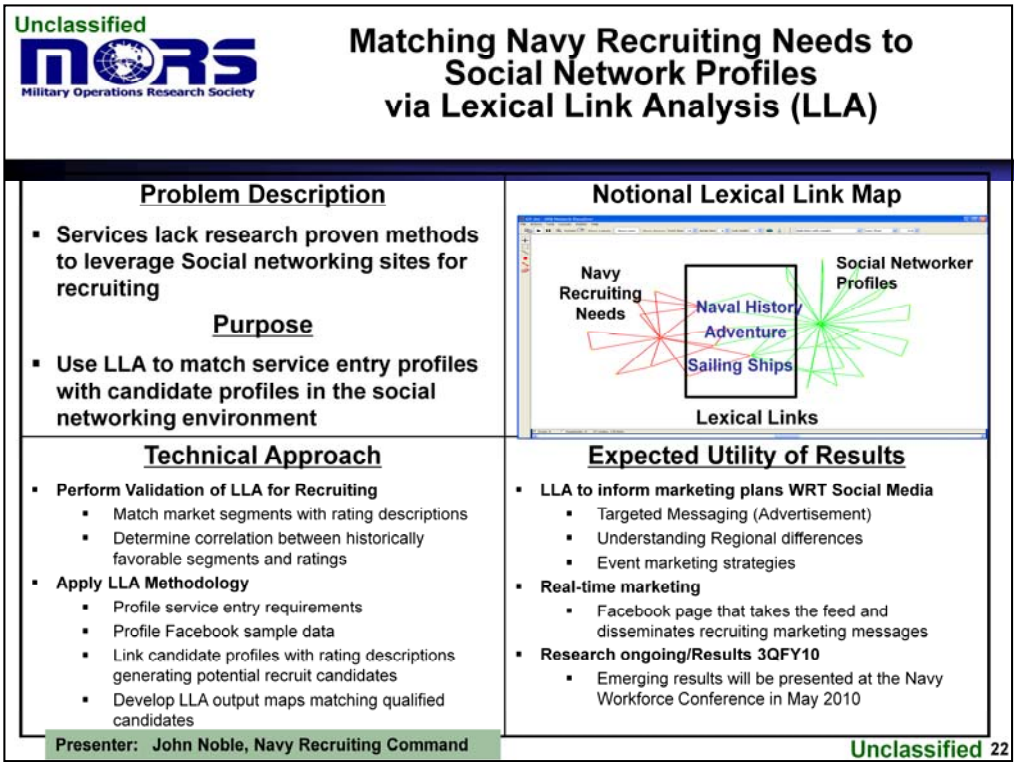


Social network sites are relatively new platforms and market places that offer fruitful environments for identifying potential candidates for Navy service. These sites are often filled with characteristics of potential candidates and can be useful for tracking behavior trends of the target population. Sites such as MySpace, Facebook, U-tube and many other sites offer a virtual "*coffee house"* environment for meeting possible candidates that may fit service entry profiles. However, this is new territory for Navy Recruiting and it is important to understand how to capitalize on this emerging environment. Equally as important is to determine how to dynamically match current service entry requirements to candidate profiles in the potential market place. Navy Recruiting has enlisted the expertise of the Naval Postgraduate School to perform this research during FY10. NPS plans to apply an innovative method called Lexical Link Analysis (LLA), which they have used in the past to support other Navy Requirements analyses. The plan is to use samples of real-life social network profiles from Facebook, (approved for research purposes) and demonstrate how an individual's profile characteristics can be matched with service entry ratings profiles using LLA. The research will test Navy profiles for both Officer and Enlisted ratings.

The results of this research could potentially impact the manner in which Navy Recruiting interacts with members of these social networking sites. For example, knowing and individuals likes and interests would impact the types of marketing messages they receive from Navy Recruiting. It is hypothesized that this matching could lead to an increase in recruit quality and a decrease in the time required to locate desired accessions. Over time this research could also improve strategic decisions with regard to increasing the effectiveness of our advertising and marketing campaigns and can assist Navy Recruiting in developing new strategies to capitalize on the emerging social networking market place.

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# Social Media: Menagerie of Metrics

**Problem Description**

Adoption, Integration & Measurement of Social Media in Accessions

**Purpose**

Stimulate thinking; present opportunities to define strategies & methods of experimentation & rapid innovation

**Technical Approach**

- Define marketing & technology research gaps in order to properly measure the variety of media & applications to other disciplines/operations
- "Social Media" measurement will be a recombinant of both Quantitative & Qualitative "relational "meshed" datasets" > a new blended metric ("Quantilative") … it will blur the lines
- Encourage a Joint approach to design of experiments and creation of vector analysis
- Knowledge transfer is a key factor in designing a cross discipline approach (algorithms, gaming )

**Results**

- Zoology is a great metaphor for social media measurement, experimental design, and has tools to consider for operational research (modeling)
- Speed of the media has major implications for international security, integrated scenario planning, societal engagement ( A "must play" for DoD)
- Recommend DoD establish a Joint Prototype Analysis Team to decipher interagency needs
- There in an urgent needed to create development prototypes in an ambiguous, viral, & fast proliferating "public maneuver space"

Presenter: LTC Lawrence Grega

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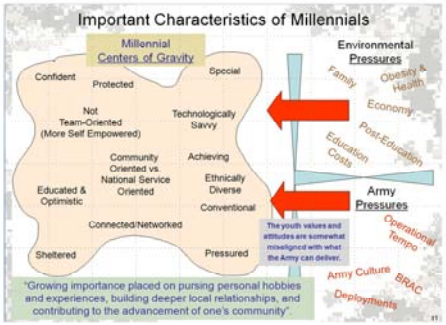
# State of the Recruiting Market

## Problem Description

General population and the Qualified Military Population will shrink in the next few years impacting recruiting and the quality of the recruiting pool

## Purpose

- Characterize and describe the Army recruiting market and market situation
- Recommend strategies and/or programs based on these critical insights and trends that enable successful recruitment and training of Army accessions




## Technical Approach

- Conduct a front end assessment of the environment and the market then develop a strategy
- Assess marketing and communication messaging, medium, and resources
- Evaluate expected effects based on goals/objectives and leveraging the data collection

Presenter: COL Jeff Schamburg

## Results

- Several physical environment factors (health, education pressures, education costs, economy) will continue to impact youth and parental decisions regarding military service.
- The youth values and attitudes are somewhat misaligned with what the Army can deliver.

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