Army Accessions Research Consortium

“Shaping the Future Force and Predicting Its Success”
31 August – 3 September 2009
Hampton, Virginia
These proceedings of the annual ARC include keynote transcripts and all track briefings given at the three day conference in Hampton, VA, 1-3 September 2009.

Military accessions, recruiting, childhood obesity, JROTC, Whole Soldier, Accessions Research Award, Human Dimension, Army Experience Center, MEPCOM, Mental health screening, Pinnacle
Army Accessions Research Consortium
“Shaping the Future Force and Predicting Its Success”

Tuesday, 1 September 2009
- Welcome and Introductions (COL Jeff Schamburg)
- Opening Remarks by LTG Freakley
- Presentation of the Accessions Research Award
- Research Award Winner-Expanded Enlistment Eligibility Metrics (Dr. Tonia Hefner)
- Track Leader Introductions

COHORT TRACK: “Understanding the Great Individuals that Make Us Army Strong”
- Track Introductions (Don Bohn, G2/9, CAR)
- Army Accessions Research: Lessons Learned (Dr. William Bland, Booz Allen Hamilton)
- WholeSoldier (LTC Paul Kucik, US Military Academy)
- A Review of Millennial Generation Characteristics and Military Workforce Implications (Dr. Henry Griffis, Center for Naval Analyses)
- New Sailor Survey (Matthew Waits, Navy Recruiting Command)
- Navy Recruiting Command Performance Based Costing (Mike Sumrall, Deloitte Consulting LLP)
- Officer Selection Predicting Continuance and Performance Indices in the Officer Accessioning Process (Dr. Robert Kilcullen, Army Research Institute)
- The Effects of Changes in Institutional Policies and Socio-cultural Factors on Initial Entry Physical Fitness Levels of Cadets at the United States Military Academy (Dr. Whitfield East, US Military Academy)
- RecruitMilitary Prior Service Lead Generation (Rick Jones, RecruitMilitary)

MARKET TRACK: “Managing the Next Perfect Storm: Alternative Market Futures”
- Opening Remarks
- Meet & Greet – Overview of FY09 MRA Internal Research
- G6 Briefing – Current and Future Initiatives (Lonnie Williams, USAAC G6)
- Teen Research Unlimited (TRU) Presentation (Michael Wood, Sr. Vice President & Director of Syndicated Research, TRU)
- Q&A Session on Obesity and Related Longitudinal Studies (Dr. Ogden, CDC)
- 21st Century Training for 21st Century Learners (Dr. Jill Lindsey, Wright State U)
- JROTC Program Overview (COL Vanderbleek, JROTC)

OPERATIONS TRACK: “Revolution in Recruiting Operations”
- Track Introductions
- Pinnacle Experiment (COL Shultis, USAREC)
- Tactical Segmentation – A Practical Application (Mitch Stokan)
- Position and Mission Modeling (MAJ Andrew Ehlert)
- Adaptive Missioning Process (Mike Nelson, USAREC)
- Monitoring & Managing Achievement in Pinnacle (SGM Richardson, USAREC)
- Simulating the Pinnacle Concept (Laura Guay, G2/9 CAR)
- Lessons Learned Special Ops Recruiting (Gallup)
Tuesday, 1 September 2009 – Continued

TECHNICAL TRACK: “Technical Solutions to Improve Research Productivity”
- Spatial Analysis (Beth Hagensen, G2/9 CAR)
- Human Subjects Protection Refresher (Melanie Clark, G2/9 CAR)
- Neural Networks (David Scarborough, Kronos)
- Introduction to Defense Technical Information Center (Candy Parker, DTIC)
- DTIC Bibs and Alerts (Candy Parker, Defense Technical Information Center)
- Variable Exploration with PASW Modeler (Richard Bauer)
- Human Subjects Protection Refresher (Melanie Clark, G2/9 CAR)

Wednesday, 2 September 2009
- Opening Comments (COL Jeff Schamburg)
- “Childhood Obesity in the US: Prevalence, Trends & Health Risks.” (Dr. Cynthia Ogden, Centers for Disease Control)

COHORT TRACK: “Understanding the Great Individuals that Make Us Army Strong”
- Recruiter Quality of Life (Army) (Donna Dorminey, G2/9, CAR)
- Recruiter Quality of Life (Navy) (Dr. Jennifer Jebo, Navy Recruiting Command)
- On-Campus Market Potential Study (Dr. Bert Huggins, US Army Cadet Command)
- Manning the All-Volunteer Force from a Changing Youth Market - Wavier Analysis (Dr. Bruce Orvis, RAND)
- Foreign Language Recruiting Initiative (Dan Putka, HumRRO)
- Army National Guard (LTC Maureen Weigl, ARNG)
- Mental Health Screening of Soldiers (LTC Ingrid Lim, USAREC)
- How New BCT Soldiers Respond to Tough Training (Dr. Stephanie Muraca, Directorate of BCT, FT Jackson)

MARKET TRACK: “Managing the Next Perfect Storm: Alternative Market Futures”
- Human Dimension (COL Chandler & Mark Atkins ARCIC)
- Cognitive Research in Battle Command (Dr. Sylvia Acchione-Noel, FCS)
- Current JROTC/PFL/March2Success Data Overview (JROTC, G2/9, G6)
- JROTC/PFL/March2Success Data Working Group (JROTC/G2/9)
- JROTC/PFL/March2Success Data Working Group Continued (JROTC/G2/9)
- US-NEXUS/Virtual Worlds Demo & Q/A Session (LTC Greg Pickell)

OPERATIONS TRACK: “Revolution in Recruiting Operations”
- ARNG Recruiting Innovations (COL Mike Jones, ARNG)
- Army Experience Center (MAJ Dillard, Army Experience Center)
- Army Reserve Recruiting Assistance Program (LTC Slatton, AR G1)
- MEPCOM Virtual Interface Processing System (COL Larry R Larimer, MEPCOM)
- Study Overview (LTC Kamei, Office Chief Army Reserve Program Analysis & Evaluation)
TECHNICAL TRACK: “Technical Solutions to Improve Research Productivity”
- Intro to Defense Technical Information Center (Candice Parker, DTIC)
- Process Simulator M&S Tool (Joe Corona, RISD)
- Defense Technical Information Center Bibliographies & Alerts (Session 2) (Candice Parker, DTIC)
- Spatial Analysis (Beth Hagensen, G2/9 CAR)
- Human Subjects Protection Refresher (Melanie Clark, G2/9 CAR)
- Neural Networks (David Scarborough, Kronos)
- Qualitative Research Methods: Focus Group Design, Implementation, Analysis, and Reporting (Dr. Steven N. Aude, ICF International)

Thursday, 3 September 2009
- Welcome Remarks (COL Jeff Schamburg)
- "Filling the Ranks: An Update for Today's Realities." (Dr. Cindy Williams, MIT)
- Research Award Runner-Up, Events Analysis and Decision Support Tool (LTC Greg Lamm)
- Research Award Runner-Up, Branching Methods for Engineer Goal (Mr. Craig Zeitler)
- Track Outbrief Prep Time
- Outbrief to General Officer Panel
- Closing Remarks by LTG Freakley
- ARC Hotwash (ARC Track leaders & G2/9 Staff)
Army Accessions Research Consortium

Cohort Track
Cohort Track: “Understanding the Great Individuals that Make Us Army Strong”

• **Track Leader:** Don Bohn
• **Focus:** How characteristics of individual Soldiers that comprise a cohort can be used to explain outcomes of the whole.
• **It is difficult to predict the actions and success of a specific individual, but the better we understand how characteristics of individuals affect behavior, the better we can predict the success of the overall cohort.**
  – personal characteristics (such as demographics, quality marks, and requirement for enlistment waiver)
  – features of the enlistment contract (such as term of service and presence of an enlistment incentive)
  – controlling for the recruiting environment (such as policy changes, pilot tests, and economic conditions)
Cohort Track: “Understanding the Great Individuals that Make Us Army Strong”

• **Goals:**
  – Develop a recommended way forward for future “Quality” research
  – Develop a recommendation for future research on how we look at applicant potential
  – Identify how we can make progress on adjusting various levers when trying to keep accessions within a band of excellence
Army Accessions Research: Lessons Learned

“A look back on three years in Accessions Command”

Hampton, VA
1 September 2009

This document is confidential and is intended solely for the use and information of the client to whom it is addressed.
Agenda

- Background
  - What Did We Do?
  - How Well Did We Do It?
  - What Were Our Biggest Challenges?
Background

- Served as Chief, Accessions Systems Division (ASD) for the USAAC G2/9, Center for Accessions Research (CAR), from Jun 06 through Jun 09

- Just retired after 26+ years of service as a Field Artilleryman and ORSA Officer

- No experience in recruiting or personnel issues prior to my ASD assignment, but substantial test and analysis experience
  - Operations Research Analyst, TRAC-WSMR
  - Field Artillery Test Officer, TEXCOM
  - Operations Research Analyst/Division Chief, TRAC-FLVN
  - Instructor/Program Director, Department of Systems Engineering, USMA

- Education
  - BS, Electrical Engineering and Computer Science, USMA
  - MS, Systems Management/Operations Research, Florida Institute of Technology
  - PhD, Systems Engineering, University of Virginia
USAAC G2/9 Major Focus Areas

- Provide Environmental, Macro, and Operational-Level Analysis
- Identify and Understand the Market
- Analyze Market Communications
- **Analyze the Accessions Process**
- **Analyze Cohorts**
- **Conduct Program and Policy Analysis, Evaluation, and Prioritization**
- Provide Data Management and Collection
- Develop Modeling & Simulation Capabilities
- Provide Research Integration
- Develop, Test, and Analyze Future Concepts
Enlisted Recruiting Funnel

- ASD focused on analysis of activities in the Recruiting and Training regions of the Enlisted Recruiting Funnel

![Enlisted Recruiting Funnel Diagram]

- Target Prospect Population
- Aware of Soldier Value/Army Offerings
- Willing to Learn More
- Lead Developed then Refined
- Appointments Made
- Appointments Conducted
- Test
- Test Pass
- Floor
- Contract
- FSTP
- Ship
- BCT
- AIT
- 1st Unit

Recruiting Region

Training Region
Agenda

- Background
  - What Did We Do?
  - How Well Did We Do It?
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Representative ASD Projects

- Analyze the Accessions Process
  - Production Trend Analysis
  - Recruiter Effectiveness and Efficiency
  - Recruiter Selection
  - ROTC Cadre Effectiveness and Efficiency
  - Future Soldier Training Program (FSTP) Loss Survey

- Conduct Program and Policy Analysis, Evaluation, and Prioritization
  - Incentive Analysis
  - Assessment of Recruit Motivation and Strength (ARMS) Program
  - Tier Two Attrition Screen (TTAS) Program
  - Enlistment Age Policy Analysis
  - Tattoo Policy Analysis

- Analyze Cohorts
  - Waiver Analysis
  - Quality Analysis
  - Attrition Analysis

- Develop, Test, and Analyze Future Concepts
  - 10 Contract Company Pilot
  - Recruiter Incentive Pay (RIP) Pilot
  - Army Preparatory School (APS) Pilot
  - Military Accessions Vital to National Interest (MAVNI) Pilot
  - Early Background Checks (EBC) Pilot
  - Brigade Partnership Mission (BPM) Pilot
  - March-to-Success (M2S) Tutor Pilot

Plus many other non-project related requirements!
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Informal Report Card…How did we do over the past three years?

- We did some things well
  - Produced actionable analysis
  - Discovered “golden nuggets”
  - Quantified Return on Investment (ROI)

- We could have done some things better
  - Provided 80% solution on time
  - Provided 100% solution late
  - Didn’t get to address area at all

**DISCLAIMER:**
My personal opinions...not the official position of USAAC G2/9 or Booz Allen!
What did we do well?

- Future Soldier Training Program (FSTP) Loss Survey
  - We provided analysis that USAREC leaders could use to improve FSTP management

- Assessment of Recruit Motivation and Strength (ARMS) Program
  - We provided analysis to help develop the program, identify ROI, validate program success, and identify areas for program expansion

- Tier Two Attrition Screen (TTAS) Program
  - We provided analysis to identify ROI and validate program success

- Enlistment Age Policy Analysis
  - We provided analysis to identify an appropriate policy and validate success of policy change

- Tattoo Policy Analysis
  - We provided analysis to identify an appropriate policy and validate success of policy change
What did we do well?

- **Waiver Analysis**
  - We integrated analysis support from multiple agencies into a holistic assessment of waivers

- **Attrition Analysis**
  - We provided analysis of attrition rates throughout the accession process that USAAC leaders could use to support strategic decisions

- **Military Accessions Vital to National Interest (MAVNI) Pilot**
  - We developed a mechanism to track contracts and provided analysis to identify ROI and validate program success

- **Early Background Checks (EBC) Pilot**
  - We provided analysis to help develop pilot, identify ROI, and validate program success

- **Brigade Partnership Pilot (BPM) Pilot**
  - We developed a mechanism to track referrals and provided analysis to identify ROI and validate program success
What could we have done better?

- **Production Trend Analysis**
  - We did a good job of tracking historical production data but we never developed a valid forecasting mechanism

- **Recruiter Effectiveness and Efficiency**
  - We never improved upon the Gross Write Rate (GWR)/Net Write Rate (NWR) metrics

- **Recruiter Selection**
  - We never validated the success of the Warrior Attribute Inventory (WAI)-based recruiter selection tool

- **ROTC Cadre Effectiveness and Efficiency**
  - We never really looked at this area at all

- **Incentive Analysis**
  - We took too long to join the Enlisted Incentive Review Board (EIRB) process and hence didn’t have much impact on the process of setting bonus or incentive policies
What could we have done better?

- Quality Analysis
  - We did a good job of assessing quality mark accomplishment and analyzing the resulting impacts but never completed our efforts to define new, more useful measures of quality.

- 10 Contract Company Pilot
  - We didn’t do as good a job of analyzing data or capturing lessons learned as we could have.

- Recruiter Incentive Pay (RIP) Pilot
  - We didn’t dig as deep or provide as thorough an analysis as we could have.

- Army Preparatory School (APS) Pilot
  - We never resolved all the data issues and weren’t able to provide as thorough an analysis as we could have.

- March-to-Success (M2S) Tutor Pilot
  - This pilot became overcome by events as USAREC implemented M2S Tutors command-wide in the middle of the pilot, confounding the analysis.
Agenda

- Background
- What Did We Do?
- How Well Did We Do It?
- What Were Our Biggest Challenges?
What were our biggest challenges?

- Balancing resources against demands
- Finding the right balance between Current and Future Analysis efforts
- Synchronizing among the other staff and fighting through stovepipes
- Using stand-alone resource models
So much to do and so few resources…

- Limited analytical capability
  - Authorized Strength: One LTC, one MAJ, two GS-13s, one GS-12, and one GS-11
  - Augmentation: One LTC (Retiree Recall)

- Lots of demands for analysis
  - Enlisted recruiting funnel Area of Responsibility (AOR) is very large
  - Countless short-suspense, high-priority Requests for Information (RFIs)
  - Quarterly and Annual After Action Reviews (AARs)
  - Several simultaneous projects and pilots

- Had to conduct “Economy of Force” missions on some projects
Find some help or pare down requirements

- The Command Implementation Plan (CIP) process provided a forum to identify needed manpower requirements
  - Unfortunately, while some authorizations were shifted from other staff elements, most if not all of these authorizations were vacant and don’t come with a body

- If in-house resources aren’t available, will need to find the funds to bring in external assets

- If additional manpower isn’t available, will need to reduce the number of requirements to ensure quality analysis products

- Also, implementing a time tracking mechanism could help focus the limited analysis capability on the most critical projects and identify “manpower leakage”
Hard to find the right balance between Current and Future Analysis

- **Current Analysis**: *Required for daily survival*
  - Backward-looking, with more immediate impact
  - Necessary to track pilot/program ROI
  - Answers “How DID we do?” and “How ARE we doing?”

- **Future Analysis**: *Required for long-term success*
  - Forward-looking, with less immediate impact
  - Necessary to set conditions for success
  - Answers “What SHOULD we do?” and “WHEN/WHERE should we do it?”

- Not enough manpower to simultaneously do both tasks well!
Implement an effective Initiative Management program (Futures Cell)

- Such a program could meet the command’s Future Analysis needs and allow ASD to focus on meeting Current Analysis needs
  - Identify potential initiatives, develop business cases for promising concepts, prioritize concepts for pilots and/or tests based on accepted metrics, and prepare plans/reports on approved pilots and tests

- Would also help integrate initiatives with strategic planners, resource managers, and executors
Hard to synchronize among the staff and fight through stovepipes

- Staff sections and subordinate commands often followed their own agenda, without coordinating across the command
  - We saw command-wide policy/program changes conducted in the middle of several pilots, confounding the analysis and subsequent results
  - We implemented multiple initiatives at the same time
Need a Campaign Plan to synchronize analysis with operations
Using stand-alone resource models

- Conducted annual mission analysis in order to identify resource requirements (Recruiters, advertising/marketing budget, and incentive budget/policies)

- Conducted periodic “What-if” analysis of various mission/resource scenarios

- We used several different models to help identify these resource requirements, but these models were not integrated or synchronized across the accessions community
  - For example, the current Recruiting Force model identifies the number of recruiters needed, based on Accession Mission, GWR, anticipated FSTP Loss Rate, and size of Entry Pool
  - It identifies the same requirement, regardless of unemployment rate or advertising budget

- These stand-alone models don’t capture the interdependencies and interactions among the various resources and the recruiting environment
Need a holistic model that integrates these stand-alone models

- Will provide a better understanding of wide ranging interdependencies, systemic effects, unintended consequences, systemic delays, and feedback loops across boundaries.

- Will provide a better understanding of the long term effects of today’s policy, resourcing, and investment decisions over time and improve the ability to explore alternatives.
Questions?

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WholeSoldier Performance

MAJ Rob Dees, ORCEN Analyst
MAJ Sam Huddleston, ORCEN Analyst
LTC Paul Kucik, ORCEN Deputy Director

WholeSoldier Performance:
• Background / Issue / Synergy
• Research Gap / Frame / Consultation
• Performance Domains & Attributes
• Performance Measurement
• Performance Domain Weights
• Sample Individual Performance Report
• Sample Population Performance Data
• Recommendation / Future Work
• Possible Strategic Impacts

Supporting Material:
• Problem Synergy
• Guidance Mapping & Mathematical Modeling
• Similar Models
• Initial WholeRecruit Potential Insights

Mission: Provide recommended WholeSoldier Performance measurement system IOT provide the force an improved developmental counseling/assessment methodology and inform a variety of policy decisions.
Background

In June 2008, MG Bostick commissioned a study by the USMA Department of Systems Engineering’s Operations Research Center of Excellence (ORCEN) to answer the question “What is a Quality Soldier?” The initial guidance was to “get outside the box” and figure out how to “measure the heart of a Soldier.”

Issue:

“First and foremost, the Army is Soldiers. No matter how much the tools of warfare improve, it is Soldiers who use them to accomplish their mission. Soldiers committed to selfless service to the Nation are the centerpiece of Army organizations. Everything the Army does for the Nation is done by Soldiers supported by Army civilians and family members. Only with quality Soldiers answering the noble call to serve freedom can the Army ensure the victories required on battlefields of today and the future.”

- FM 1, The Army, Opening Paragraph

What is a “Quality Soldier?”
Operational Problem (HD Study, Para 1-2):

- Faced with continuous employment across the full range of military operations, the Army will require extraordinary strength in the moral, physical, and cognitive components of the human dimension.

- Existing accessions, personnel policies, and force training and education development efforts will not meet these future challenges, placing at grave risk the Army’s ability to provide combatant commanders the forces and capabilities necessary to execute the National Security, National Defense, and National Military Strategies.

Source: Futures Discussion on the Human Dimension, ARCIC, BG Martz to CSA, 13 Sep 08
In order for the Accessions Enterprise Strategy to provide specific guidance on how to balance between mission numbers, talent, and cost it must:

- Employ clear definitions for mission, costs, and talent
- Determine under what circumstances to pull talent, cost, or mission numbers levers when tradeoffs are necessary
- Develop a process to determine how to apply each lever in particular circumstances
- Be explicit about circumstances when mission numbers cannot be lowered and cost/talent levers must be used

A refined definition of talent will facilitate informed tradeoff decisions

- The Accessions Enterprise should develop a definition of talent aligned with existing guidance
- Talent should be measured along a continuum...we must measure entire population to do this, not just the “most successful” ones...we want to provide fidelity along the entire spectrum, and for making decisions it is just as important to measure in the lower portion of the “successful” (retained/serving) population.
- Existing research provides a basic definition of talent, but a more refined definition will require additional research

Source: McKinsey team analysis

Comments: ORCEN
"Quality" Research Gap

We are getting pretty good at predicting the "quantity" of service, but have a gap in our ability to predict the "quality" of service.

**Markers not sufficient to predict outcome**

**Sufficient to predict outcome**

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**Comments:** ORCEN

**Source:** McKinsey (ARI and RAND reports)
Re-Framing the Problem

**quality n. –**
1. a. An inherent or distinguishing characteristic; a property.
2. A personal trait, especially a character trait.
3. Degree or grade of excellence: *yard goods* of low quality.

**potential –**
*adj.* 1. Capable of being but not yet in existence; latent: *a potential problem.*
2. Having possibility, capability, or power.
*n.* 1. The inherent ability or capacity for growth, development, or coming into being.
2. Something possessing the capacity for growth or development.

**performance n. –**
1. a particular action, deed, or proceeding
2. the manner in which or the efficiency with which something reacts or fulfills its intended purpose.

**GEN Thurman’s Thoughts:**
“Maybe instead of quality, we should have used the term indicators of military enlistment success. However, for now we will leave the correction of our past mistakes to some future enterprising recruiting commander, policy maker, or researcher.”

**Our Thoughts:**
- We currently evaluate Soldiers by talking about performance / potential.
- Quality is certainly possessed and implies what you are. Potential recognizes uncertainty and implies what you can be...message to our nation?
- We maximize potential through catalysts such as individual effort, leadership, and training to achieve high performance.
- We must measure performance to understand the indicators of potential.

“There is no greater impediment to the advancement of knowledge than the ambiguity of words.” - Thomas Reid, Scottish Philosopher
**Difference of Approach**

- **Longitudinal Study**
  - High Cost
  - Long Duration
  - Collect massive amounts of data on what we think might solve the problem, and see if something useful is revealed over time.
  - “We’ll see in the end.”

- **Value-Focused Study**
  - Low Cost
  - Short Duration
  - First determine “what we want.”
  - Collect focused data and make inferences on the larger population.
  - “Begin with the end in mind.” - Stephen Covey

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“Many hiring decisions start off on the wrong foot because the company hasn’t clarified exactly what it wants in the new hire.”


“The perfection of means and confusion of ends seems to characterize our age.” - Einstein

Both are needed, but value-focused studies or “what we want” should inspire longitudinal studies.
Consultation

3rd BCT, 1CD at Fort Hood (18-20 Nov 08):
• 48 sets of PL/PSG for modeling:
  • “WholeSoldier” Performance Attributes
  • Measurement of Attributes
  • Relative Importance of Attributes
  • “WholeRecruit” Potential Indicators

• 13 Platoons / 195 Soldiers for data collection:
  • SL/PSG/PL evaluations of performance on attributes & holistically
  • SL/PSG/PL weighting of Attributes
  • Soldier Questionnaire on Indicators

Army:
• Drill Sergeants
• Recruiters
• Past & Current Company Commanders
• Current SF Team Leaders
• SFAS (holistic assessment)

Others:
• Naval Special Warfare (C-SORT)
• FBI (Interview Process)
• Air Force (Emotional Intelligence)
• Crossfit and RAW (Functional Fitness)

Research:
• McKinsey Consulting
• ARI
• Rand
• ARCIC

USAREC / USAAC:
• MG Bostick
• Rick Ayer
• LTC Dorminey
• Mitch Stokan
• Frank Shaffery
• Kim Phillips
• LTG Freakley
• COL Schamburg
• LTC Bland
• LTC Lamm
• Judy Stephenson
• COL Bagley

USMA:
• Department of Behavioral Sciences & Leadership
• Department of Math Center for Data Analysis and Statistics
• Department of Physical Education
• Army COE for the Professional Military Ethic
• Center for Company Level Leaders
• Office of Plans, Policy, & Analysis
• Admissions Office
• Superintendent’s Office
“WholeSoldier”

**Performance Attributes**

- **Purpose:** Selfless Service, Sacrifice, Commitment, Loyalty, Duty
- **Motivation:** Will to Win, Endurance, Resilience, Stick-to-it-iveness, Heart / Drive, Determination, Determination, Determination, Determination
- **Character:** Honor, Integrity, Justice, Candor, Personal Courage
- **Conduct:** Maturity, Discipline, Bearing, Coolness
- **Interaction:** Respect, Empathy, Compassion, Humor
- **Knowledge:** Job Tasks/Skills, Education, Trainability, Learning
- **Judgment:** Common Sense, Logical Decisions, Understanding, Anticipation, Insight/Filtering, Adaptive/Flexible
- **Application:** Planning, Communicating, Executing
- **Medical Health:** Illness Resistance, Nutrition, Body Composition
- **Athletic Skills:** Coordination, Agility, Balance, Power, Speed, Accuracy, Flexibility, Reaction Time
- **General Fitness:** Cardio Endurance, Cardio Strength, Muscular Endurance, Muscular Strength
- **Self-Esteem:** Confidence, Self-Worth, Self-Efficacy
- **Moral Domain**
- **Physical Domain**

“The moral is to the physical as three is to one.”

- Napoleon
### Moral Domain

#### Purpose: Selfless Service, Commitment, Loyalty, Duty, Competitive, Action-Seeking

<table>
<thead>
<tr>
<th>KEY</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“Always” “Unacceptable” “Separate from Army”</td>
<td>“Most of the time” “Very Bad” “Problem Soldier”</td>
<td>“Sometimes” “Bad” “Needs a bit of work”</td>
<td>“Neutral” “Only what is required” “Just Enough”</td>
<td>“Sometimes” “Good” “Bit more than standard”</td>
<td>“Most of the time” “Very Good” “Solid Performer”</td>
<td>“Always” “Example for others” “One of the very best”</td>
</tr>
</tbody>
</table>

Soldier has an individualistic attitude. Soldier tends to put personal well-being before others and unit tasks. Soldier doesn’t seem driven from anything within.

Soldier shows no positive or negative attitudes towards the team.

Soldier feels committed to internalizing inherited values of the Army. Soldier is a self-less member of a team and is pro-active in understanding the Army/Unit/PLT mission.

#### Motivation: Will to Win, Endurance, Resilience, Stick-to-it-iveness, Heart, Internal Drive, Determination

Soldier lacks the resilience and internal drive to get the job done. Soldier quits and brings others down around him/her. Soldier doesn’t try very hard. Soldier doesn’t respond well to setbacks.

Soldier displays minimal effort required.

Soldier possesses the will to win and puts forth best effort. Soldier won’t quit. Soldier inspires motivation in others through his/her actions. Soldier is willing to help others and can be counted on.

#### Social: Respect, Empathy, Compassion, Humor

Soldier is cynical and negative. Soldier is indifferent towards other soldiers. Soldier has not put forth effort to interact with others and has a tendency to keep to him/herself. Soldier is awkward in his/her interactions with others.

Soldier is able to interact, yet only does it when necessary.

Soldier is comfortable in a social environment. Soldier is respectful and outgoing in the company area. Soldier is humorous and keeps PLT spirits up during difficult times. Others turn to this Soldier for support when they need help or just need a laugh.

#### Conduct: Maturity, Discipline, Bearing, Coolness

Soldier constantly disobeys orders and purposely undermines chain of command. Soldier performs tasks only when under supervision. Soldier has problems taking care of his/her personal business. Soldier cares more about what is cool than what is right.

Soldier has merely acceptable conduct.

Soldier performs well without supervision. Soldier tries to do the right thing. Soldier has exceptional military bearing and encourages others. Others look to this Soldier when things are rough. Soldier doesn’t lose his/her cool under stress.

#### Character Ethic: Honor, Integrity, Justice, Candor, Personal Courage, Work Ethic

Soldier lies and cannot be trusted alone. Soldier is naive and lacks the integrity to perform essential tasks. Soldiers’ actions don’t match his/her words. Soldier’s first response is to look for loopholes rather than the right answer. Soldier doesn’t seem to be concerned with fairness or justice. Soldier doesn’t take ownership of mistakes.

Soldier displays minimal confidence level.

Soldier displays confidence in his/her interactions with others. Soldier believes that he/she will accomplish the goals that he/she goes after. Soldier is secure and will try new things even if they might fail.

Soldier displays marginal character.

Soldier is willing to stick up for what is right. Soldier accepts the mistakes he/she has made and strives to make corrections. Soldier is trustworthy and honorable. Soldier will tell the truth even when it is painful. Soldier won’t omit negative information.

#### Self Esteem: Self-Efficacy, Self Worth, Confidence

Soldier doesn’t believe in himself/herself. Soldier lacks self-confidence and is unsure whether or not he/she will reach his/her goals. Soldier isn’t willing to try new things. Soldier thinks of excuses when failure may happen.

Note: This is based on our consultation with PL/PSG teams. Their thoughts were generally organized into good/bad/neutral performance behaviors, but they used different descriptors for levels of good/bad.
### “WholeSoldier” Performance Measurement

#### Cognitive & Physical Domains

<table>
<thead>
<tr>
<th>Thought: Adaptability, Assertiveness, Decisiveness, Initiative, Flexibility, Common Sense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soldier has zero originality when giving input to the team. Soldier is stubborn to change the way he/she has performed tasks in the past. Soldier does not show assertiveness and tends to follow what everyone else is doing. Soldier has trouble with everyday decisions. Soldier has difficulty thinking about problems from multiple perspectives.</td>
</tr>
<tr>
<td>Soldier provides input only when asked.</td>
</tr>
<tr>
<td>Soldier has a willingness to be open-minded and flexible to change. Soldier thinks on his/her own and provides solutions to the team. Soldier identifies multiple creative alternatives to fix the problem. Soldier can decide at the right time without hesitation. Soldier knows when to decide and when to gather more information.</td>
</tr>
</tbody>
</table>

#### Capability: Visualization, Motor Coordination, Technical, Analysis/Insight, Conceptualization, Filtering/Multi-Tasking

| Soldier lacks the technical competence to complete tasks. Soldier is continually reliant on others. Soldier can’t “see” or “feel” the situation and separate the important factors. Soldier can’t handle more than one task at a time. |
| Soldier has enough ability to complete tasks. |
| Soldier is able to understand and apply information to complete tasks. Soldier has shown ability to perform more than one task at a time up to standard. Soldier has provided insight on problems that has led to a better overall understanding of a problem for the team. Soldier sees the “big picture” and knows what is important. |

#### Knowledge: Education, Trainability, Capacity

| Soldier is untrainable and has shown an unwillingness to learn. Soldier has trouble applying what he/she has been taught. Soldier is slow to catch on. Soldier can’t retain much. |
| Soldier has a basic understanding of his/her MOS |
| Soldier knows what is expected of him/her and attempts to learn more. Soldier knows his/her tasks, two levels up, and continually seeks higher learning. Soldier is an intelligent, life-long learner. |

#### Physical Fitness: Endurance, Stamina, Strength, Flexibility, Power, Speed, Coordination, Agility, Balance, Accuracy

| Soldier cannot carry his/her share of the load. Soldiers does not meet established Army standards. Soldier is awkward/unathletic on tasks requiring coordination. |
| Soldier meets minimal physical requirements |
| Soldier carries more than his/her share of the load. Soldier meets and exceeds established Army standards. Soldier is an athlete and can accomplish any task. |

#### Medical Fitness: Illness Frequency, Physical Wellness

| Soldier is continually on profile or at sick call. Soldier is prone to accidents. Soldier is sickly and lacks energy. |
| Soldier is of average medical health |
| Soldier is not hindered greatly by sickness. Soldier takes care of his/her body to prevent illness. |

---

**Note:** This is based on our consultation with PL/PSG teams. Their thoughts were generally organized into good/bad/neutral performance behaviors, but they used different descriptors for levels of good/bad.

**Note:** The domain attributes have been updated slightly since data was collected based on continued conversations with the Department of Physical Education and Department of Behavioral Science and Leadership.
Finding:
- The moral domain is most important!

Insight:
- “Sir, if these boys show up with heart then I can train their bodies and minds.”
- We currently screen in the physical and cognitive domains; leaders in the field may see far more variation in the moral domain.

Conclusion:
- We need to better assess and train in the moral domain...

Note: For the Infantry population alone, the best fit weights came to 59% Moral, 25% Cognitive, and 16% Physical. The weights shown above are the best fit for the entire population sampled, but the following data sample slides are from the Infantry population for visualization purposes.
**WholeSoldier** Sample Performance Report

*Infantryman #24*

**Moral Performance** = 44/59 = 5.22/7
- **Character** - Totally trustworthy, and always sticks up for what is right.
- **Purpose** - Displays commitment and self-sacrifice to the team 95% of the time.
- **Motivation** - Soldier puts forth max effort and only rarely gives less than his all.
- **Interaction** - Shows respect and is compassionate, but sometimes is awkward in interpersonal interactions.
- **Self-Esteem** - Doesn’t display confidence or view himself as a valuable member of the team.
- **Conduct** - Soldier displays maturity and discipline by completing tasks without supervision, but sometimes loses his cool when under stress.

**Cognitive Performance** = 15/25 = 4.20/7
- **Knowledge** - Soldier demonstrates total knowledge of MOS tasks and studies to learn next level up.
- **Judgment** - Makes logical decisions, but has problems filtering irrelevant information.
- **Application** - Sometimes unable to plan effectively to implement decisions.

**Physical Performance** = 12/16 = 5.25/7
- **Fitness** - Scored 263 last APFT.
- **Athleticism** - Displays better than average coordination, agility in combat-focused tasks.
- **Health** - Maintains body better than average.

**WholeSoldier** Performance = 71/100 = 4.97/7

We can develop & decide...
### Method:

1. Assess sub-domain performance (1-7 rating).
2. Evaluate performance holistically (1-100 rating).
3. Use correlation analysis to infer sub-domain weights.

### Finding / Insight:

a. *WholeSoldier* “tells the story” of individual areas of relative strength and weakness and allows us to “see” the entire population.

### Conclusion:

a. We can provide many levels of distinction on WholeSoldier Performance.

b. WholeSoldier Performance assessment is useful feedback to subordinates for use as a developmental counseling tool.

c. WholeSoldier Performance is a good “endstate metric” and will provide information for sound decision-making in many areas.
**Primary Recommendation**

The Army should **routinely** assess “WholeSoldier” Performance along a **continuum** across the **entire force**. Using “WholeSoldier” Performance as an **endstate metric** opens the door to many **strategic possibilities** that will inform decisions relating to Soldiers.

- **Routinely** – The measurement of performance should be a standard practice. In implementation this might look like a new Developmental Counseling Form or Soldier Evaluation Report (SER) much like the OER/NCOER that will provide both detailed/holistic information to rated Soldiers and quality data for decision-making. We routinely assess the performance of officers and NCOs; why not Soldiers?

- **Continuum / Entire Force** – All retained/serving Soldiers are “successful.” We need to characterize their level of success/nature of service. Measuring only the “most” or “least” successful does not allow us to characterize along a continuum of success.

- **Endstate Metric** – We should measure “what we want” rather than “what is easily measured” such that we “begin with the end in mind.”

- **Strategic Possibilities** – Many are possible...see upcoming slides.
Recruit: Develop holistic model of “WholeRecruit” Potential longitudinally and:

» Quantify risks/opportunities involved in adjusting enlistment policies/standards.

» “Screen in” during times of recruiting difficulty and “screen out” in times of recruiting richness.

» Offer individual incentives for various MOS based on WholeRecruit Potential, desires of the candidate, and needs of the Army.

» Continually consider various “entry metrics” for updates to the WholeRecruit model.

» Adjust target market and allocate assets based on both quantity and quality.

» Adjust marketing message to target “who we want.”

» Issue recruiting missions to reflect a distinct quantity vs. quality balance.

**Strategic Possibilities (1 of 3)**

Given “WholeSoldier” Performance implementation, we can better:

- Expected Soldier Performance Given Varying Recruit Potential

**NOTE:** Only for discussion of possibilities; not intended as a conclusive result for use in current decisions.
Train:
» Offer individual training/education to those that are “best qualified” or “most needy.”
» Measure performance ROI of training/education programs.
» Design unit training/education to address performance trends.

Retain:
» Offer individual targeted incentives to retain “who we want.”

Promote/Assign:
» Understand attributes desired in next grade and promote “best qualified.”
» Assign the right individual to the right job or officer career field.
» Refine officer career track policies to develop them multi-dimensionally across career.
Accomplish the Mission:
» Relate WholeSoldier to WholeUnit performance by determining effects of differing portfolios of individual performance attributes combined to maximize unit performance through Systems Dynamics.

Allocate Resources:
» Investigate best allocation of budgetary resources across the DOTMLPF(EE) spectrum.

Warfighting Power:
\[ W = (D+O+M+F) \times (LP)^{TEE} \]

- **W** = Warfighting Power
- **L** = Leadership
- **P** = Personnel
- **T** = Training
- **E** = Experience
- **E** = Education

*Modified from GEN Schoomaker/GEN Boykin discussion*
“Above all, we must realize that no arsenal or weapon in the arsenals of the world is so formidable as the will and moral courage of free men and women.”

- President Ronald Reagan
The following sentiments came up in nearly every conversation with NCOs throughout the duration of this work.

**Drill Sergeants:**
“Sir, I can tell you who the ‘problem Soldiers’ are during the first part of Basic, but I can’t get rid of anybody...I hate sending some of these guys out to units because I wouldn’t want them in my platoon.”

**Platoon Sergeants:**
“Sir, I would rather take 28 squared-away Soldiers to combat than take all 30 with 2 ‘problem Soldiers.’”

Our NCOs are generally united in saying that the Quality / Quantity tradeoff is a problem within the Army today. The tone is very frustrated when they talk about this topic...I feel more like a counselor than a researcher at times.
Finding: There is no apparent relationship between “Cognitive Performance” as evaluated in units (different from academic definition) with AFQT score.

Insight: “Sir, I care a lot more about common sense than I do about book smarts.”

Conclusion: AFQT may not be a good predictor of what we want (quality) in terms of performance, but has been shown to be related to retention (quantity).

Data Source: Performance Data, USAREC Data, & Questionnaire Results as analyzed by ORCEN & CDAS
Finding: High school graduation appears to be an indicator, but not statistically significant in our data.
Insight: High school graduation may indicate some degree of “stick-to-it-iveness.”
Conclusion: With more data, confidence intervals on HS Grad may shrink.

Data Source: Performance Data, USAREC Data, & Questionnaire Results as analyzed by ORCEN & CDAS
Finding: Reasons for joining the service are statistically significant.

Insight: “Marines ‘issue a challenge’ / ‘sell it on service.’” –Dozens of interviewees

Conclusion: Pay and benefits may do a good job of impacting quantity as recruiting and marketing tools, but we would desire to inspire people to join for service, challenges, and the camaraderie of other good people when considering quality...

Data Source: Performance Data, USAREC Data, & Questionnaire Results as analyzed by ORCEN & CDAS
**Finding:** “Participation” in team sports displays statistically significant differences in physical performance evaluations...trend is useful in general linear model.

**Insight:** “We want athletes.” - Many along with CSM Pippin/COL Volesky, 3BCT, 1CD

**Conclusion:** The results are similar when viewed against total performance; team sports are a valuable indicator for more than just the physical domain.

**Data Source:** Performance Data, USAREC Data, & Questionnaire Results as analyzed by ORCEN & CDAS
Finding: Attitude toward help is statistically significant.

Insight: Those that report total self-reliance do not perform well...teamwork is a must.

Conclusion: Self-reliance during times of difficulty may indicate an inability to perform well on a team whose mission has inherent difficulty...

Data Source: Performance Data, USAREC Data, & Questionnaire Results as analyzed by ORCEN & CDAS
**Finding:** Being sought for help shows statistical significance...trend is useful in general linear model.

**Insight:** Soldiers seek out others that show strong cognitive performance...not the same as “academic performance.”

**Conclusion:** Cognitive performance, broadly defined, helps the team...

**Data Source:** Performance Data, USAREC Data, & Questionnaire Results as analyzed by ORCEN & CDAS
Finding: Confidence displays nearly statistically significant differences in physical performance evaluations...trend is useful in general linear model.

Insight: Confidence may relate to the mental strength needed for physical fitness.

Conclusion: Confidence is an attitude we want...differences may be better illuminated with more data.

Data Source: Performance Data, USAREC Data, & Questionnaire Results as analyzed by ORCEN & CDAS
Finding: Thankfulness displays statistically significant differences in performance evaluations...trend is useful in general linear model.

Insight: Thankfulness may be linked to generally positive attitude towards others.

Conclusion: Thankfulness is an attitude we want...differences may be illuminated with more data.

Data Source: Performance Data, USAREC Data, & Questionnaire Results as analyzed by ORCEN & CDAS
Finding: Respect for Authority displays statistically significant differences in moral performance evaluations...trend is useful in general linear model.

Insight: Respect for Authority is captured in moral performance evaluations.

Conclusion: Respect for Authority is an attitude we want...differences may be better illuminated with more data.

Data Source: Performance Data, USAREC Data, & Questionnaire Results as analyzed by ORCEN & CDAS
Finding: Frequency of tardiness is displays statistically significant differences in moral performance evaluations...trend is useful in general linear model.

Insight: Tardiness may be able to be measured easily/directly.

Conclusion: Tardiness may be an easily observable indicator that predicts performance in the moral domain.

Data Source: Performance Data, USAREC Data, & Questionnaire Results as analyzed by ORCEN & CDAS
**Finding:** 80% confidence that average Soldier Performance is higher for West South Central than for Middle Atlantic...Moral Performance drives this finding.

**Insight:** More data will allow us to see differences at state, county, and smaller levels...

**Conclusion:** With more performance data, we can better focus our recruiting efforts!!!

**Data Source:** Performance Data, USAREC Data, & Questionnaire Results as analyzed by ORCEN & CDAS
A Review of Millennial Generation Characteristics and Military Workforce Implications

Darlene E. Stafford • Henry S. Griffis
CNA’s Study on Millennials

- CNA tasked by the 10th Quadrennial Review of Military Compensation (QRMC)
- Study completed early in 2008
- Review the research on “Millennials (Gen Y, Gen Next, Internet Generation, Echo Boom, etc.)
- Explore the potential impact of targeted policies, especially compensation and retirement, on this cohort
Research Question

Are there characteristics and challenges so specific to Millennials that the military must develop targeted policies in order to appeal to this generational cohort?
Approach

• *Reviewed* current literature to explore some of the unique characteristics of this generation.
• *Identified* some key characteristics of Millennials that may affect the future workforce.
• *Analyzed* the empirical evidence from various data sources with respect to the key characteristics.
• *Explored* how employers respond to changing workforce expectations that may or may not be driven by generational characteristics.
Summary of findings

• Generational cohorts consist of diverse people who can’t accurately be depicted by the same character traits
• Some traits attributed to Millennials are a function of the age of the cohort, not the particular cohort
• Recruiting and retention are driven by the use of the right resources and incentives, regardless of cohort
• Some Millennial tendencies (on average):
  – They form a large cohort
  – Influencers are important
  – Use of technology is high, but not necessarily technological skills
  – Growth in educational attainment has been increasing, but is flat for young men
Background Issues

- Since the attacks of September 11, 2001, the military has increased the frequency and number of U.S. service members deployed to operations in Afghanistan and Iraq.
- Concerns surfaced about whether the All-Volunteer Force (AVF) is sustainable.
- Competition for “the best and the brightest” between the military services and civilian employers is rising.
- Baby boomers (many experienced managers) will retire in large numbers over the next decade.
- Since this study was completed, the economic environment has changed drastically.
What the “experts are saying.”

• **Neil Howe and William Strauss** - (Generational analysts/authors)
  - Generations produce observable historical patterns, based on events and circumstances that shape the lives of individuals according to which phase of life they occupy at the time
  - Millennials exhibit seven core traits: *special, sheltered, confident, team-oriented, conventional, pressured, achievement oriented.*
What the “experts are saying.”

- **Claire Raines** - (Generational analyst-workforce)
  - Young people are shaped by defining events, the media, parenting patterns, and societal moods.
  - There is value in broad generalizations when examining generational interactions in the workplace when they are used as flexible guidelines.
  - Millennials are sociable, optimistic, talented, well-educated, collaborative, open-minded, influential, and achievement oriented.
  - They are a large generational pool with great potential, they require special targeting techniques to recruit, manage, motivate and retain them, they have higher expectations than past generations, and they have different values, needs, and ways of doing things.
What the “experts are saying.”

- **Pew Research** - (Generational analysts/Authors)
  - Although young people today are different in some ways, it’s difficult to determine how different they are from past generations and to predict their behaviors in the future.
  - However, Millennials do have some unique characteristics: high use of technology (e.g., texting, internet, etc.), strong cohort identification, influencers matter much, high educational aspirations, desire for work/life balance, desire for wealth/fame.
Issues with “popular” generational research

• Using broad generalizations and datelines to understand generational differences is questionable. People are complex, not fitting neatly into these categories.
• Popular literature characterizing various generations lacks scientific quality. Hypotheses must be empirically tested.
• Many popular youth studies do not entail systematic collection and evaluation of data, but use selective data instead. They often lack representative sample populations.
• Many popular studies rely on single point-in-time data, rather than longitudinal data studies, which would offer greater validity in observing cohort change over time.
Millennial characteristics and workforce implications: *Optimism*

- Millennials are often characterized as extremely optimistic in their attitudes about life and the future.

- Surveys indicate that Millennials have high expectations for a bright future, positive attitudes about their potential, a sense of entitlement, and they are team players.

- *Millennial optimism may prove to be an asset to employers and other segments of society. Employers may benefit from a clear understanding of Millennial goals and perceptions.*
Examination of Millennial characteristics through empirical data sources

- **Unemployment** - Millennials had lived most of their lives under market conditions with relatively low unemployment rates (since the mid-1990s).

- The low unemployment rate meant that there were many options available to all workers, including Millennials.

- *This created a challenge for the military services, but with the current recession, this has now turned into an opportunity for the military.*
Millennial characteristics and workforce implications: Influencers

- Surveys indicate that Millennials rely on family, peers, and other influencers for daily interaction and for making decisions in life.
- A Pew Research poll reported a higher frequency of contact with parents daily compared to other age cohorts (e.g., text messaging, “helicopter parent” visits, cell phone calls).
- Influencers play an important role in the decisions of youth to join the military. Studies show that Millennials possess a particularly strong inclination toward social dependencies.
- *The evidence builds a strong case for the significance of the role of parents and veterans, or the lack of such influencers, on enlistment decisions of Millennials.*
Veteran influencers are declining
Millennial characteristics and workforce implications: Technology

• Millennials embrace the use of technology more than any previous generation because they were born into an advanced digital society. According to analysts and others, they use technology to communicate who they are, what they think, and how they live.

• There is a “digital divide” based on such factors as family income and race/ethnicity, even among Millennials, in terms of who has access and the type of technology to which they’ve been exposed.

• Millennial tech savvy pertains more to Internet searches and portals, text messages, cell phone usage, and computer gaming.

• Technological skills most sought after by employers today involve training in math, engineering, computer, and health sciences. Training will still be needed to close the gaps.
## Use of Internet and real-time technologies

### Send/receive email

<table>
<thead>
<tr>
<th>In the past 24 hours did you...</th>
<th>18-25</th>
<th>26-40</th>
<th>41-60</th>
<th>61+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>50</td>
<td>61</td>
<td>52</td>
<td>32</td>
</tr>
<tr>
<td>No</td>
<td>38</td>
<td>30</td>
<td>22</td>
<td>18</td>
</tr>
<tr>
<td>Not an internet user</td>
<td>12</td>
<td>9</td>
<td>26</td>
<td>50</td>
</tr>
<tr>
<td>Don’t know</td>
<td>0</td>
<td>0</td>
<td>*</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

### Send/receive a text message on a cell phone

| Yes                             | 51    | 26    | 10    | 4   |
| No                              | 49    | 73    | 90    | 96  |
| Don’t know                      | *     | 1     | 0     | *   |
| **Total**                       | 100   | 100   | 100   | 100 |

### Send/receive an instant message

| Yes                             | 29    | 22    | 12    | 7   |
| No                              | 59    | 69    | 62    | 43  |
| Not an internet user            | 12    | 9     | 26    | 50  |
| Don’t know                      | 0     | 0     | *     | 0   |
| **Total**                       | 100   | 100   | 100   | 100 |

(Pew Research Poll; 2006)
Examination of Millennial characteristics through empirical data sources

• **Size of the cohort** - As of 2006, this multiethnic/multiracial cohort exceeded 100 million (including immigrants), surpassing the Baby Boomer cohort of 77 million.

• U.S. military, the Federal Government, civilian employers, universities, and other employers have been in fierce competition for the best and the brightest of the newly emerging workforce pool.

• According to the 2006 Youth Poll report, of about 32 million American youth in the prime recruiting age group (17 to 24), many are not eligible for military service due to medical, financial, moral, and legal problems.

• **Minority youth are increasing as a percentage of the cohort size, but minority youth have recently been less likely to enter the military.**
Examination of Millennial characteristics through empirical data sources

- **Higher education** – The literature claims Millennials are very intent on going to college (Howe and Strauss; 2007). However, empirically much of the increase in college attendance is driven by older students and female students.

- Thus, generational cohort is only one factor among others. Higher education is becoming the norm for people of all ages and in all seasons of life.

- **The increasing trend toward higher education could make it more difficult for the military to attract young recruits, but opportunities for paid education and training may create attractive incentives.**

- So far the military’s core recruiting population (young men) is not as affected by this trend.
Bachelor’s degree or higher, age 18 to 25
Community colleges provide a potential recruitment pool

- Costs are increasing for both 2- and 4-year colleges.
- Students in 2-year colleges may actually be easier to recruit because they have not committed to 4-year-long courses of study and financial obligations.
- They may also be more likely to take advantage of educational incentives offered by employers to reduce their education costs.
- Students currently enrolled in community colleges, dropouts or graduates who’ve entered the workforce, and high school seniors with plans to enroll in community colleges may have recruitment potential.
Community college trends

Peggy Golfin, CNA; 2007
Examination of Millennial characteristics through empirical data sources

• **Compensation** – Research shows that the value people place on education is correlated with their expected and actual earnings potential. In fact, higher education does lead to higher earnings. There are however, variations by race and gender (White males earning more.)

• *While employers shouldn’t put much stock in popular surveys of youth wage expectations, they should keep abreast of labor market compensation data.*

• *Response to compensation hasn’t changed significantly across cohorts.*
Mean earnings for men and women combined (ages 18 to 24) in real dollars: 1991 to 2005
Examination of Millennial characteristics through empirical data sources

• **Retirement** – recent studies report that the vast majority of young workers are failing to take advantage of retirement and other tax-deferred account opportunities.

• Young people are more focused on near-term goals.

• **Retirement benefits are undervalued early in the career**—they are not the most efficient placement of scarce compensation resources.
Summary of findings

• Generational cohorts consist of diverse people who can’t accurately be depicted by the same character traits
• Some traits attributed to Millennials are a function of the age of the cohort, not the particular cohort
• Recruiting and retention are driven by the use of the right resources and incentives, regardless of cohort
• Some Millennial tendencies (on average):
  – They form a large cohort
  – Influencers are important
  – Use of technology is high, but not necessarily technological skills
  – Growth in educational attainment has been increasing, but is flat for young men
Purpose/Background

New Sailor Survey (NSS) - 27 Item questionnaire designed to obtain new sailors’ opinions on:

• Reasons for joining the Navy
• Classification Experience
• Delayed Entry Program (DEP)
• Recruitment Experience
Purpose/Background

• Administrations scheduled quarterly at Recruit Training Command (RTC), Great Lakes for one-week intervals
  - Wave 1 - Week of November 17, 2008
  - Wave 2 - Week of February 9, 2009
  - Wave 3 - Week of May 11, 2009
  - Wave 4 - Week of August 10, 2009

• Survey administered to recruits online on P-1 Day under supervision of Recruit Quality Assurance Team (RQAT) staff
New Sailor Survey
Demographics

FY 09 Total Respondents  \( N = 2718 \)
- Male \( 83\% \)
- Female \( 17\% \)
- Single \( 89\% \)
- Married \( 10\% \)

Race/Ethnicity
- White \( 64\% \)
- African American or Black \( 21\% \)
- American Indian or Native Alaskan \( 3\% \)
- Asian or Pacific Islander \( 7\% \)
- Hispanic \( 16\% \)

Gender and race/ethnicity representation similar to FY08
New Sailor Survey Results
Reasons for Joining

The 4 most influential reasons to join remain consistent.
CLASSIFICATION EXPERIENCES
New Sailor Survey Results
Classification Experiences

“How satisfied were you with the amount of time you spent with your classifier?”

Fewer sailors are satisfied with classification
New Sailor Survey Results
Classification Experiences

Respondents were asked “To what extent was each of the following explained to you?”

- Special Programs Available: 3.29
- Bonus Programs Available: 3.14
- School Guaranteed: 3.42
- Jobs Available: 3.60
- Job Assigned: 3.63
- Importance of ASVAB: 3.60

Classifiers give greater explanation of Jobs than Programs
DEP EXPERIENCES
## New Sailor Survey Results
### DEP Experiences

### How long were you in the DEP?
<table>
<thead>
<tr>
<th>Duration</th>
<th>FY 09 Totals</th>
<th>FY08 Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1 month</td>
<td>10%</td>
<td>14%</td>
</tr>
<tr>
<td>2-3 months</td>
<td>15%</td>
<td>23%</td>
</tr>
<tr>
<td>4-6 months</td>
<td>36%</td>
<td>42%</td>
</tr>
<tr>
<td>7-9 months</td>
<td>27%</td>
<td>13%</td>
</tr>
<tr>
<td>10 or more</td>
<td>12%</td>
<td>8%</td>
</tr>
</tbody>
</table>

### How long were your DEP meetings?
<table>
<thead>
<tr>
<th>Duration</th>
<th>FY 09 Totals</th>
<th>FY08 Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 15 minutes</td>
<td>3%</td>
<td>7%</td>
</tr>
<tr>
<td>15 – 30 minutes</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>30 – 60 minutes</td>
<td>27%</td>
<td>22%</td>
</tr>
<tr>
<td>60 – 90 minutes</td>
<td>41%</td>
<td>46%</td>
</tr>
<tr>
<td>&gt; 90 minutes</td>
<td>22%</td>
<td>22%</td>
</tr>
</tbody>
</table>

### Approximately how many DEP meetings did you attend?
<table>
<thead>
<tr>
<th>Attendance</th>
<th>FY 09 Totals</th>
<th>FY08 Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>4%</td>
<td>7%</td>
</tr>
<tr>
<td>1-3</td>
<td>30%</td>
<td>41%</td>
</tr>
<tr>
<td>4-6</td>
<td>35%</td>
<td>32%</td>
</tr>
<tr>
<td>7-9</td>
<td>18%</td>
<td>11%</td>
</tr>
<tr>
<td>10 or more</td>
<td>13%</td>
<td>9%</td>
</tr>
</tbody>
</table>

**More recruits stay in DEP at least 7 months**
New Sailor Survey Results

DEP Experiences

“To what extent was the information you received in the DEP accurate?”

Most recruits getting accurate information in DEP
New Sailor Survey Results

DEP Experiences

“What progress did you make on DEP Personal Qualification Standards (PQS)?”

- Completed the PQS (46%)
- Did not complete any of the PQS (20%)
- Only finished part of the PQS (25%)
- Never heard of PQS (9%)

Most recruits do not complete the PQS before entering RTC
New Sailor Survey Results

Recruiting Experiences

Recruiters addressing recruits’ questions and concerns

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>All my questions were answered by my recruiter</td>
<td>42%</td>
<td>39%</td>
<td>13%</td>
<td>5%</td>
<td>1%</td>
</tr>
<tr>
<td>All my concerns were answered by my recruiter</td>
<td>41%</td>
<td>37%</td>
<td>14%</td>
<td>6%</td>
<td>2%</td>
</tr>
<tr>
<td>My recruiter made me feel comfortable enough to ask questions</td>
<td>52%</td>
<td>36%</td>
<td>8%</td>
<td>3%</td>
<td>1%</td>
</tr>
</tbody>
</table>

0% 20% 40% 60% 80% 100%
New Sailor Survey Results

Recruiting Experiences

Recruiter was thorough in responses to questions
- Strongly Agree: 37%
- Agree: 44%
- Neutral: 12%
- Disagree: 5%
- Strongly Disagree: 2%

My recruiter was honest with me
- Strongly Agree: 41%
- Agree: 42%
- Neutral: 12%
- Disagree: 4%
- Strongly Disagree: 1%

My recruiter provided me with correct info
- Strongly Agree: 40%
- Agree: 42%
- Neutral: 13%
- Disagree: 4%
- Strongly Disagree: 1%

Recruiters providing thorough, honest, and accurate information to recruits
New Sailor Survey Results
Recruiting Experiences

Three out of four recruits would recommend the Navy to a friend
New Sailor Survey Results
Recruiting Experiences

Most recruiters are receiving positive ratings from their recruits
Since FY07 8,471 New Sailor Surveys have been administered by NRC

- Sailors continue to report overall satisfaction with recruiters and DEP
- Sailors are less satisfied with classification
- Factors influencing the decision to join remain fairly consistent
- Navy Recruiting Command will continue quarterly administrations of NSS in FY10
QUESTIONS
New Sailor Survey Results

Prior contact with military

- New recruits were asked whether any of their family members were currently or have ever served in the military
- Over 70% of new recruits reported at least 1 family member who was currently or previously in the military

<table>
<thead>
<tr>
<th>Family Member</th>
<th>Count (n)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grandparent</td>
<td>1387</td>
<td>51%</td>
</tr>
<tr>
<td>Father</td>
<td>861</td>
<td>32%</td>
</tr>
<tr>
<td>Sibling (brother or sister)</td>
<td>416</td>
<td>15%</td>
</tr>
<tr>
<td>Mother</td>
<td>143</td>
<td>5%</td>
</tr>
</tbody>
</table>

Prior Service contact results are consistent with those from FY08
## New Sailor Survey Results

### DEP Experiences

On average, how many times did you meet with your recruiter while in DEP?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>FY09 Totals</th>
<th>FY08 Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than once per month</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>Once per month</td>
<td>30%</td>
<td>29%</td>
</tr>
<tr>
<td>Once every two weeks</td>
<td>31%</td>
<td>32%</td>
</tr>
<tr>
<td>Once per week or more</td>
<td>34%</td>
<td>34%</td>
</tr>
</tbody>
</table>

Was the number of contacts with your recruiter before coming to RTC?

<table>
<thead>
<tr>
<th>Perception</th>
<th>FY09 Totals</th>
<th>FY08 Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too few</td>
<td>19%</td>
<td>20%</td>
</tr>
<tr>
<td>About right</td>
<td>78%</td>
<td>77%</td>
</tr>
<tr>
<td>Too many</td>
<td>3%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Most recruits are satisfied with the number of recruiter contacts
New Sailor Survey Results

Time in DEP by DEP Meetings Attended

Most recruits are attending the expected number of DEP meetings
New Sailor Survey Results
Recruiting Experiences

<table>
<thead>
<tr>
<th>Did your recruiter explain your responsibilities while in the DEP?</th>
<th>FY 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>90%</td>
</tr>
<tr>
<td>No</td>
<td>5%</td>
</tr>
<tr>
<td>I really don’t remember if my recruiter did or did not</td>
<td>5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Did your recruiter meet with your parent(s)?</th>
<th>FY 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, once</td>
<td>30%</td>
</tr>
<tr>
<td>Yes, more than once</td>
<td>41%</td>
</tr>
<tr>
<td>No</td>
<td>15%</td>
</tr>
<tr>
<td>NA, parents were not involved with enlistment process</td>
<td>14%</td>
</tr>
</tbody>
</table>

Recruiters explaining responsibilities to recruits but not always meeting parents
“How difficult do you think Recruit Training Command (RTC) will be?”

Respondents expect similar level of difficulty at RTC compared to FY08
New Sailor Survey Results
DEP Experiences

The DEP meetings were well organized
- 31% Strongly Agree
- 39% Agree
- 20% Neutral
- 7% Disagree
- 3% Strongly Disagree

My recruiter provided me with useful information at DEP meetings
- 37% Strongly Agree
- 40% Agree
- 16% Neutral
- 5% Disagree
- 2% Strongly Disagree

Most recruits found their DEP meetings to be organized and useful
**New Sailor Survey**

**FY09 Enlistment Incentives and Impact**

Type of Enlistment Incentive Received and Impact of Incentive on Decision to Enlist

FY09 combined totals

- **Bonus of $5000 or less**
  - No impact: 64
  - Little Impact: 41
  - Moderate Impact: 28
  - Great Impact: 17
  - Would Not Have Enlisted Without It: 9

- **Bonus over $5000**
  - No impact: 305
  - Little Impact: 262
  - Moderate Impact: 200
  - Great Impact: 98
  - Would Not Have Enlisted Without It: 30

- **Loan repayment**
  - No impact: 7
  - Little Impact: 7
  - Moderate Impact: 16
  - Great Impact: 22
  - Would Not Have Enlisted Without It: 9

- **Navy College Fund**
  - No impact: 64
  - Little Impact: 35
  - Moderate Impact: 26
  - Great Impact: 17
  - Would Not Have Enlisted Without It: 4

- **Combination**
  - No impact: 16
  - Little Impact: 8
  - Moderate Impact: 12
  - Great Impact: 8
  - Would Not Have Enlisted Without It: 2

**Most incentives did not have much impact on decision to enlist**
New Sailor Survey Results
Recruiting Experiences

“Did a Navy recruiter show you a comparison of the potential salary and education benefits you could receive by enlisting in the Navy versus working and/or going to school?”

- Yes (68%)
- No (20%)
- Don’t remember (12%)

Most recruits recall seeing a salary comparison from their recruiter.
New Sailor Survey Results
New GI Bill Awareness

“Were you aware of the changes in benefits in the new GI Bill?”

- Yes, my recruiter told me (67%)
- Yes, learned about it from another source (15%)
- No (18%)

n = 2153

Most recruits reported awareness of the new GI Bill
New Sailor Survey Results

Impact of New GI Bill

“What impact did the new GI Bill have on your decision to enlist?”

- No impact on decision: 31%
- Little impact on decision: 23%
- Moderate impact on decision: 21%
- Great impact on decision: 19%
- Would not have enlisted without new GI Bill: 6%

n = 1775

The new GI Bill had little or no impact on over half of new recruits’ decision to enlist
Performance Based Costing at Navy Recruiting Command

Mike Sumrall, Deloitte Consulting LLP
Agenda

- Cost Model Purpose
- Cost Modeling Basics
- Value Streams
- Key model elements
- Model Demonstration
Continuous Performance Improvement

- Focuses the vision to move the enterprise forward
- “Strategy for Our People”
- Necessary for NSPS Support

High Performing Organizations focus on long-term success to produce exceptional results in customer service, employee development, social responsibility, innovation, and financial gain

- Driven by Strategic Issues
- Strategic significance drives process selection
- Lean Six Sigma is mandated by DoD/SecNav

- Demonstrates accountability and produces results
- Enables evidence-based decision making
- Process Costs provide direction for resource allocation & improvements
MPTE Street-to-Fleet Supply Chain
Performance Based Costing Initiative

Pilot project demonstrated that methodology was capable of capturing the cost of a recruit by enlisted rate and/or officer category.

Phase II goals were capture the cost of enlisted and officer applicants and provide additional detail by:

- Gender (enlisted only)
- Quality as expressed by ASVAB score
- Diversity
- Impact of Enlisted DEP attrition and Officer Non-Selects

Model developed to support the five major value streams managed by Navy Recruiting Command.
Navy Recruiting Core Value Streams

For the purposes of cost modeling and LSS CPI initiatives, NRC supports five core value streams:

- Active Enlisted
- Reserve Enlisted
- Active Officers
- Reserve Officers
- NROTC

The PBC Model flows along these value streams!
“Process Based” Costing Fundamentals

The “ends” or outputs are first

- Budget
- Resources
- Sub-processes
- Direct Processes
- Fully-costed Processes
- Outputs

- Sub-processes are the work done in the functions
- A unique process creates each service, comprising work processes
- Work processes are of three types

Work “flows” through the model based on output quantity and productivity assumptions
NRC Cost Model Structure

- **Funding**
- **Personnel**
- **Resource Pools**
- **Recruiting Processes**
  - **NRD Output Costs**
  - **NRD Output Costs + OH**
  - **National Recruiting Group Costs**
  - **National Recruit Group Costs + HQ OH**
  - **DEP Attrition & Officer Non-Selects**
  - **Total Cost by Recruiting Group**
  - **Shipped Unit Cost by Rating /Designator**
  - **Shipped Unit Cost + Bonuses**
The Big Picture of Recruiting Costs – FY2008

High Level Program Costs

- 99 REN [Reserve Enlisted NPS]
- 99 MO [Medical Officers]
- 99 AO [Active Officers]
- 99 RO [Reserve Officers]
- 99 AE [Active Enlisted]
- 99 REP [Reserve Enlisted Prior Service]
- 99 ROTC [NROTC]
Costs Relative to Gender & Quality

BU Rating Costs by Program and Gender

Calculated unit cost

Objects

- 99 REN BU NPSB FA
- 99 REN BU NPSB MA
- 99 REN BU NPSB FD
- 99 REN BU NPSB FCu
- 99 AE BU 5YO FA
- 99 REN BU NPSB MCu
- 99 REN BU NPSB FB
- 99 REN BU NPSB MD
- 99 REN BU NPSB MB
- 99 AE BU 5YO MA
- 99 AE BU NCSA MA
- 99 AE BU NCSA FA
- 99 AE BU SF MA
- 99 AE BU PACT MA
- 99 AE BU 5YO FB
- 99 AE BU 5YO FCu
- 99 AE BU 5YO MB
- 99 AE BU 5YO MCu
- 99 AE BU PACT MCu
- 99 AE BU SF FA
- 99 AE BU SF Mcu

NRC Actuals/FY08
Impact of Quality Costs in FY08

In FY08, NRC achieved 73% UMG against Navy goal of 70%

- DoD minimum is 60%
- Recruiter LOE is significantly higher for UMG as compared to LMG applicants
- A Cells are 8X the LOE of D Cells, B Cells are 3X LOE of D Cell, C Cells and D Cells are at base value of 1
- Leveraging this assumption:

<table>
<thead>
<tr>
<th>% Quality</th>
<th>Recruiters</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>73%</td>
<td>4412</td>
<td>$309M</td>
</tr>
<tr>
<td>70%</td>
<td>4262</td>
<td>$298</td>
</tr>
<tr>
<td>3%</td>
<td>150</td>
<td>$11M</td>
</tr>
</tbody>
</table>

-4.06.9.22
Impact of Quality Costs in FY08

In FY08, Attrition played a big impact on recruiting costs

- DEP Attrition Rate is proportional to time spent in DEP

<table>
<thead>
<tr>
<th>Program</th>
<th>Contracted</th>
<th>Shipped</th>
<th>Attrition %</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Female A</td>
<td>6690</td>
<td>4835</td>
<td>27.7%</td>
</tr>
<tr>
<td>General Female B</td>
<td>419</td>
<td>293</td>
<td>30.1%</td>
</tr>
<tr>
<td>General Female Cu</td>
<td>3632</td>
<td>2585</td>
<td>28.8%</td>
</tr>
<tr>
<td>General Female D</td>
<td>15</td>
<td>9</td>
<td>40.0%</td>
</tr>
<tr>
<td>General Male A</td>
<td>22604</td>
<td>18910</td>
<td>16.3%</td>
</tr>
<tr>
<td>General Male B</td>
<td>2313</td>
<td>1898</td>
<td>17.9%</td>
</tr>
<tr>
<td>General Male Cu</td>
<td>10345</td>
<td>8538</td>
<td>17.5%</td>
</tr>
<tr>
<td>General Male D</td>
<td>174</td>
<td>143</td>
<td>17.8%</td>
</tr>
<tr>
<td>Nuc Female A</td>
<td>318</td>
<td>240</td>
<td>24.5%</td>
</tr>
<tr>
<td>Nuc Male A</td>
<td>2635</td>
<td>2293</td>
<td>13.0%</td>
</tr>
<tr>
<td>NSW/NSO Female A</td>
<td>41</td>
<td>26</td>
<td>36.6%</td>
</tr>
<tr>
<td>NSW/NSO Female B</td>
<td>3</td>
<td>2</td>
<td>33.3%</td>
</tr>
<tr>
<td>NSW/NSO Female Cu</td>
<td>2</td>
<td>2</td>
<td>0.0%</td>
</tr>
<tr>
<td>NSW/NSO Male A</td>
<td>2134</td>
<td>1868</td>
<td>12.5%</td>
</tr>
<tr>
<td>NSW/NSO Male B</td>
<td>114</td>
<td>98</td>
<td>14.0%</td>
</tr>
<tr>
<td>NSW/NSO Male Cu</td>
<td>160</td>
<td>144</td>
<td>10.0%</td>
</tr>
<tr>
<td></td>
<td>51599</td>
<td>41884</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program</th>
<th>Contracted</th>
<th>Selected</th>
<th>Non-Select %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active General Officer Students</td>
<td>600</td>
<td>469</td>
<td>21.8%</td>
</tr>
<tr>
<td>Active Dental Corps</td>
<td>20</td>
<td>15</td>
<td>25.0%</td>
</tr>
<tr>
<td>Active Medical Student</td>
<td>595</td>
<td>474</td>
<td>20.3%</td>
</tr>
<tr>
<td>Active Medical Service Corps</td>
<td>144</td>
<td>106</td>
<td>26.4%</td>
</tr>
<tr>
<td>Active Medical Corps</td>
<td>13</td>
<td>12</td>
<td>7.7%</td>
</tr>
<tr>
<td>Active Nurse Corps</td>
<td>102</td>
<td>85</td>
<td>16.7%</td>
</tr>
<tr>
<td>Active General Officers</td>
<td>2358</td>
<td>1365</td>
<td>42.1%</td>
</tr>
<tr>
<td>Active Chaplains</td>
<td>116</td>
<td>100</td>
<td>14.1%</td>
</tr>
<tr>
<td>Active Chaplain Students</td>
<td>48</td>
<td>45</td>
<td>6.3%</td>
</tr>
<tr>
<td>Reserve Medical Corps</td>
<td>265</td>
<td>259</td>
<td>2.3%</td>
</tr>
<tr>
<td>Reserve Dental Corps</td>
<td>33</td>
<td>30</td>
<td>8.8%</td>
</tr>
<tr>
<td>Reserve Medical Service Corps</td>
<td>34</td>
<td>33</td>
<td>2.8%</td>
</tr>
<tr>
<td>Reserve Nurse Corps</td>
<td>95</td>
<td>89</td>
<td>6.3%</td>
</tr>
<tr>
<td>Reserve Chaplains</td>
<td>33</td>
<td>30</td>
<td>9.1%</td>
</tr>
<tr>
<td>Reserve General Officers</td>
<td>1365</td>
<td>1046</td>
<td>23.4%</td>
</tr>
<tr>
<td></td>
<td>5822</td>
<td>4158</td>
<td></td>
</tr>
</tbody>
</table>
# Impact of Diversity Initiative on Applicant Costs

<table>
<thead>
<tr>
<th>Program</th>
<th>FY07</th>
<th>FY08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enlisted Diversity Advertising</td>
<td>$4.3M</td>
<td>$22.2M</td>
</tr>
<tr>
<td>Officer Diversity Advertising</td>
<td>$15.1M</td>
<td>$9.6M</td>
</tr>
<tr>
<td>Enlisted Diversity Programs</td>
<td>$5.7M</td>
<td>$4.3M</td>
</tr>
<tr>
<td>Enlisted Diversity</td>
<td>20,008/40,578 (49.3%)</td>
<td>22,560/41,804 (53.9%)</td>
</tr>
<tr>
<td>Enlisted Diversity Applicant Cost</td>
<td>$318</td>
<td>$1,132</td>
</tr>
<tr>
<td>Officer Diversity</td>
<td>458/2525 (18.1%)</td>
<td>722/3514 (20.4%)</td>
</tr>
<tr>
<td>Officer Diversity Applicant Cost</td>
<td>$40,548</td>
<td>$14,474</td>
</tr>
</tbody>
</table>
FY08 Medical Officers

Active Medical Program Officer Applicant Costs

Calculated unit cost

<table>
<thead>
<tr>
<th>Objects</th>
<th>Calculated unit cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>99 AO MED MSC [MSC]</td>
<td>38,000</td>
</tr>
<tr>
<td>99 AO MED DC [DC]</td>
<td>36,000</td>
</tr>
<tr>
<td>99 AO MED NC [NC]</td>
<td>34,000</td>
</tr>
<tr>
<td>99 AO MED MC [MC]</td>
<td>32,000</td>
</tr>
<tr>
<td>99 AO MED MC STU [MC STU]</td>
<td>30,000</td>
</tr>
<tr>
<td>99 AO MED DC STU [DC STU]</td>
<td>28,000</td>
</tr>
<tr>
<td>99 AO MED MSC STU [MSC STU]</td>
<td>26,000</td>
</tr>
<tr>
<td>99 AO MED NC STU [NC STU]</td>
<td>24,000</td>
</tr>
</tbody>
</table>
NROTC Program

In FY08, NRC achieved 5,494 NROTC Applications

- 5% of recruiting time is allocated to NROTC scholarship season (approx. 2.6 weeks)
- These costs also carry their “fair share” of shared and sustaining costs.
The National Cost of a Male Nuc
Before Process Losses Applied

<table>
<thead>
<tr>
<th>Fully Costed Nuc</th>
<th>Objects</th>
<th>Relative %</th>
<th>Global %</th>
<th>Relative Costs</th>
<th>Costs/Unit Output</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- 60_010_M [E-NUC Males (with OH)]</td>
<td>100.0%</td>
<td>100.0%</td>
<td>38,480,614.75</td>
<td>15,947.21</td>
<td>2,413.00</td>
</tr>
<tr>
<td>NRD Direct + G&amp;A/OH</td>
<td>+ 58 E NUC 3 [NRD Costs]</td>
<td>57.9%</td>
<td>57.9%</td>
<td>22,293,805.63</td>
<td>9,239.04</td>
<td></td>
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<tr>
<td></td>
<td>+ 58 E NUC 4 [HQ Advertising]</td>
<td>26.2%</td>
<td>26.2%</td>
<td>10,849,403.31</td>
<td>4,496.23</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 40 HQ 1 [HQ Sustaining]</td>
<td>8.9%</td>
<td>8.9%</td>
<td>3,405,872.29</td>
<td>1,411.47</td>
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</tr>
<tr>
<td></td>
<td>+ 30 HQ N6 [IT &amp; Comms]</td>
<td>30.5%</td>
<td>2.7%</td>
<td>1,040,225.68</td>
<td>431.09</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ 30 HQ NLR [Non-Labor Sustaining]</td>
<td>24.4%</td>
<td>2.2%</td>
<td>832,702.81</td>
<td>345.09</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ 30 HQ N00 [Executive]</td>
<td>18.8%</td>
<td>1.7%</td>
<td>641,666.63</td>
<td>265.92</td>
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<tr>
<td></td>
<td>+ 30 HQ Cyber [Cyberspace]</td>
<td>6.4%</td>
<td>0.6%</td>
<td>219,194.26</td>
<td>90.84</td>
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<tr>
<td></td>
<td>+ 30 HQ CA [CARIT]</td>
<td>5.5%</td>
<td>0.5%</td>
<td>188,932.96</td>
<td>78.30</td>
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<tr>
<td></td>
<td>+ 30 HQ N1/N4 [Admin/HR &amp; Supply]</td>
<td>5.5%</td>
<td>0.5%</td>
<td>187,001.32</td>
<td>77.50</td>
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<tr>
<td></td>
<td>+ 30 HQ N5 [“Strat, Plans, Analysis”]</td>
<td>3.9%</td>
<td>0.3%</td>
<td>133,596.94</td>
<td>55.37</td>
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<tr>
<td></td>
<td>+ 30 HQ N3 [N3 Sustaining]</td>
<td>2.4%</td>
<td>0.2%</td>
<td>83,212.97</td>
<td>34.49</td>
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<tr>
<td></td>
<td>+ 30 HQ N8 [Comptroller]</td>
<td>2.3%</td>
<td>0.2%</td>
<td>79,338.73</td>
<td>32.88</td>
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<tr>
<td>HQ G&amp;A/OH</td>
<td>+ 58 E NUC 2 [HQ Direct Enl Nuc]</td>
<td>4.4%</td>
<td>4.4%</td>
<td>1,688,328.35</td>
<td>699.68</td>
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<tr>
<td></td>
<td>+ 40 HQ 2224 [Subs Enlisted Program Support]</td>
<td>36.4%</td>
<td>1.6%</td>
<td>614,510.43</td>
<td>254.67</td>
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<tr>
<td></td>
<td>+ 40 HQ 2222 [NUC Enlisted Program Support]</td>
<td>36.4%</td>
<td>1.6%</td>
<td>614,510.43</td>
<td>254.67</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ 40 HQ N7 [Training/Inspecting]</td>
<td>22.8%</td>
<td>1.0%</td>
<td>384,904.60</td>
<td>159.51</td>
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<tr>
<td></td>
<td>+ 40 HQ 2225 [General Enlisted Program Support]</td>
<td>2.6%</td>
<td>0.1%</td>
<td>44,183.98</td>
<td>18.31</td>
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<tr>
<td></td>
<td>+ 40 HQ 223 [HQ Enlisted Processing]</td>
<td>1.8%</td>
<td>0.1%</td>
<td>30,218.91</td>
<td>12.52</td>
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<tr>
<td>HQ Direct</td>
<td>- 58 E NUC 4 [Region Program Support]</td>
<td>0.4%</td>
<td>0.4%</td>
<td>154,524.14</td>
<td>64.04</td>
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<tr>
<td></td>
<td>+ 40 RW 21 [West Training]</td>
<td>30.4%</td>
<td>0.1%</td>
<td>46,922.73</td>
<td>19.45</td>
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<tr>
<td></td>
<td>+ 40 RE 21 [East Training]</td>
<td>29.7%</td>
<td>0.1%</td>
<td>45,843.09</td>
<td>19.00</td>
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</tr>
<tr>
<td></td>
<td>+ 40 RE 17 [East Classifying]</td>
<td>20.2%</td>
<td>0.1%</td>
<td>31,150.58</td>
<td>12.91</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ 40 RW 17 [West Classifying]</td>
<td>19.8%</td>
<td>0.1%</td>
<td>30,607.74</td>
<td>12.68</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 40 RW 2 [Region West Sustaining]</td>
<td>0.1%</td>
<td>0.1%</td>
<td>45,345.69</td>
<td>18.79</td>
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<tr>
<td></td>
<td>+ 30 RW 22 [Region West Non-Labor Sustaining]</td>
<td>65.9%</td>
<td>0.1%</td>
<td>29,874.34</td>
<td>12.38</td>
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<tr>
<td></td>
<td>+ 30 RW 23 [Region West Executive]</td>
<td>22.0%</td>
<td>0.0%</td>
<td>9,997.07</td>
<td>4.14</td>
<td></td>
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<tr>
<td></td>
<td>+ 30 RW 24 [Region West Diversity]</td>
<td>12.1%</td>
<td>0.0%</td>
<td>5,474.28</td>
<td>2.27</td>
<td></td>
</tr>
<tr>
<td></td>
<td>+ 40 RE 2 [Region East Sustaining]</td>
<td>0.1%</td>
<td>0.1%</td>
<td>43,335.33</td>
<td>17.96</td>
<td></td>
</tr>
</tbody>
</table>
Use Model to Assess Process Improvement Initiatives

Model Allows Us To Test Effectiveness and Cost Savings from Specific Productivity Improvement Projects

Example: CNRC Process Improvement Team reduced PS reserve enlisted kit paperwork from 23 to 9 forms (61%)

Estimated time savings from improvement is

Equates to saving or 21 FTEs per year

Potentially increases Prior Service PPR from .85 to .88
Identifies Capacity Issues - Classifier Quick Look

Opportunity for benchmarking, personnel optimization and team reorganization

Classifiers spend an average of 1.25 hours per applicant

Number assigned ranges from 3 to 11 per NRD

SEA classifier capacity was 56 hours per recruit, JAX was 17 hours per recruit
Mike Sumrall, LSSMBB, PMP®
Senior Manager
Deloitte Consulting, LLP
msumralljr@deloitte.com
901-283-3303
Backup
Key Assumptions Used in the Model

- Active Duty Enlisted Recruiting time is consumed by three principle activities:
  - Recruiting – 85% of available recruiting time is consumed by traditional recruiting activities for Active Enlisted and NAT mission (hunting and farming)
  - DEP Management – All AC recruiters are involved in DEP Management process and they spend an average 4 hours per month per "DEP-per"
    - Per the AMD there is at least one full-time DEP program manager per NRD
  - NROTC - All AC recruiters are involved in promoting NROTC and generating NROTC applications which consume a total of 5% of the available recruiting time.
    - There is at least one full-time DEP program manager per NRD
- Reserve Enlisted Recruiting time is consumed only by traditional reserve recruiting activities
Key Assumptions Used in the Model

- Enlisted Recruiter Level of Effort
  - All recruits are not created equal
  - High Quality Enlisted applicants require a higher level of effort.
  - Assumption based on study performed by NRC and CNA several years ago which assigns a ratio to the population of the target market as compared to the recruitable market. Early work indicated a much larger disparity between M and F which CNA states has largely subsided.
  - Additionally, high quality recruits have more life opportunities which increase the level of difficulty in recruiting.

<table>
<thead>
<tr>
<th>Group</th>
<th>Code</th>
<th>A-Cell Equivalents</th>
<th>LOECAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-Cell</td>
<td>MA/FA</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>B-Cell</td>
<td>MB/FB</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Cu-Cell</td>
<td>MCu/FCu</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Cl-Cell</td>
<td>MCI/FCI</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>D-Cell</td>
<td>MD/FD</td>
<td>8</td>
<td>1</td>
</tr>
</tbody>
</table>

Level of Effort is adjustable in the Model Dashboard
Key Assumptions Used in the Model

- Officer Recruiting Labor Categories
  - Officer Recruiters are divided into three groups – General Officer Recruiters, Medical Recruiters, and Reserve Recruiters
    - General Officer recruiters focus on all active, non-medical officer categories
    - Medical Officer recruiters recruit for all active and reserve medical programs
    - Reserve Officer recruiters recruit all PS reservists
    - Where officers are assigned to particular applicant groups, those officers recruit to only those applicant groups (Chaplains and Nucs)

- Officer Recruiter Level of Effort
  - Student programs are 3 times easier to recruit to that direct commission programs. These values are adjustable in the model dashboard.

Level of Effort is adjustable in the Model Dashboard
Key Assumptions Used in the Model

Cost of Military Personnel

- Military personnel salaries were derived from the annual DoD composite rate
- The “Annual Department of Defense (DoD) Composite Rate” shall be used when determining the cost of military personnel for budget/management studies
- Salaries include the following military personnel appropriation costs:
  - Average basic pay plus retired pay accrual
  - MERHC accrual
  - Basic Allowance for Housing (BAH)
  - Basic Allowance for Subsistence (BAS)
  - Incentive and Special Pays
  - Permanent Change of Station (PCS) expenses, and
  - Miscellaneous pay which includes a per capita normal cost of $5,560 for MERHC accrual
Key Assumptions Used in the Model

- **Cost of Civilian Personnel**
  - Civilian personnel salaries were derived from the U.S Office of Personnel Management pay tables.
  - Salaries for General Series (GS) were calculated at the Rest of US rates and included annual fringe benefit % increase.
  - NSPS pay calculated at the payband average \([(\text{min} + \text{max})/2]\)
  - Salary information established the percentage and actual ledger entries were used to pull actual dollars spent.
  - All applicable ledger expenses consumed (PCS, Holiday, Sick Leave, Fringe, etc.)

- **Cost of Contractor Personnel**
  - The contract values recorded in the General Ledger were used to support program costs.
  - Example: Seal Mentors – all payments made to the support contract were aligned to the Seal Mentoring Process and consumed by the field and HQ Seal mentor contractors.
Key Assumptions Used in the Model

- Advertising
  - Advertising costs for General Awareness are applied to all applicant categories - Active & Reserve, Officer & Enlisted
  - General Enlisted Advertising is applied to only active enlisted applicants
  - General Officer Advertising is applied to only active officer applicants
  - Reserve Enlisted Advertising is applied to only reserve enlisted applicants
  - Reserve Officer and Medical Officer Advertising is applied to those two groups in proportion to the volume recruited
  - Advertising for specific programs are applied only to the designated program – SEAL, EOD/ND, WIN-R, Medical Officers
  - Diversity advertising is applied only to applicants coded as diverse in their respective tracking system.
Key Assumptions Used in the Model

- Program Costs
  - Specific Officer and Enlisted program costs are assigned only to their respective programs
  - Diversity program costs are consumed by diverse applicants in proportion to the recruited volume.
Funding captures:

- **External Funds**
  - NMCI
  - Enlistment Bonuses
  - Loan Repayment Program
  - Navy College Fund
  - MPN & RPN Equivalent Funds

- **Internal Funds**
  - Civilian Labor
  - Advertising
  - All other budget lines

Does not capture facility costs below NRD level
Model Structure

Personnel includes:

- All Civil Service Employees
- All Military Billets
- All Contractor Positions

The consolidated Activity Manpower Document is the primary data source

Personnel includes:

- All Civil Service Employees
- All Military Billets
- All Contractor Positions

The consolidated Activity Manpower Document is the primary data source

Personnel includes:

- All Civil Service Employees
- All Military Billets
- All Contractor Positions

The consolidated Activity Manpower Document is the primary data source
Model Structure

Direct Recruiting Processes capture the output volumes and costs for the five primary value streams:

- Active Enlisted – by rating, program, gender, quality & diversity
- Reserve Enlisted – by rating
- Active Officers – by designator and diversity
- Reserve Officers – by designator
- NROTC
Model Structure

- The NRD O/H & Region Costs are added to the value stream costs
- The 26 NRD outputs are then grouped to the National Level
- HQ Overhead is applied to each value stream based on value stream volume
Model Structure

- Value Stream losses via attrition from the Active Enlisted DEP and Officer Program non-Selects are removed.
- The cost of recruiting these lost assets are levied on to the remaining applicants by recruited group value stream.
Model Structure

- The Recruiting Groups are disaggregated into shipped enlisted rating/officer designator.
- Applicable bonuses are applied to the shipped ratings.
Deloitte.

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Enhancing Officer Selection and Assignment

Presented to:

The Army Accessions Research Consortium

Hampton, VA

1-3 September 2009

Presented by:

Dr. Robert Kilcullen
U.S. Army Research Institute
Army Need

- Army must maintain the quality and quantity of officers to meet force and mission requirements

- Challenges include:
  - Increases in Army end strength
  - Army organization redesign
  - Current shortages of junior officers
    - CPTs, 2000; MAJs, 3000
    - Strength at 83% of authorization
  - Shortages necessitate the promotion of nearly all junior officers and raise concerns regarding
    - Maintenance of officer readiness & quality
    - Ability to fill critical slots
Officer Research Program

- Project Goal: Develop/validate/implement officer selection tests promoting:
  - Junior officer performance
  - Senior leader potential
  - Army career continuance

- Leverage prior and current officer research

- Results to date suggest that new measures can predict continuance and performance above and beyond cognitive-oriented assessments currently in use
Officer Research Program: Stages

• Stage One:
  – Address immediate issues in specific pre-commissioning programs, focusing on outcomes in training
    • ROTC 4-year scholarship selection
    • Improved OCS selection

• Stage Two: Comprehensive program to develop holistic officer selection program
  – Incorporates link to on-the-job success and long-term career continuance as well as success in training
  – Incorporates a broader array of officer potential measures
Stage One: ROTC Scholarship Selection

- Objectives: develop new measures for selecting 4-year scholarship cadets that:
  - Complete ROTC and become commissioned officers

- Developed the Cadet Background & Experience Form (CBEF) to predict ROTC program continuation
  - Assessed temperaments thought to be related to disenrollment
    - Need for Achievement
    - Army Identification
    - Stress Tolerance

- Collected data in FY07 to assess the potential of the CBEF
  - Administered test to approximately 1,000 Freshman 4-year scholarship cadets
  - Tracked cadets from freshman to sophomore year
  - Examined relationship between Whole Person Score (WPS), CBEF scores, and program disenrollment
Cadets who scored in the bottom 25% of the distribution of CBEF scores were 2.0 times more likely to disenroll than Cadets in general.

Cadets who scored in the bottom 25% of the distribution of WP scores were 1.4 times more likely to disenroll than Cadets in general.

Cadets who scored in the bottom 25% of the distribution of WP scores were 1.1 times more likely to disenroll than Cadets in general.

Disenrollement Rate for Full Sample of Cadets = 10.3%

Cadets who scored in the top 25% of the distribution of CBEF scores were 1.6 times less likely to disenroll than Cadets in general.
Other ROTC Validity Results

• Self-rated likelihood of becoming an officer is a good proxy for disenrollment
  – 94% reporting themselves as ‘likely to become an officer’ continued into their sophomore year
  – 73% of those reporting themselves as ‘unlikely to become an officer’ actually disenrolled

• CBEF scores were highly related to self-rated likelihood of becoming an officer and making the Army a career
  – Becoming an Officer ($r = .42$)
  – Making Army a Career ($r = .35$)

• CBEF not redundant with WPS
  – CBEF scores show little relation with overall WPS ($r = -.06$ to $0.15$)
ROTC – Future Research

• CBEF shows promise for identifying 4-year scholarship cadets with stronger propensities for ROTC program completion and service continuance

• What we don’t yet know: how well the CBEF works when administered to applicants

• Next step: Validate CBEF under operational conditions
  – Administer test to applicants, track initial program enrollment and subsequent disenrollment into sophomore year, re-evaluate validity of test for predicting program continuation

• CBEF is being integrated into the ROTC scholarship application website in SEP 09
<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEP 09</td>
<td>CBEF fully integrated with web scholarship application process for AY 10–11 applicants</td>
</tr>
<tr>
<td>SEP 10</td>
<td>Determine validity of CBEF for predicting scholarship acceptance</td>
</tr>
<tr>
<td>DEC 10</td>
<td>Determine validity for predicting ROTC program entry for AY 10-11 applicants</td>
</tr>
<tr>
<td>DEC 11</td>
<td>Determine validity for predicting ROTC progression from program entry to sophomore year for AY 10-11 applicants</td>
</tr>
<tr>
<td>DEC 14</td>
<td>Determine validity for predicting ROTC program completion for AY 10-11 applicants</td>
</tr>
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</table>
Stage One: OCS Research

- Objectives: develop measures for selecting OCS candidates most likely to:
  - Perform well in OCS
  - Stay in the Army

- Developed the Officer Background & Experience Form (OBEF)
  - Assessed temperaments thought to predict OCS performance and willingness to make the Army a career
    - Some scales overlap with the ROTC measure, but each test has unique scales targeted to its particular population

- Collected data in FY08/09 to assess the potential of the OBEF
  - Administered test to 1,344 OCS candidates during the first week of OCS
  - Used end-of-course Order of Merit List as measure of performance
  - Used self-report career intentions as proxy for career continuance
  - Analyzed whether OBEF added value to AFQT in predicting outcome measures
The OBEF adds value to AFQT for predicting OCS performance for both types of candidates.

Reports AFQT baseline validities (r), and OBEF incremental validities; i.e., figures in the bars reflect the strength the AFQT and the OBEF in predicting the outcome.
The OBEF adds value to AFQT for predicting OCS career intentions for both types of candidates.

Reports AFQT baseline validities (r), and OBEF incremental validities; i.e., figures in the bars reflect the strength the AFQT and the OBEF in predicting the outcome.

OCS Candidates:

Enlistment Option

In-Service

Predicting Career Intentions

AFQT

OBEF

The OBEF adds value to AFQT for predicting OCS career intentions for both types of candidates.
Stage Two: Long-term Continuance

• Longitudinal databases for examining long-term career continuance and advancement

  – 1993: MRI Officer Research Study
    • 1,807 officers, from 2LT to COL
    • Assessments include: cognitive abilities, complex problem solving skills, creative thinking skills, temperaments, social judgment, leadership knowledge

  – 1994: Army War College Research
    • 184 officers at AWC
    • Assessments include: 360-degree ratings, cognitive complexity, cognitive ability, temperaments
    • Criterion: advancement to GO

  – 1994: BOLDS (Baseline Officer Longitudinal Development Study)
    • 883 West Point Cadets from Class of 1998
    • Assessments include: cognitive aptitude, complex problem solving skills, tacit knowledge, temperaments, physical fitness, leadership style
## Stage Two: Milestones for Predicting Job Performance

### Officer Job Analysis
- Describe can-do and will-do performance requirements for selected ranks and branches
- Identify individual attributes (KSAOs) as potential predictors of technical & motivational performance
  - Initial performance / senior leader potential
  - Career continuance
- Projected completion: FY10 Qtr 4

### Officer Predictor Battery
- Analyze historical data to identify promising measures
- Evaluate suitability of new ARI measures to predict officer performance and continuance
- Provide preliminary predictor battery and database for validation analyses
- Projected completion: FY11 Qtr 3

### Officer Outcome Measures
- Use multi-method approach to measure
  - Current performance
  - Senior leader potential
  - Career continuance
- Metrics may include
  - Supervisor, peer, subordinate ratings
  - Training performance, completion
  - Job Knowledge
  - Career intentions, length of service
  - Promotion rate, awards, demerits
- Projected completion: FY11 Qtr 4

### Officer Selection Battery Validation
- Evaluate validity of tests for predicting (across command level) outcome measures
- Incorporate concurrent and longitudinal validation designs
- Conduct preliminary branch assignment analyses
- Projected completion: FY13 Qtr 2
Officer Selection Program: Stage Two

- 2009  2010  2011  2012  2013  2014

Development of Officer Predictor Measures

Officer Job Analysis

Development of Criterion Measures of Officer Job Performance

Predictive Validity of New Measures

Analyses to refine Branch Assignment
- Subject to available funding

Transition of validated measures to AAC/TRADOC for officer accessioning
- Subject to available funding

Final Products
- Specification of officer performance requirements across rank & branch
- Validated tests for officer candidate selection and branch assignment
The Effects of Changes in Institutional Policies and Socio-cultural Factors on Initial Entry Physical Fitness Levels of Cadets at the United States Military Academy

Whitfield B. East, EdD
Department of Physical Education
Agenda

- Historical Trends in Physical Fitness
- Development/Impact of the Candidate Fitness Assessment and other Policy Changes on IET Performance/Attrition
“The declining level of youth fitness is rapidly becoming a national security issue.”

LTG Dennis D. Cavin, Accession Research Symposium Fort Jackson, SC - January, 2004
Historical Overview

Over the past 100 years the United States has experienced three cycles/eras of physical fitness development.

– World War Era (1915 – 1950)
– Cold War Era (1950 – 1983)
– GWOT Era (1983 – present)
War places a great premium upon the strength, stamina, agility, and coordination of the soldier …

- march, run, or crawl long distances
- jump in/out of trenches and over obstacles
- lift and carry heavy objects
- keep going for many hours without rest and sleep

All these activities require superbly conditioned troops…
World War Era (1915 – 1950)

**Trigger Event**
- 1915: RMS Lusitania

**Catalyzing Events**
- 1915: Mechanized armor

**Mitigating Factor**
- The fact that warfare has become mechanized has **accentuated** rather than **minimized** the importance of physical fitness. (FM 21-20, p. 1, 1946)

**Response**
- Army Physical Training/Testing

**1917: Selective Service Act**
Cold War Era (1950 – 1983)

Trigger Event

1950: Ethel and Julius Rosenberg
Cold War Era (1950 – 1983)

“Catalyzing Events”

1950: Task Force Smith

1954: Joseph McCarthy

1957: Sputnik
Cold War Era (1950 – 1983)

Response

1956: President’s Council on Youth Fitness
GWOT Era (1983 - ????)

Catalyzing Event

2001: WTC Towers

Response

1983: Marine Barracks Bombing
Beirut, Lebanon

Trigger Event

Mitigating Factor

2007: Globesity epidemic

?
Problem: new cadets/recruits often lack requisite levels of:

• **Personal fitness:**
  – cardio-respiratory fitness
  – core body strength
  – upper body strength/weight

• **Movement/sport skills**
  – mature fundamental movement patterns
  – motor fitness

• **Healthy-relate movement experiences**
  – adaptive impact experiences
  – adaptive immune response
Historical Factors Affecting Initial Physical Performance

• Changes in Physical Aptitude Exam (PAE) Administration
  – centralized to mail-out
• Socio/political events
  – 9-11
  – economy
• Change to the Candidate Fitness Assessment (CFA) test
  – change to the CFA test administration
APFT Pass Rates by Gender

- **Males**: 79% in 1993, decreasing to 36% in 2009
- **FEMALES**: 60.11% in 1993, decreasing to 39% in 2009

USMA Attrition

Average 4-yr Attrition = 27.59%  
20-yr Commissioning Rate = 72.6%
# New Cadets – Valid APFT
USMA - Cadet Basic Training
Week 1 APFT Failures (60/180)
Event Failures Rates

(N_m = 13,486; N_f = 2,180)
APFT Event Failures - Females

Fail-PU  Fail-SU  Fail-2MR


0 10 20 30 40 50 60 70 80 90 100 110

Fail-PU  Fail-SU  Fail-2MR
Multiple Event Failures - Males
Multiple Event Failures - Females

- Failed 1: Green line
- Failed 2: Red line
- Failed 3: Blue line

Yearly counts from 1992 to 2009 for each category.
Approximately a 1:00 decrease in 2MR times
Approximately 1:15 decreased in 2MR times
APFT Total Scores

MALES

FEMALES
Declining Performance Indicators

- TOT-AM
- TOT-AF
Candidate Fitness Assessment

- Must be administered by a HS physical education teacher or Army personnel.
- Measure potential for success in the Physical Program.
- Places a greater emphasis on physical fitness (70%) over motor fitness (30%).
- Minimizes the need for equipment, set-up, and prior experience.
- Sends a message vs. the physical nature of USMA/Army.
<table>
<thead>
<tr>
<th>Physical Aptitude Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basketball Throw</td>
</tr>
<tr>
<td>Standing Long Jump</td>
</tr>
<tr>
<td>300 yd. Shuttle Run</td>
</tr>
<tr>
<td>Sit-up</td>
</tr>
<tr>
<td>Push-up</td>
</tr>
</tbody>
</table>
Changes in SU Performance B/A CFA for APFT Failures

Males

<table>
<thead>
<tr>
<th>Year</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>48</td>
</tr>
<tr>
<td>2005</td>
<td>47</td>
</tr>
<tr>
<td>2006</td>
<td>48</td>
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<tr>
<td>2007</td>
<td>49</td>
</tr>
<tr>
<td>2008</td>
<td>49</td>
</tr>
<tr>
<td>2009</td>
<td>48</td>
</tr>
</tbody>
</table>

Females

<table>
<thead>
<tr>
<th>Year</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>42</td>
</tr>
<tr>
<td>2005</td>
<td>45</td>
</tr>
<tr>
<td>2006</td>
<td>44</td>
</tr>
<tr>
<td>2007</td>
<td>45</td>
</tr>
<tr>
<td>2008</td>
<td>41</td>
</tr>
<tr>
<td>2009</td>
<td>46</td>
</tr>
</tbody>
</table>
Changes in 2MR Performance B/A CFA for APFT Failures

**Males**

- 2003: 15:02
- 2004: 15:19
- 2005: 15:10
- 2006: 15:28
- 2007: 15:55
- 2008: 15:59
- 2009: 15:18

**Females**

- 2003: 18:05
- 2004: 19:20
- 2005: 18:33
- 2006: 19:02
- 2007: 19:22
- 2008: 18:56
- 2009: 18:49
Event Failures B/A CFA

Males:
- 2002: 589
- 2003: 550
- 2004: 445
- 2005: 585
- 2006: 649
- 2007: 904
- 2008: 727
- 2009: 675

Females:
- 2002: 141
- 2003: 130
- 2004: 133
- 2005: 139
- 2006: 131
- 2007: 219
- 2008: 159
- 2009: 107
Changes in APFT Averages - All

Males

Females

92-4 99-05 2003 2004 2005 2006 2007 2008 2009

195 200 205 210 215 220 225 230 235

231 227 232 229 225 224 226 218 211
APFT Pass Rates by Gender

Males

FEMALES


71% 79% 68% 61% 63% 55% 60% 61% 60% 58% 58% 45% 38% 47% 47% 54% 56% 48%

48.60 60.11 34% 48% 43% 38% 36% 45% 39%
“Nations have passed away and left no trace, and history gives the naked cause of it—one single, simple reason in all cases; they fell because their people were not fit.”

Rudyard Kipling
QUESTIONS?

W. B. East (pw3998@usma.edu)
Historical Events Affecting Physical Performance Needs of the Army

- 1827: Breech-loading firearms
- 1892: Manual of Calisthenics
- 1915: Intro of mechanized armor (“Little Willie”)
- 1939: German blitzkrieg tactics during the Invasion of Poland
- 1940: National Selection Service Draft (13-week basic training)
- 1944: Operation Cobra - Patton covered 600 miles in 2 weeks.
- 1950: Task Force Smith – 1st major engagement in the Korea War; 156/406 combatants were KIA or captured during the 12 hour engagement.
Historical Response to Physical Performance Needs

- 1892: Manual of Calisthenics
- 1912: Significant revision in Basic Combat Training
- 1942: Army Ground Forces Test
- 1944: Physical Efficiency Test Battery
- 1946: First publication of FM 21-20 (Eisenhower)
- 1956: President’s Council on Physical Fitness and Sport
- 1957: Army Physical Fitness Test (APFT)
- 1961: Physical Combat Proficiency Test
- 1963: Army Minimum Physical Fitness Test – Male
- 1974: Advanced Physical Fitness Test for Women
Basic Movement Skills
Our Mission

We help military veterans achieve their dreams — we connect them to employers, educational institutions, franchisors, and other organizations.
RecruitMilitary by the Numbers

• 11 years in business – 2 acquisitions
• 65 Television news stories in past year
  *CNN and FOX in last 30 days; hundreds of articles and radio spots*
• 220 base relationships
• 6,400 hiring employers
• 465,000 registered job seekers
• 90,000 veteran friendly organizations
The Market

- 3.7m
  - Under age 39

- 14% of 1.4m (200k)
  - Transition annually

23 million veterans
Why Hire Former Military?

- Security Clearances
- Diversity
- Skills and Training
- Character
RecruitMilitary Product Innovation

#1 in Career Fairs

500k Resume Database & Job Postings

RecruitMilitaryInside

Search & Employ Magazine

Lead Generation
New Candidates per Day of the Week
Demographics

- 85.2% enlisted
- 12.4% officer
- 2.4% spouses
- Air Force – 18%
- Army – 39%
- Marines – 16%
- Navy – 23%
- Other – 4%
Demographics

• 85.2% male / 14.8% female
• 22.7% African-American
• 9.4% Hispanic
• 62.5% Caucasian
• 5.4% Other
Demonstration

• Lead Generation Demonstration
Thank You!
2008 Recruiter Survey
Topline Report

Donna Dorminey, USAAC-G2
Linda Clingan, USAREC-G2
SURVEY OBJECTIVE

“What Do Recruiters Need To Produce More Soldiers?”

Areas of Interest:
- Technology
- Training
- Events
- Leads
- Waivers
- Schools Programs / March2Success
- Advertising
- Incentives
- Resources
- Recruiting Environment
METHODOLOGY

- Survey designed by USAAC/USAREC Staffs to address Areas of Interest for Assessment and Actionability
- Specific Questions developed and analyzed through the use of “Ideal State Assumptions”

Key Analysis Assertion: Gaps between Actual and Ideal States will indicate areas of need for recruiters

- Administered 3874 invitations by E-mail May 2008
- 1807 Respondents (47% Response Rate)
- Responses were weighted based on Brigade, Component, and Job
A1: Recruiters are aware of the automated systems available to them.

Awareness of systems is typically above 95%. Virtual Classroom Server (VCS) is an exception with 70% or lower awareness (and correspondingly low usage).

A2: Recruiters use the automated systems and feel they help them to accomplish the mission.

Recruiters are using the systems available to them. However, for several systems (ie GAMAT, RZ-Lite, ARCA and LMS) nearly half of the recruiters using the systems are doing so because they “have to” rather than because they feel the systems “help to accomplish mission”. Notable exceptions are FSR2S and Leader Zone.

A3: Recruiters are confident in the use of the automated systems available to them.

Confidence levels for most systems are lower than expected and this lack of confidence correlates to use of the systems. Recruiters who have confidence in their skills are more likely to use systems and recognize that these systems help them to accomplish the mission.
TECHNOLOGY

A4: Additional features could be added to current systems to further assist recruiters.

Recruiters are vocal in identifying both good qualities for the systems in place as well as proposed improvements.

A5: Recruiters are not required to use paper-based documentation where automated systems are in place.

Less than 40% of Recruiters are NEVER required to use paper-based documentation in lieu of automation. Over 23% are ALWAYS required, and another 31% are SOMETIMES required to use paper in lieu of automation. Top reasons for using paper-based documentation were related to MEPS requirements.

A6: Recruiters feel that the Army MOS videos enhance the Army Interview Process.

While over 80% of Recruiters feel the videos enhance their Army interviews, they were also rather vocal concerning the need to update the videos and very specifically to remove the statement referencing “working long hours in the field”.
TRAINING

A1: Recruiters feel they have above average skills in performing the recruiting process.

Over 50% of Recruiters rated themselves as “Very Good” or “Excellent” in the areas of Interviewing, Processing, and Leading Future Soldiers. Areas of significant perceived weakness were COI Development and Schools Programs, with less than 30% rating themselves highly in these areas.

A2: Recruiters feel that unit level training helps to improve recruiting process skills.

In general, Recruiters are pessimistic concerning the value of unit level training. Fewer than 20% of Recruiters rated the quality of unit training as “Very Good” or “Excellent” for improving their ability to perform ANY of the steps of the recruiting process.

A3: Recruiters receive training at their station or unit at least once a week.

73% of Recruiters receive training at their station at least once a week. Another 20% receive training at least once a month. The majority of training is typically conducted by Station Commanders, followed by Training NCOs and Others.
A1: Recruiters are aware of national and local event assets available to them.

As expected, awareness of local assets (74%-96%) is significantly higher than awareness of national events (37%-66%). Analysis to date has not taken into account that national events are not uniformly distributed among Recruiters and this must be taken into consideration when attempting to draw insights from these statistics.

A2: Recruiters feel that all events assets are helpful to them in the accomplishment of the mission.

The overall helpfulness of national events is inconclusive due to the large number of Recruiters who do not have national events occurring in their areas. A small portion of Recruiters (10%-30%) viewed national events as “Extremely or Very Helpful” and even more (20%-28%) viewed them as “Extremely or Very Unhelpful”. Recruiters are 3 or more times as likely to view the majority of Local assets as helpful rather than unhelpful in their efforts.

A3: Recruiters receive sufficient notice to adequately plan and execute national and local events.

Recruiters typically consider 14 or more days sufficient notice for executing both national and local events, with 10 days being a critical “break point” for sufficiency. Recruiters are receiving less than 10 days notice for 59% of local events and 34% of national events.
LEADS

A1: Recruiters are most satisfied with the quality of Superleads vs Hot Leads or Leads that have not been refined by the LRC.

Almost 20% of Recruiters are satisfied with Superleads vs 26% satisfied Hot Leads and ADHQ Leads (refined and unrefined).

(Trends: ADHQ Satisfaction 15.9% FY06, 23% FY07; LRC Satisfaction 34% in FY07)

A2: Recruiter initiated leads are the most lucrative vs referrals or prospect initiated.

Recruiter initiated leads are considered most valuable, specifically Recruiter Generated (78.2%) and School Visits (67.7%). Most valuable prospect initiated leads include SASVAB (61.2%) and Walk-ins (56%). Most valuable referrals were from applicants (67.1%), RA and AR FSTP (55%) and COI referrals (52.9%).

(Trend: FY07 – Call-In, Walk-In and SASVAB were rated as top 3 lead sources by Recruiters)
A1: Recruiters are satisfied with the time it takes to process a Bn or USAREC level waiver.

USAREC level waivers are more problematic for Recruiters than those that require Battalion level approval. 51% of Recruiters are satisfied with Bn level compared with 38% satisfaction for USAREC level waivers. The #1 Recruiter input for ways to improve the waiver process related to speeding up the process.

(Trend: Bn level satisfaction 54% in FY06 and 40% in FY07; USAREC level satisfaction 18% in FY06 and 30% in FY07)

A2: Recruiters are satisfied with the current tracking process for waivers.

36% of Recruiters are satisfied versus 33% who are dissatisfied. The second most frequently mentioned way to improve the process was to improve tracking and the third most frequent input involved standardizing the process.

(Trend: FY06 – 25% Satisfied and 41% Dissatisfied; FY07 – 31% Satisfied and 36% Dissatisfied)
A1: Recruiters strongly agree that they can relate to the Army Strong message.

72% of Recruiters “Agree” or “Strongly Agree” that they can relate to the Army Strong message. However, a significant number of recruiters volunteered that they feel much more affinity for the “Be All You Can Be” slogan and some choose to frame their Army story accordingly.

A2: Recruiters are confident in relaying the Army Strong message to applicants, parents and other influencers.

76-78% of Recruiters “Agree” or “Strongly Agree” that they are confident in relaying the Army Strong message to applicants, parents and other influencers.
A1: Recruiters see value of all current incentives to an applicant’s decision to join.

All current incentives are considered valuable. In general, Recruiters view short-term monetary incentives (MOS, HiGrad and Quick Ship Bonuses) as more valuable to an applicant’s decision to join than intangible or more-distant monetary incentives (PaYS program, LRP, Thrift Savings Program). Two exceptions are Skills Training and ACF/MGI Bill, which ranked #2 and #3 respectively following the MOS Bonus.

A2: Recruiters see value in current recruiter incentives for morale and motivation.

The most valuable recruiter incentives is Time Off Award, followed by Recruiter Incentive Pay. These two significantly outpace all other recruiter incentives in value. Certificates and Battalion Level Awards are viewed as least valuable (only 25% of Recruiters value the Certificate as an incentive for morale and motivation).
SCHOOLS PROGRAMS

A1: Recruiters feel welcome in the High Schools and Colleges.

71% of Recruiters feel welcome in their High Schools and 42% feel welcome in their colleges.

A2: High School and College influencers are supportive of recruiters.

Over 50% of Recruiters rate Guidance Counselors, Teachers and Coaches as supportive, while only about 20% rate Parents and School Boards as supportive. In the colleges, over 50% of Recruiters rate the Financial Aid Officers as supportive, far outpacing other college level COIs. Next most supportive are the VA Advisors (41%). Recruiters view Deans and Professors the least likely to be supportive.

A3: Recruiters see value in obtaining High School and College lists and are successful in doing so.

84% of Recruiters see value in obtaining High School lists and it is easy for 61% of Recruiters to get them. However, 24% believe they spend too much of their time on getting the lists and 19% see no value in uploading the lists into ARISS. 31% of Recruiters are able to easily obtain college lists and 13% see no use in obtaining college lists.

A4: High Schools hold and allow recruiters to attend informational functions such as “college night” and job fairs.

69% of Recruiters are aware of functions at their schools and 77% agree that they are (or would be) allowed to attend such functions.
MARCH2SUCCESS

A1: Recruiters feel M2S is successful in their areas.

30% of Recruiters feel the program is useful, while 37% feel it is not useful. However, only 12% of Recruiters always have March2Success tutors available for their applicants. 26% of Recruiters did not know whether they had tutors available and 41% do not have available tutors.

A2: Recruiters feel M2S is useful for applicants to improve their ASVAB scores.

33% feel it is useful, while 34% feel it is not useful

A3: Recruiters feel M2S is useful in their High School outreach/access programs.

25% feel it is useful, while 43% feel it is not useful

A4: Recruiters have had success with M2S improving applicant test scores to the next higher TSC.

Only 49% of Recruiters indicated that their Future Soldiers improved their test scores. HOWEVER, when considering the number of Future Soldiers observed by the responding recruiters, 75% of Future Soldiers improved their test scores to the next higher TSC.

A5: Recruiters who do not use M2S use other resources for improving applicant scores.

About 1/3 of Recruiters wrote in responses for other resources to which they refer applicants. Most prevalent was ASVAB study guides.
RECRUITING RESOURCES

A1: Recruiters feel their stations have adequate recruiter strength to accomplish their mission.

52% of Recruiters feel they have adequate strength to accomplish their mission.

A2: Recruiters feel that recruiter strength has improved since the spring of 2007.

47% of Recruiters have seen strength levels increase since the spring of 2007.

A3: Recruiters feel they have adequate funding to conduct COI events in their areas.

While 68% of Recruiters recognize the value of establishing COIs in their area, only 30% feel they currently have an adequate number of COIs and only 36% feel they have sufficient funding to conduct COI events.

A4: Recruiters feel they have adequate support to effectively manage their Future Soldiers.

54% of Recruiters feel they have adequate support to effectively manage their Future Soldier Program.
RECRUITING ENVIRONMENT

A1: Recruiters feel they are spending the appropriate amounts of time on their various responsibilities in the recruiting process.

Average percentages of time spent doing various recruiting tasks are approximately equal to percentages of time that Recruiters feel they should be spending. Station Commanders, RA Recruiters and AR Recruiters all feel that they should be spending a little more of their time on COI development and schools programs, and a little less time on RWS data actions and other administrative duties.

A2: Recruiters feel that higher headquarters do not put barriers in place that impede their performance.

Approximately 750 Recruiters wrote in responses that addressed a wide range of perceived barriers. Most prevalent are paperwork/administrative requirements, shifting priorities, and wasted time/requirement for long hours.

A3: Recruiters do not feel there are changes to the recruiting process/procedures that could help improve their performance.

Approximately 775 Recruiters wrote in responses with a wide variety of suggestions. Most prevalent are better hours/flex schedules, letting NCOs be NCOs, and less paperwork/admin (or an office secretary to do it).

A4: Recruiters feel adequately updated on changes that impact the recruiting process.

85% of Recruiters feel they are adequately updated on changes.
Key Findings – What Recruiters Need

- **RECRUITERS NEED** help in COI development at the Recruiter level (in both resources and training/assistance).
  - **Action:** USAREC G7/9 has requested copies of the RRS POI pertaining to COI development and will review these documents to determine the way ahead.

- **RECRUITERS NEED** to be able to fully exploit the benefits of the Army’s automated/electronic document capabilities.
  - **Action:** As automation is migrated to the web in FY10, many documents are under review for electronic signature; however, some may still require “wet” signature. This is currently being reviewed.
Key Findings – What Recruiters Need

- **RECRUITERS NEED** confidence that leads forwarded through the system are likely to bear contracts.
  - **Action:** USAREC has established a Leads Management Board that meets on a regular basis to address consolidating and refining lead sources, and is in the process of developing a single, reliable leads prioritization model to score the potential for each lead.

- **RECRUITERS NEED** to be able to track the status of their waiver requests.
  - **Action:** An automated tracking system for waivers is now available through GCRc with limited access through Leader Zone and Recruiter Zone to ensure the chain of command is involved in the process. This is currently being evaluated.
Key Findings – What Recruiters Need

- **RECRUITERS NEED** to feel comfortable working in their High Schools and Colleges.
  - **Action**: Training the recruiters to understand the college market.
    Recommendation:
    1) Enforce the UR 601-104’s training requirement for Rctrs, St Cdrs, Co Cdrs, Bn Cdrs to complete “College 101” within LMS.
    2) Develop a training brief for ESS / Co Cdrs to use at St / Co trng level.
  - **Action**: Leverage existing ROTC presence on the college campus.
    Recommendation: Enforce UR 601-104’s requirement for the Bn Cdr’s to host a semi-annual coordination and planning conference, inviting all PMS representatives from appropriate ROTC battalions.
  - **Action**: Improving High Schools / College relations.
    Recommendations:
    1) Increase the usage of school / campus based COI events to staff/departments. An example would be conducting a information brief on: the Post 9/11 GI Bill and LRP to the financial aid staff, ConAP to the Admissions staff, etc. With the HS’s it could info briefs on M2S, ASVAB CEP, PFL’s, new HS Program Guide, etc.
    2) Attending school based events (sports, concerts, etc.).
  - **Action**: Enhancing the comfort level of the recruiter on the college campus.
    Recommendation: Encourage recruiters to enroll / attend a college class at their local college. Tuition assistance provides funding for these courses, in addition the college would help the Recruiter both professionally and personally. As a student, the Recruiter has the right to be on the college campus.
Key Findings – What Recruiters Need

- **RECRUITERS NEED** emphasis on “Time Off” awards for their performance.
  - **Action:** More liberal use of “Time Off” awards; commanders may grant Soldiers a regular 3-day pass for performance of duty and conduct IAW paragraph 5-27, AR 600-8-10 or may grant special 3 or 4 day pass to Soldiers as special recognition for exceptional performance of duty IAW paragraph 5-29, AR 600-8-10.

- **RECRUITERS NEED** more effective training programs for both technical and procedural tasks.
  - **Action:** In FY08, completed fielding of Battalion Application Trainers to all USAREC battalions to assist with training on software applications. In Dec 08, published the OPORD forming battalion training teams that will assist commanders in planning, executing, and assessing training.

- **RECRUITERS NEED** relevant and engaging MOS videos to enhance the Army interview.
  - **Action:** New MOS videos are realistic portrayals of current training and duties. The videos are action-oriented and approved by schools and proponents SMEs. Each MOS video begins and ends with segments showing job performance. Currently we are producing 55 new MOS videos and editing narration of 27 MOS videos. These videos will be fielded on the Army Recruiting Multimedia DVD Version 2.5 in Spring 2010. The production of 38 new MOS videos in 2010 is underway for release in 2011. 15 MOS videos are projected for production in FY 11.
Key Findings – What Recruiters Need

- **RECRUITERS NEED** adequate notice to plan and execute events.
  - **Action:** The development of the Events Management System (EMS) will provide visibility and scalability for national and local events down to the recruiter level and provide two-way conversation capability for planning and feedback.
    - Event tracking is being worked at the AAC level at this point with a new system to be released and implemented this FY.

- **RECRUITERS NEED** to understand how to exploit the benefits of the March2Success Program.
  - **Action:** Incorporate March2Success in the Co Trng schedule, to include development of a M2S training brief.
    
    Recommendation: Bn ESS conduct training on M2S at Co Trng, in order to develop an understanding of the program and how to highlight the benefits of the program.
  
  - **Action:** Highlight March2Success “best practices.”
    Recommendation: Bde/Bn ESSs will forward M2S best practices to HQ USAREC Ed Div for posting on the USAREC G7/9 portal, as well as continuing to publish best practice articles in the RJ.
Key Findings – What Recruiters Need

- **RECRUITERS NEED** a flexible work schedule that enables them to most efficiently use their time to balance Army and personal responsibilities.
  - **Action:** Recruiters have a flexible work schedule, although it is a very full schedule. This is the commander’s call (Station on up) and also goes back to mission requirements.

- **RECRUITERS NEED** to be recognized as NCOs and feel they are valued members of the USAREC team.
  - **Action:** USAREC began a Culture of Value initiatives program in FY09 with a Change Initiative throughout the Command. A Command Climate survey will be fielded in October 09, which will evaluate this initiative.
QUESTIONS / DISCUSSION
Navy Recruiter Quality of Life Study

Prepared for the Army Accessions Research Consortium

Jennifer Jebo, PhD
Navy Recruiting Command
Strategic Plans, Research and Analysis Department (N5)
September 2, 2009

Unclassified
Recruiter quality of life (RQOL) has been an important focus for the Navy Recruiting Command (NRC) during the past 20 years.

Assumption is that recruiters’ professional QOL impacts both their job performance and retention in the military.

Ten years ago, NRC developed a survey to track RQOL that has been administered in two-three year intervals.

Measuring Professional Quality of Life

The Navy RQOL Survey questions address 11 areas associated with recruiting personnel’s professional quality of life including:

- Job satisfaction
- Work environment
- Recruiting Equipment
- Professional Selling Skills (PSS) training
- Enlisted Navy Recruiter Orientation (ENRO) training
- NRD/Other training
- Goals and Objectives
- Rewards and Recognition
- NRD Leadership and Support
- Supervisory Leadership and Support
- Availability of Navy Recruiting Materials
With only a few minor changes, the core questions on the survey have remained constant enabling a longitudinal comparison of changes in quality of life.

The core survey questions were designed using the same response scale so that aggregate scores could be obtained for each of the 11 RQOL areas and ultimately combined into a single quality of life score.

With each administration, the validity of the questions measuring each of the 11 RQOL areas has been reconfirmed using factor and reliability analyses.

Results of the 2009 survey were compared to those from 2006. Three year recruiting tours ensured that at least some of the same personnel participated in both surveys.
With 3,163 responses, the 2009 RQOL Survey had an estimated response rate of 75%.

This is a significant improvement from the 1,502 responses and estimated 47% response rate in 2006.

2006 response rate calculated using the average number of active and reserve enlisted recruiters for FY06. 2009 response rate based on number of active and reserve enlisted recruiters in December 2008. Responses include small number of Zone Supervisors. For purposes of this analysis, only Recruiters and RinCs are included in 2006 and 2009 comparisons.
Overall quality of life is calculated by combining responses to the 63 core survey questions.

The aggregate QOL measure is then scored along a 100 point scale where higher scores equate to increasing satisfaction with quality of life.

Compared to 2006, Navy recruiter QOL is better in 2009.
An aggregate measure of recruiter satisfaction with each QOL area was generated by combining survey questions relating to that area.
Changes in Average Scores by QOL Area

Satisfaction increased for most but not all QOL areas in 2009.
Recruiters were less likely to agree ENRO provided basic skills, adequate screens and awareness of stress & pressure in 2009.

Recruiters were asked if they agreed ENRO provided the following:

- Sufficient training on use of ADP equipment.
- Adequate screens to eliminate those who wouldn’t make it in recruiting.
- Basic skills needed for recruiting.
- Realistic preview of recruiting duty.
- Awareness of stress & pressure of recruiting.
Recruiters were asked if they agreed with the following statements about Navy Advertising Materials:

- My station receives drop shipments of giveaways quickly.
- My station receives enough giveaways.
- When I order RADS, station receives them quickly.
- I am able to order enough RADS for recruiters at my station.

Most recruiters did not agree that they received advertising materials quickly and in sufficient amounts.
Several questions from 2008 DOD Recruiter Quality of Life Survey were included in the 2009 Navy RQOL Survey on the following topics:

- Pressure to Violate Policy
- Achievability of Personal Recruiting Goals
- Work and Personal Life Balance

Comparison of these questions revealed Navy recruiters’ opinions in 2009 differed from those of all DOD recruiters and from the Navy recruiters surveyed in 2008.
Have you ever felt pressured to violate established policies in order to achieve your recruiting goal?

Fewer Navy recruiters reported feeling pressured to violate policy in 2009.
Achievable Recruiting Goals

Percent of Recruiters who Agree with Statement

My personal recruiting goals are achievable.

More Navy recruiters agreed their personal recruiting goals were achievable in 2009.

* 2008 DOD RQOL Question: My monthly goals/missions are achievable.
Navy recruiters were less likely to indicate job demands interfere with personal life in 2009.
Conclusions & Recommendations

- In general, Navy recruiters’ have a good professional quality of life:
  - They are more satisfied with their professional QOL in 2009 then in 2006.
  - Compared to results from 2008 DOD RQOL Survey, they are less likely to feel pressured to violate policy and more likely to view their goals as attainable.

- Additional analysis needed:
  - To determine why recruiter’s satisfaction with ENRO training declined between 2006 and 2009 and is lower than almost all other QOL areas
  - To determine why recruiter satisfaction with Navy advertising materials has remained lowest of all QOL area measures.
Questions and Comments
The 2009 On-Campus Market Potential Study

Dr. Bert Huggins
Total 226 Schools Studied

- Geographic Diversity
- Covering spectrum of Academic Reputation
- High, moderate and low cost schools
- Private and public institutions
- Prestigious, competitive and non-competitive schools
- Primarily residential and primarily commuter schools
- Representation of high & low military propensity

2008 Study
The process of sampling deliberately favors Freshman participation. The intercept question “Are you a Freshman or Sophomore here?” grabs the attention of Freshman more.
When Students Learned About ROTC

In general, students continue to find out about ROTC at the same time. In 2007, 24% found out before High School, and 23% in 2009. These numbers remained constant; however, what they learned has declined.

Timing of Learning is key variable between Cadets participating and general student population.

Earlier information leads to higher participation rates.

Getting information to prospects and parents before High School should increase interest and competition for scholarships and contracting for ROTC commissions.
Trends Analysis

• Some of the downward trends from the 2006 and 2007 study years have checked, and appear to show signs of reversal.

• Students are more concerned about financing their education than in the past and they are starting to show real concern about finding a job and finding one that allows them to use their education.

• Students are less interested in physical activities than in the past.
  – Obesity has hit campuses. College students are more fit than their peers, so it must be really bad among those not going to college
  – Unfit students rarely succeed as Cadets and Cadets who do not like physical activity are less apt to commission

• Students in 2009 are less knowledgeable about ROTC than prior to 2005, and are not as interested in finding out about it. However, the interest in 2009 was higher than in 2006/7.

• There are three plausible reasons for the turnaround:
  – The new administration
  – The withdrawal of forces from Iraq
  – The knowledge that the US is in a deep recession

• Two other reasons could peak interest:
  – Parents losing funds that were meant to pay for college
  – That there is some cyclic pattern yet undetermined in interest
Students are less likely to indicate that they like sports and physical activity than seven years ago, but some increase in interest in challenging physical activity took place in 2009.

Overall, the decline in interest in regular fitness in the majority of students is distressing, and validates the health assessments of today’s youth.

The sour part of this story is that there does not seem to be a national trend back to fitness.
Most of the attitudinal elements started sharply downward in 2006 and remained there in 2007.

2008 was only a validation study and could not be used in the trends analysis but did not show any signs of reversing the 2006/7 downturns.

Something has happened that points to external factors changing fundamentally the way students perceive ROTC and the Army.

Three things have changed:

1) New Administration
2) Increased public discussion on the reduction of forces in Iraq
3) Public awareness that the United States is in a deep recession

How these external effects are interacting or whether some other element is affecting student attitudes is not clear. But the above graph shows that attitudes are volatile and could easily go back to the 2006/7 levels.
Economic Reality Sets In

• College financing has been less of an issue with students from 2004 to 2007, despite an increase in costs of nearly 20 percent over that period.

• In 2009, the concern went up markedly, as did concerns about students getting a job and using their education after college.

• While a job after college has not gone up as high as it was in 2002, and certainly panic has not set in, it is an indicator that students see a less rosy picture of post college opportunities.

• The small sample in 2008 tracked with 2007 on these concerns.

• All of the change from 2007 to 2009 likely occurred in the past year.
I would not consider Army ROTC because of war or being placed in a position where I would be in a location of physical danger.

- On a scale of 0-9, the threat of physical danger steadily increased from 2002, when the question was introduced, to 2005.
- It leveled off in 2006 and 2007, and has dropped slightly in 2009.
- The concern of war and physical danger does not deeply affect First Stringers, but does affect the general student population.
- Hecklers are almost always at the top of this scale.
Domains

Domains are the aggregate responses from several items on the survey that explain an area of behavior or belief.

There are several domains in the survey, and all of these can be compared to the school type, geographic area of the country or ethnicity or gender of the respondent.

Questions can be ascribed to more than one domain, and not all questions are equal in power.
Domains - Physicality

- Interest in physically demanding activities are down from the 2001-2004 period and about the same as 2006-2007.
- The domain includes challenging physical activities, regular physical activities, interest in survival training, parachuting from an airplane, adventure training and outdoor activities.
- Overall, this domain would likely screen out at least 40% of students from consideration of ROTC due to its physical nature.
- First Stringers generally fall into the top 20% or scores of 30 and above.
Domains - Knowledge About ROTC

- The scale is a total of those things that the person knows (right answers) minus the things that the person does not know (wrong answers).
- To get a -9, you would have to answer everything wrong, which, even by guessing, is difficult.
- To get a 13, you would have to know a great deal of the basics (scholarships, stipends, training in the summer, and leadership).
- The knowledge levels can be compared from year to year. This year was the lowest.

Information on ROTC elements, benefits, etc. are lower even than 2007. The scale theoretical limit is 18. No one scored over 13.
Prior Consideration (Ever Thought about ROTC)

- The 2262 students taking the survey in 2009 were similar in their responses about having considered or explored Army or ROTC in the past or would contemplate it now.

- The pattern shows that 230 students either seriously considered ROTC or might seriously consider it now.

- Prior consideration is not well linked to knowledge, and information acquired in prior consideration appears to be faulty.

- Insert shows that prior consideration is highest with Whites and African-Americans and lowest with Asian Americans.

-1 and below indicate adamant refusal to even consider the possibility of ROTC, while those over 8 have considered or have lingering interest.
Domains - Perceived Fairness of the Army

• Perceptions of fairness of the Army are higher than in 2007 or 2006.

• The insert at left shows that Asian Americans particularly see the Army as a fair institution and one that is a leader in social change.

• African-American views are also up, but still lag behind the major ethnic categories.

• Females are less likely to see the Army as fair.
The patriotism domain is dominated by importance of service to country.

All ethnicities have roughly the same responses with the exception of African-Americans which remains statistically lower.

The African-American index is up from 2007, but all others remain unchanged.

Patriotism shares with altruism in the scales.

Of all domains, this is the least adequately explained in the survey.
16

Domains - View of Cadre

- A positive view of the cadre seems essential to recruiting; however, the overwhelming majority of students have never talked to cadre.
- Cadre become the surrogate for what an Army officer or NCO really is for the majority of students on campuses.
- The better they feel about them, the more likely they will consider being one of them.
- Cadre has remained mostly unchanged.
- There are no differences in perceptions based on ethnicity.

Some schools are outliers in Cadre View. University of Alabama is at the top and Hofstra is at the bottom.
View of Cadets Remains Strongly Positive

- How students view Cadets has a lot to do with future recruiting on campus.
- If the students see Cadets positively, they may choose to be one themselves.
- Since the beginning of the survey in 2001, the opinions of non-participating students on campus of Cadets has been positive.
- This positive view extends through the 2009 survey.
Domains - Money Now

- Money now is the degree that scholarships, stipends and other immediate benefits motivate the student to consider Army ROTC.
- This domain tends to measure the elements of immediate financial needs, not future financial considerations.
- This domain includes most of the incentives that ROTC tracks and has increased or modified, such as loan repayment.
- The cheaper the school, the higher money now appeals to students.

Most students do not believe that the incentives that they are reading about already are in place. They respond saying that if such an incentive existed, they would be inclined to enroll.
• Money later measures how students respond to future earnings, future benefits, and future civilian opportunities after serving as a commissioned officer.

• This domain is more complex in that it measures beliefs about officership and its benefits as well as delayed gratification (future civilian opportunities).

• Those scaled to the right are generally saying that they can see more long term potential and would be motivated by delayed gratification (beyond college).

Students at state schools are more likely to buy into money later. There is no difference in ethnicity in how students perceive future opportunities.
How Students Find Out About ROTC and What They Have Considered in the Past
• 2007 was the low point in responses to questions of knowledge and interest.

• Only a quarter of students held any interest whatsoever in Army ROTC.

• Over 19% said that they didn’t know anything about the program and didn’t care to learn anything.

• The not interested at all started at 12 o’clock on the chart to 9 o’clock, or fully 3/4ths of the population.
• About 13% of students neither know or care to know anything about ROTC.
• There is no interest from 12 o’clock to 8 o’clock on the chart on the left.
• 11% said that they know a little about Army ROTC and thought briefly about participating.
• Nearly 9% said that they didn’t know much but might be interested.
• These numbers are significant improved from the 2005-2007 results.
How Students Learned About ROTC

- Before college students learned primarily through uncontrolled sources, their friends and fellow students.
- 29% said they learned from recruiters, up substantially from 2007 when only 23% learned from recruiters (however, 46% talked to a recruiter so half of the conversations did not include ROTC).
- Advertisement was up from 15% to 19%.
- High school counselors were way up at 21.5% versus 16% from 2007.
- Did not hear of ROTC at all was down in 2009, from 13% to 10%.
How Students Learned About ROTC On Campus

- After coming to college, students still learned primarily through uncontrolled sources, their friends and fellow students.
- Freshman orientation was way up with an increase from 17% to 25%.
- About 13% learned from Cadre.
- Hearing about ROTC from Cadets remained at the same level as 2007.
- College advisors doubled the score from 2007, but remain at 6%.
- On campus, Cadre are the lone purveyors of information on ROTC.
• The same segments appear in 2009 as in previous years.
• Apathetics are once again the most numerous group, and Hecklers the least.
• Compared to 2007 the ratios of First Stringers to Second Stringers and Benchwarmers are about the same.
• The composition of First Stringers was somewhat more physical than in 2007, and Second Stringers were much more physical.
• The Apathetic group was not
The Segments – First Stringers

• First Stringers – most likely to think that what ROTC Cadets do is cool, and most likely to be motivated by what ROTC is all about.
  – Generally more physical than the average student and more interested in military displays
  – Somewhat more apt to say that service to country is important
  – More interested in Scholarships
  – More likely to believe that future civilian job advantages will occur after a commission in the Army
  – Somewhat less likely to have considered enlistment
  – Somewhat more likely to have sought information on ROTC
  – Not much more informed about ROTC than the average student
  – Slightly more likely to have parents or siblings with military experience
The Segments – Second Stringers

• Second Stringers – just a little less interested than First Stringers.
  – Generally less physical than First Stringers and less interested in military displays, airborne, and survival training
  – Higher than average patriotism
  – Less interested in Scholarships than First Stringers, but more than Cheerleaders, Apathetics, and Hecklers
  – Somewhat more likely to believe that future civilian job advantages will occur after a commission in the Army
  – Likely to have considered enlistment and talked to a recruiter
  – Less likely to be a SAL than a First Stringer
  – Somewhat more informed about ROTC than the average student
  – Slightly more likely to have parents or siblings with military experience
Benchwarmers and Cheerleaders

• Benchwarmers – high scholarship, low in belief that being an officer will increase opportunities in future civilian career.
  – While still in the prime market, Benchwarmers tend to go for scholarships and not for the idea of future benefit of officership
  – Past analysis with Cadets show that this segment, given a four-year scholarship, is more likely to drop after one year
  – Physicality range is near that of First and Second Stringers
  – Most Benchwarmers find that the immediate benefits of ROTC are more interesting than the content of the program or the long-term benefits of officership

• Cheerleaders – high scholarship, high patriotism but low athleticism.
  – Cheerleaders provide a positive boon to Cadets on campus
  – Cheerleaders have changed significantly, becoming more scholarly, but all other characteristics have remained stable
The Segments – Apathetics and Hecklers

• Apathetics – Don’t know about ROTC and don’t care to know.
  – With the exception of 2004, this has been the largest segment on campuses
  – Their knowledge and interest in ROTC is not sufficient to consider them as even tangential prospects, but they are also not likely to give negative feedback to Cadets pursuing a commission

• Hecklers – ROTC is not just bad for them it is bad for everyone.
  – Fairly negative view of the military and those who serve
  – If numbers were larger, this would be a negative impact on Cadets pursuing a commission
  – Except for a spike in 2006-2007, this has consistently been the smallest segment
  – The decline from 2007 to 2009 may be attributable to the overall increase in positive feelings toward ROTC and the military
Clear Divide - physicality

What separates those who might have an interest in doing what ROTC does from those who do not is more often interest in physicality. Apathetics are more physical than Cheerleaders and slightly more than Hecklers, but compared to First Stringers, Second Stringers and Benchwarmers, the interest in sports and physical activities is way down.
Athleticism and First Stringers

- Since the beginning of the study in 2001, those who seemed drawn to the types of activities that ROTC does also consider themselves as athletes.
- First Stringers not only see themselves as athletes, but they are more interested in challenging activities than other segments.
- Apathetics and Hecklers who claim to be athletes are more likely to say that challenging physical activities are not to their liking.

The boxplot at right shows the tighter shot group on the entirety of the physicality domain for First Stringers.

Apathetics, on the other hand are the most broadly dispersed and Cheerleaders have significant numbers of outliers.
Physicality Varies by Major

- Physical Science, and business have the highest means for physicality, but business has many outliers (those with scores significantly below the average).
- Nurses are higher than expected but have many outliers.
- While technical majors considered ROTC, their overall average physical scores were below average.
- Clearly, no one major has a significant advantage in physicality and most have wide variance within the population group.
Incentives – Cost of Institution Versus Draw

• Most comparison elements were similar or nearly identical between low and high cost schools, but incentives were different.

• Scholarships, stipends and loan repayment were much more powerful at state institutions.

• The house down-payment from the Army Advantage Fund was also more interesting.

• However, Army Advantage Fund incentives did not come close to approaching scholarships, stipends and graduate school in motivating students.
Other Motivators – Considering Participation

Adventure training (includes rafting, rappelling, and climbing), and airborne training appealed to students and especially to First Stringers. Demonstrations would do wonders in encouraging enrollments.

Internships and stipends were very strong motivators. Both of these elements should be in on-campus information packets.

Humanitarian aid has dropped in appeal to students who have considered ROTC in the past.

<table>
<thead>
<tr>
<th></th>
<th>Positives</th>
<th>Negatives</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Internships</td>
<td>Humanitarian aid</td>
</tr>
<tr>
<td></td>
<td>Adventure and challenge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Money for college (scholarships and stipends)</td>
<td></td>
</tr>
</tbody>
</table>
Backup
Army Web Site Use Way Down

- Since beginning to ask the question about the Army Web Site in 2002, the percent saying that they had visited has fluctuated from 27-35%.
- Even in the down years of 2006/7, more than one in four students said that they had visited the site.
- Generally, about a third of students said that they were unsure of whether they had visited the site.
- In contrast, nearly 3/4ths of all students flatly said that they had never visited the Army web site.

- Students who had considered enlistment were more likely to have said “yes”.
- African-Americans and Hispanics were less likely to have said “yes”.

I visited the Army web site on the World Wide Web

- No
- Unsure
- Yes

Percent

0.0%
20.0%
40.0%
60.0%
80.0%
Students More Cautionary About Finances

From 2001 - 2007

<table>
<thead>
<tr>
<th>Finances may affect my going to school until I complete a bachelor's degree</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
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<tr>
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<td>45.0</td>
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<tr>
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<td>6230</td>
<td>23.6</td>
<td>23.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>26444</td>
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<td>100.0</td>
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</tr>
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</table>

2009

<table>
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<th>Finances may affect my going to school until I complete a bachelor's degree</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
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<td>43.1</td>
<td>43.1</td>
</tr>
<tr>
<td>No</td>
<td>524</td>
<td>23.1</td>
<td>23.4</td>
<td>67.0</td>
</tr>
<tr>
<td>Unsure</td>
<td>739</td>
<td>32.6</td>
<td>33.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Yes</td>
<td>2239</td>
<td>98.8</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2266</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- The percentage of students saying that they will continue their studies to completion has remained relatively constant over time at 80-90%.
- From 2001 to 2007, the number saying that finances “may affect” going to school was steady at one in five to one in four.
- Despite the students in 2009 saying that they will stay to complete, the number who perceive that there may be financial issues that could affect college is much higher.
- A nearly 40 percent increase in those agreeing that finances may affect going to school over the previous years’ samples.
- The difference is significant.
Recruiting Policies and Entry Level Standards—Waiver Analysis

April 2009
Longitudinal Analysis of Waivered Recruits: Background

Objective: Address USAAC and G-1 questions about performance of waivered recruits

• FY08-09: Determine whether RA soldiers who enlist with waivers perform on par with non-waivered recruits
  – Include measures such as attrition and reasons for it, performance over time, promotion tempo, and military training performance
  – Distinguish outcomes by type of waiver

• FY09: Assess whether members of units with higher proportions of waivered soldiers experience higher rates of attrition or poor performance
  – Distinguish outcomes for waivered v. non-waivered members
  – Distinguish outcomes by type of waiver
  – Distinguish outcomes by unit characteristics, e.g., location, TOE v. TDA, branch, gender mix, deployment history
Work Falls Under Broader Project on Recruiting Policies and Entry Level Standards

Sponsors: Deputy Chief of Staff, G-1; CG, US Army Accessions Command

Objective: Identify what demographic shifts in US youth population and labor market through 2015 mean to sustaining Army recruiting. Identify changes in Army/OSD policies, programs, recruiting resources, missioning, or standards that may be appropriate to support RA enlisted production, quality, and diversity and to ensure the Army efficiently meets its current and future requirements.

Research Issues/Tasks:

- Leverage recent RAND and USAAC research on demographic shifts in US youth population and what they mean to Army recruiting
- Extend ongoing analyses of waived recruits to assess positive and negative effects of waivers on meeting Army recruiting and retention requirements and on the force more generally
- As useful, integrate and extend research by RAND, ARI, and others on effects of current and prospective programs to identify viable alternatives/supplements to current entry standards and qualification measures
- Assess possible changes in youth education distribution in response to financial returns to higher education; in competition for youth labor pool; and in civilian employment opportunities, both overall and for specific types of jobs
- Identify changes in Army/OSD policies, programs, resources, missions, standards, or measures to efficiently support production, quality, and diversity
Waiver Analyses Reported in this Briefing

What is the waiver distribution among recruits?

Do recruits with some types of waivers have different performance outcomes than recruits without waivers (or those with other waivers)?

Are observed differences between waived recruits and those without waivers explained by related demographic differences?

- Gender
- AFQT score
- Tier
- Number of dependents
- Marital status
- Age at accession
Waiver Analysis Outcome Variables

Using TAPDB-AE, RA Analyst, and ATRRS files, we analyzed information on:

- Success in initial entry training
- First-term attrition
- Reasons for separation during first term
- Promotion to E5
- Date for good conduct medal
- Reenlistment prohibition and reason
- Negative rank change and reason
- Suspension of favorable person status and reason
Analytical Approach

Used data allowing at least a three-year follow up of recruits

- Follow up through September 2008 of FY02-FY05 recruits

Measured the incidence of each specific waiver type and the related outcomes over the full follow up period

- Also assessed more recent periods for selected outcomes (found similar results)
- Controlled analytically for accession date to account for changes in waiver patterns and rates of specific outcomes over time

Compared the outcomes for recruits with each type of waiver to those for recruits without waivers

Assessed the extent to which differences in demographic factors between the recruits with each type of waiver and recruits without waivers accounted for the outcomes
Bottom Line Up Front

Recruits with dependency, mental qualification, or medical waivers

- Show greater evidence of some early problems relative to recruits without waivers
- Have higher three-year loss rates
- Do as well as or better than recruits without waivers in the rate of serious separation-related problems
- Do not do as well as non-waivered recruits after early service if entered with weight or mental qualification waivers; do as well as or better than non-waivered recruits after early service if entered with dependency waivers

Recruits with conduct or drug waivers

- Train and perform better initially than those without waivers
- Show mixed results on three-year loss rates, but have greater losses among recruits in largest conduct waiver category or with drug waivers
- Have greater rate of serious separation-related problems
- Show evidence of early success during term of service, followed by subsequent problems, then, absent attrition, of success at 4 years; drug waiver recruits fare worse up to the 4-year point
Overview of Results Charts Features

The estimated percentage for recruits without waivers is shown at the top of each column of numbers for each outcome

- The left column for each outcome shows the basic rates for recruits with specific waivers
- The right column for each outcome shows the estimated rates after removing the effects of demographic differences between recruits with and without waivers
- The Army experiences the rates in the left column
- Comparison of results in the two columns provides insight on whether differences in outcomes between waivered vs. non-waivered recruits are due to the waiver, the demographic characteristics of recruits with that type of waiver, or both

The results charts use color-coded shading to highlight the direction and statistical significance of differences in the outcomes for waivered vs. non-waivered recruits

- Dark red means (statistically) significantly worse outcome than for recruits without waivers
- Orange means near-significantly worse outcome than for recruits without waivers
- Light green means near-significantly better outcome than for recruits without waivers
- Dark green means significantly better outcome than for recruits without waivers
# Some Early Problems for Recruits with Dependency, Mental Qualification, or Medical Waivers

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<thead>
<tr>
<th>Waiver</th>
<th>N=258413</th>
<th>N=39335</th>
<th>N=254005</th>
<th>N=75345</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% of Enlistees</td>
<td>% of Waivers</td>
<td>IET GRAD 1ST TIME</td>
<td>PERFORMANCE AND CONDUCT</td>
</tr>
<tr>
<td>BA: Dependency of military spouse</td>
<td>302</td>
<td>0.1%</td>
<td>0.8%</td>
<td>63.7%</td>
</tr>
<tr>
<td>BB: Dependency number of dependents</td>
<td>519</td>
<td>0.2%</td>
<td>1.3%</td>
<td>59.5%</td>
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<tr>
<td>CY: Mental qualification - meets ASVAB</td>
<td>818</td>
<td>0.3%</td>
<td>2.1%</td>
<td>66.1%</td>
</tr>
<tr>
<td>HB: Medical disqualification weight</td>
<td>977</td>
<td>0.4%</td>
<td>2.5%</td>
<td>64.3%</td>
</tr>
<tr>
<td>HC: Medical disqualification disease</td>
<td>14690</td>
<td>5.7%</td>
<td>37.3%</td>
<td>67.9%</td>
</tr>
</tbody>
</table>

**NOTE:** The percentage estimates have been adjusted to remove individual differences in outcomes due to differences in recruits' accession date and in the length of time beyond three years that they can be observed. The percentages shown are the estimated rates that would be expected given the same accession date at the end of the follow-up period. The right column of each pair shows the estimated rates after removing the effects of demographic differences between recruits with the indicated waiver and those without waivers. The estimated percentages for recruits without waivers are shown at the top of each column of outcome numbers. Color coding: dark red means (statistically) significantly worse outcome than for recruits without waivers; orange means near-significantly worse outcome; light green means near-significantly better outcome; and dark green means significantly better outcome than for recruits without waivers.
## Higher Three-Year Loss Rates for Recruits with Dependency, Mental Qualification, or Medical Waivers

<table>
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<th>N=258413</th>
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<th>N=258413</th>
<th>N=75345</th>
<th>N=75345</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>% of</td>
<td>% of</td>
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<td>DF:PREGNANCY</td>
<td>NOT A</td>
<td>FV:CONDITION:</td>
</tr>
<tr>
<td></td>
<td>Enlisted</td>
<td>Waivers</td>
<td>Loss</td>
<td>OR CHILD BIRTH</td>
<td>DISABILITY</td>
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<tr>
<td>BA:Dependency of military spouse</td>
<td>302</td>
<td>0.1%</td>
<td>0.8%</td>
<td>37.6%</td>
<td>21.9%</td>
<td>18.2%</td>
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<tr>
<td>BB:Dependency number of dependents</td>
<td>519</td>
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<td>1.3%</td>
<td>29.7%</td>
<td>32.6%</td>
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<tr>
<td>CY:Mental qualification - meets ASVAB</td>
<td>818</td>
<td>0.3%</td>
<td>2.1%</td>
<td>34.1%</td>
<td>27.2%</td>
<td>12.9%</td>
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<td>2.5%</td>
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<tr>
<td>HC:Medical disqualification disease</td>
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<td>37.3%</td>
<td>26.7%</td>
<td>28.5%</td>
<td>5.0%</td>
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</tbody>
</table>

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Recruits with Dependency, Mental Qualification, or Medical Waivers Do As Well As or Better Than Non-Waivered Recruits in Rate of Serious Separation-Related Problems

<table>
<thead>
<tr>
<th>Waiver</th>
<th>% of Enlistees</th>
<th>% of Waivers</th>
<th>N=258413</th>
<th>N=39335</th>
<th>N=75345 FS:IN LIEU OF TRAIL BY COURT</th>
<th>N=75345 KA: PATTERN OF MARTIAL</th>
<th>N=75345 KK: MISCONDUCT OF ABUSE</th>
<th>N=75345 KQ: COMMISION OF A SERIOUS OFFENSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA: Dependency of military spouse</td>
<td>302</td>
<td>0.1%</td>
<td>0.8%</td>
<td>3.7%</td>
<td>8.3%</td>
<td>0.9%</td>
<td>3.3%</td>
<td>4.9%</td>
</tr>
<tr>
<td>BB: Dependency number of dependents</td>
<td>519</td>
<td>0.2%</td>
<td>1.3%</td>
<td>5.4%</td>
<td>7.4%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>3.3%</td>
</tr>
<tr>
<td>CY: Mental qualification - meets ASVAB</td>
<td>818</td>
<td>0.3%</td>
<td>2.1%</td>
<td>6.0%</td>
<td>8.2%</td>
<td>4.9%</td>
<td>5.2%</td>
<td>4.0%</td>
</tr>
<tr>
<td>HB: Medical disqualification weight</td>
<td>977</td>
<td>0.4%</td>
<td>2.5%</td>
<td>5.4%</td>
<td>5.9%</td>
<td>4.0%</td>
<td>4.3%</td>
<td>4.1%</td>
</tr>
<tr>
<td>HC: Medical disqualification disease</td>
<td>14690</td>
<td>5.7%</td>
<td>37.3%</td>
<td>6.0%</td>
<td>6.1%</td>
<td>4.4%</td>
<td>4.6%</td>
<td>6.2%</td>
</tr>
</tbody>
</table>

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Recruits with Weight or Mental Qualification Waivers Do Not Do As Well As Non-Waivered Recruits After Early Service; Those with Dependency Waivers Do As Well or Better

<table>
<thead>
<tr>
<th>Waiver</th>
<th>N 258413</th>
<th>% of N</th>
<th>Enlistees</th>
<th>% of Waivers</th>
<th>Good Conduct</th>
<th>No Negative Medal</th>
<th>No Suspension Rank Change</th>
<th>No Reenlistment Bar</th>
<th>Favorable Person Status</th>
<th>Made E5 by 48 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA: Dependency of military spouse</td>
<td>302</td>
<td>0.1%</td>
<td>0.8%</td>
<td></td>
<td>45.1%</td>
<td>52.0%</td>
<td>90.9%</td>
<td>84.1%</td>
<td>92.2%</td>
<td>91.2%</td>
</tr>
<tr>
<td>BB: Dependency number of dependents</td>
<td>519</td>
<td>0.2%</td>
<td>1.3%</td>
<td></td>
<td>52.5%</td>
<td>56.3%</td>
<td>95.5%</td>
<td>88.9%</td>
<td>93.1%</td>
<td>90.5%</td>
</tr>
<tr>
<td>CY: Mental qualification - meets ASVAB</td>
<td>818</td>
<td>0.3%</td>
<td>2.1%</td>
<td></td>
<td>58.2%</td>
<td>58.1%</td>
<td>88.7%</td>
<td>89.9%</td>
<td>84.5%</td>
<td>86.8%</td>
</tr>
<tr>
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<td>977</td>
<td>0.4%</td>
<td>2.5%</td>
<td></td>
<td>59.2%</td>
<td>59.4%</td>
<td>87.8%</td>
<td>88.0%</td>
<td>82.8%</td>
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<td>14690</td>
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<td>86.3%</td>
<td>85.7%</td>
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Recruits with Conduct or Drug Waivers Train and Perform Better Than Those without Waivers Initially

<table>
<thead>
<tr>
<th>Waiver</th>
<th>% of Enlistees</th>
<th>% of Waivers</th>
<th>IET GRAD 1ST TIME</th>
<th>GA:ENTRY PERFORMANCE AND CONDUCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB: Law violations serious traffic</td>
<td>1906</td>
<td>0.7%</td>
<td>4.8%</td>
<td>78.1% 77.3% 10.8% 10.8%</td>
</tr>
<tr>
<td>DC: Law violations minor non-traffic</td>
<td>531</td>
<td>0.2%</td>
<td>1.3%</td>
<td>76.8% 75.6% 9.5% 9.9%</td>
</tr>
<tr>
<td>DD: Law violations serious non-traffic</td>
<td>11809</td>
<td>4.6%</td>
<td>30.0%</td>
<td>74.0% 73.1% 11.2% 11.3%</td>
</tr>
<tr>
<td>DE: Law violations felony adult</td>
<td>2126</td>
<td>0.8%</td>
<td>5.4%</td>
<td>76.6% 76.2% 11.2% 11.3%</td>
</tr>
<tr>
<td>DF: Law violations felony juvenile</td>
<td>1304</td>
<td>0.5%</td>
<td>3.3%</td>
<td>77.7% 75.6% 8.5% 8.9%</td>
</tr>
<tr>
<td>DRUG WAIVERS</td>
<td>3925</td>
<td>1.5%</td>
<td>10.0%</td>
<td>74.1% 72.7% 9.3% 9.5%</td>
</tr>
</tbody>
</table>

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Mixed Results on Three-Year Loss Rates for Recruits with Conduct Waivers, But Greater for Largest Conduct Waiver Category and for Recruits with Drug Waivers

<table>
<thead>
<tr>
<th>Waiver</th>
<th>% of Enlistees</th>
<th>% of Waivers</th>
<th>36-Month Loss</th>
<th>DF:PREGNANCY OR CHILD BIRTH</th>
<th>FW:FAILED MEDICAL / PHYSICAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB: Law violations serious traffic</td>
<td>1906</td>
<td>0.7%</td>
<td>22.5%</td>
<td>6.8%</td>
<td>26.6%</td>
</tr>
<tr>
<td>DC: Law violations minor non-traffic</td>
<td>531</td>
<td>0.2%</td>
<td>28.9%</td>
<td>6.8%</td>
<td>26.6%</td>
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<tr>
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<td>11809</td>
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</tr>
<tr>
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<td>2126</td>
<td>0.8%</td>
<td>25.3%</td>
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<tr>
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<td>1304</td>
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<tr>
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RAND
# Greater Rate of Serious Separation-Related Problems for Recruits with Conduct or Drug Waivers

<table>
<thead>
<tr>
<th>Waiver</th>
<th>N</th>
<th>% of Enlistees</th>
<th>% of Waivers</th>
<th>N</th>
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<th>N</th>
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<tr>
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<td>9.3%</td>
<td>8.9%</td>
<td>5.2%</td>
<td>6.3%</td>
<td>15.3%</td>
<td>14.6%</td>
<td>8.5%</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td>0.2%</td>
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<td>10.7%</td>
<td>8.6%</td>
<td>10.1%</td>
<td>9.0%</td>
<td>17.6%</td>
<td>14.8%</td>
<td>7.7%</td>
<td>6.5%</td>
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<td>8.1%</td>
<td>8.6%</td>
<td>17.4%</td>
<td>15.9%</td>
<td>8.2%</td>
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<td>10.4%</td>
<td>5.8%</td>
<td>6.7%</td>
<td>17.3%</td>
<td>16.4%</td>
<td>7.3%</td>
<td>7.3%</td>
<td></td>
<td></td>
<td></td>
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</tr>
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<td>DF: Law violations felony juvenile</td>
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<td>0.5%</td>
<td>3.3%</td>
<td>11.8%</td>
<td>10.8%</td>
<td>6.2%</td>
<td>5.5%</td>
<td>14.8%</td>
<td>12.6%</td>
<td>8.3%</td>
<td>7.1%</td>
<td></td>
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</tr>
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Recruits with Conduct Waivers Show Early Success, Subsequent Problems, Followed, Absent Attrition, By Success at 4 Years; Drug Waiver Recruits Fare Worse

<table>
<thead>
<tr>
<th>Waiver</th>
<th>N=258413</th>
<th>N=39335</th>
<th>N=178301</th>
<th>N=178301</th>
<th>N=178301</th>
<th>N=178301</th>
<th>N=133713</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% of Enlistees</td>
<td>% of Waivers</td>
<td>Good Conduct Medal</td>
<td>No Negative Rank Change</td>
<td>Reenlistment Bar</td>
<td>Favorable Person</td>
<td>Made E5 by 48 months</td>
</tr>
<tr>
<td>DB:Law violations serious traffic</td>
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<td>56.6%</td>
<td>57.4%</td>
<td>86.1%</td>
<td>82.2%</td>
</tr>
<tr>
<td>DC:Law violations minor non-traffic</td>
<td>531</td>
<td>0.2%</td>
<td>1.3%</td>
<td>63.0%</td>
<td>62.5%</td>
<td>83.9%</td>
<td>84.0%</td>
</tr>
<tr>
<td>DD:Law violations serious non-traffic</td>
<td>11809</td>
<td>4.6%</td>
<td>30.0%</td>
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<td>58.7%</td>
<td>82.2%</td>
<td>79.9%</td>
</tr>
<tr>
<td>DE:Law violations felony adult</td>
<td>2126</td>
<td>0.8%</td>
<td>5.4%</td>
<td>59.3%</td>
<td>59.9%</td>
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</tr>
</tbody>
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Summary

Recruits with dependency, mental qualification, or medical waivers

- Some early problems
- Higher three-year loss rates
- Do as well as or better than recruits without waivers in rate of serious separation-related problems
- Do not do as well as non-waivered recruits after early service if entered with weight or mental qualification waivers; do as well as or better than non-waivered recruits after early service if entered with dependency waivers

Recruits with conduct or drug waivers

- Train and perform better than those without waivers initially
- Show mixed results on three-year loss rates, but have greater losses for largest conduct waiver category and for recruits with drug waivers
- Greater rate of serious separation-related problems
- Show early success, subsequent problems, followed, absent attrition, by success at 4 years; drug waiver recruits fare worse up to 4-year point
Next Steps

ICW HQDA G-1 and USAAC, refine analyses of outcomes for recruits with waivers relative to those of non-waivered recruits

Assess whether members of units with higher proportions of waived soldiers experience higher rates of attrition or poorer performance
U.S. Army Foreign Language Recruiting Initiative (FLRI)

Rod McCloy

Presented to:
Accessions Research Consortium (ARC)
U.S. Army Accessions Command (USAAC)

September 2, 2009
Overview

• Background
• Details of the Current Study
• Selected Results
• Conclusions
Current HumRRO Project Staff

• Ms. Ani S. DiFazio
  – Project Director
• Dr. Dan J. Putka
  – Analyst
• Dr. Rod McCloy
  – Senior Technical Advisor
Background
Program Description

• POC: Dr. Naomi Verdugo
  – Office of the Assistant Secretary of the Army.

• Premise
  – Native foreign language speakers may score low on the Armed Services Vocational Aptitude Battery (ASVAB) due to lack of English proficiency, rather than lack of aptitude.

• FLRI Process
  – Identify high-aptitude native foreign language speakers based on tests (including a FLRI screening test) administered at application
  – Increase English proficiency of FLRI recruits through English-as-a-Second Language (ESL) training
  – Re-test ESL graduates on ASVAB

• FLRI Objective
  – Expand recruiting market
Program Description (cont.)

• Entry Requirements
  – AFQT Category IV-A (percentile scores 21-30)
  – English Comprehension Level Test (ECLT) score between 40 and 74
  – Special FLRI Screening Test

• Applicants
  – Only Spanish speakers originally
    • Spanish Wonderlic® Personnel Test (SWPT) used as FLRI screening test
  – Army wanted to make program available to all foreign-language speakers.
FLRI Program Expansion

- Use a language-neutral (non-verbal) test as the FLRI screen
  - Assembling Objects (AO) from ASVAB
  - Raven’s Progressive Matrices (RPM)
- Army selected AO (cut score = 54)
  - AO and RPM performed similarly
  - AO already administered at MEPS
  - Began use during fall/winter of 2006-7
  - Collected RPM data when students first arrived at ESL to have a ready fall-back position in case AO did not perform as expected
Summary of FLRI Tests Examined in This Evaluation

- **Armed Forces Qualification Test (AFQT)**
  - Participants must score in Category IV-A
- **English Comprehension Level Test (ECLT)**
  - Participants must score between 40 and 74
- **Assembling Objects (AO)**
  - Strong measure of general spatial reasoning; has smaller sex differences relative to other spatial tests (Project A)
  - Participants must score 54 or higher
  - Current FLRI screener
- **Raven’s Progressive Matrices (RPM)**
  - 60 items in 5 12-item sets
  - Administered as soon as participants arrived at ESL training
- **Spanish Wonderlic® Personnel Test (SWPT)**
  - 12-minute, 50-item test of cognitive ability; administered via Spanish text
  - Previous FLRI screener
ESL Training

- Two schools
  - Defense Language Institute English Language Center (DLIELC) at Lackland AFB
  - ARNG Language School at Fort Allen, Puerto Rico
- Graduate from ESL when score 75 or more on the ECLT
  - Waivers of this requirement are sometimes given
- Take the Armed Forces Classification Test (AFCT) after graduation
  - Post-enlistment version of ASVAB
- GT Preparation Course
  - Always part of the Fort Allen ESL program
  - DLIELC formally began GT Preparation training in June 2008.
- A “successful” FLRI recruit
  - One whose post-ESL AFQT score (and aptitude category) is higher than the MEPS AFQT score (and category)
Details of the Current Study
Goals of the Study

- Evaluate validity of AO and RPM as FLRI screening tests
- Evaluate impact of GT Prep on post-ESL AFQT scores
- Model predictors of valued outcomes
- Summarize attitudes of participants and recruiters regarding FLRI
  - Results pending
FLRI Outcomes (Criteria)

- **Post-ESL AFQT Score**
  - Analyses limited to ESL graduates

- **AFQT Score Change**
  - Difference between MEPS AFQT score and post-ESL AFQT score

- **AFQT Category Change**
  - 1/0 variable (1 = post-ESL AFQT category of III-B or higher)

- **ESL Graduation**
  - 1/0 variable (1 = graduate)

- **Post-ESL Attrition**
  - Analyses pending
Research Questions

• How much do AFQT scores improve from MEPS to post-ESL?
• How well do AO and RPM predict valued FLRI outcomes
  – Post-ESL AFQT scores
  – AFQT score change (from MEPS to post-ESL)
  – AFQT category change (from MEPS to post-ESL)
  – ESL graduation
  – Post-ESL attrition (analyses pending)
Research Questions (cont.)

- How do AO and RPM compare to SWPT in terms of predicting valued outcomes?
- How does the GT prep course affect post-ESL AFQT scores, changes in AFQT scores/categories, and differences in performance across schools?
- What factors predict valued outcomes for ESL participants?
Other Research Questions
Not Discussed Today

• Does AO/RPM predictive power depend on other variables (sex, school, prep, weeks in ESL, MEPS AFQT, differences between ECLT scores from MEPS to initial testing at DLIELC)?

• How do stakeholders (participants, recruiters) view FLRI? (analyses pending)
Samples

- **S1: Full AO-Screened Sample (n = 834)**
  - Participants screened with AO
  - Do not have SWPT scores
  - Some have RPM scores
- **S2: AO-Screened RPM Sample (n = 422)**
  - Subset of S1
  - Those who have both AO and RPM scores
- **S3: SWPT-Screened AO Sample (n = 472)**
  - Screened on SWPT
  - Have AO scores from Army archival data collected from MEPS administration

- Used S1 for maximal information re: AO
- Used S2 and S3 for comparisons of AO with RPM and SWPT, respectively
Selected Results
Caveat

Results presented here are not yet finalized
Descriptive Statistics: Criteria

Approximately 60% of FLRI participants increase their AFQT Category to III-B or higher

<table>
<thead>
<tr>
<th>Sample/Criterion</th>
<th>Sample</th>
<th></th>
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<td>N</td>
<td>M</td>
<td>SD</td>
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<td>.49</td>
<td>277</td>
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<td>18.41</td>
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<td>.94</td>
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<td>244</td>
<td>.88</td>
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</table>

ESL graduation rates are uniformly high
Bivariate Relations: Screening Tests and Outcomes

<table>
<thead>
<tr>
<th>Sample</th>
<th>Test</th>
<th>Post-ESL AFQT Score</th>
<th>AFQT Score Change</th>
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<th>ESL Graduation</th>
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<tr>
<td>1</td>
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<td>AO</td>
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<td>.16</td>
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<tr>
<td>2</td>
<td>RPM</td>
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<tr>
<td>3</td>
<td>SWPT</td>
<td>407</td>
<td>.23</td>
<td>.41</td>
<td>407</td>
</tr>
</tbody>
</table>

AO provides acceptable prediction of valued FLRI outcomes

Little difference in predictive power of AO and RPM

Large difference in predictive power of AO and SWPT
% of ESL Graduates Scoring in Lower, Same, or Higher AFQT Category

<table>
<thead>
<tr>
<th>Sample 1: Full AO-Screened Sample</th>
<th>Sample 2: AO-Screened RPM Sample</th>
<th>Sample 3: SWPT-Screened AO Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lower than Cat</td>
<td>Cat</td>
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<tr>
<td>Sample</td>
<td>N</td>
<td>IV-A</td>
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<tr>
<td>Overall</td>
<td>765</td>
<td>24.2</td>
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<tr>
<td>DLTEC Only</td>
<td>649</td>
<td>27.3</td>
</tr>
<tr>
<td>Fort Allen Only</td>
<td>116</td>
<td>6.9</td>
</tr>
</tbody>
</table>

AO screen associated with more in lower category and fewer in same category than SWPT screen

Few PR participants receive lower AFQT category; a large majority increase their category score
Post-ESL AFQT Scores and Change Scores by GT Preparation Course Status and School

Compared to PR participants . . .

<table>
<thead>
<tr>
<th>School</th>
<th>Post-ESL AFQT Score</th>
<th>AFQT Score Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>M</td>
</tr>
<tr>
<td>DLIELC</td>
<td>649</td>
<td>30.10</td>
</tr>
<tr>
<td>No GT Prep</td>
<td>299</td>
<td>26.11</td>
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<tr>
<td>GT Prep</td>
<td>350</td>
<td>33.50</td>
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<tr>
<td>Fort Allen</td>
<td>116</td>
<td>43.01</td>
</tr>
</tbody>
</table>

DLIELC participants perform about 1 sd lower on Post-ESL AFQT Score and AFQT Score Change

Those without GT prep perform about 1.3 sd lower

GT prep reduces the performance gap by about 45%; even so, a ¾ sd discrepancy remains
### Post-ESL AFQT Category by GT Preparation Course Status and School

<table>
<thead>
<tr>
<th>School</th>
<th>N</th>
<th>Lower than Cat IV-A</th>
<th>Cat IV-A</th>
<th>Higher than Cat IV-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLIELC</td>
<td>649</td>
<td>27.3</td>
<td>15.1</td>
<td>57.6</td>
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<tr>
<td>No GT Prep</td>
<td>299</td>
<td>38.5</td>
<td>22.4</td>
<td>39.1</td>
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<tr>
<td>GT Prep</td>
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<td>17.7</td>
<td>8.9</td>
<td>73.4</td>
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<td>Fort Allen</td>
<td>116</td>
<td>6.9</td>
<td>13.8</td>
<td>79.3</td>
</tr>
</tbody>
</table>

Significant performance difference across schools . . .

. . . but GT Prep ameliorates the situation considerably (especially higher-scoring participants)
“Fake FLRIs”

- Individuals with sufficient English fluency
- Score intentionally low on MEPS ECLT
- Show meteoric increase on initial ECLT at ESL
- Use FLRI to enter Army despite low AFQT

- ESL likely not suitable remediation for them
- Could downwardly bias indices of program success and waste resources
- 35.5% exhibited sufficiently extreme increases on the ECLT from MEPS to ESL
  - 296 of 683 DLIELC recruits in full AO sample with both non-missing ECLT scores
  - Some score discrepancies could be due to MEPS ECLT testing issues/anomalies
Fake FLRIs (cont.)

<table>
<thead>
<tr>
<th>Initial DLIELC-MEPS ECLT Difference</th>
<th>Percentile of ECLT Difference</th>
<th>AO OR</th>
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<tbody>
<tr>
<td>-8</td>
<td>5</td>
<td>1.561</td>
</tr>
<tr>
<td>-1</td>
<td>10</td>
<td>1.407</td>
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<tr>
<td>0</td>
<td>15</td>
<td>1.386</td>
</tr>
<tr>
<td>0</td>
<td>20</td>
<td>1.386</td>
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<tr>
<td>2</td>
<td>25</td>
<td>1.345</td>
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<tr>
<td>5</td>
<td>30</td>
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<td>8</td>
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<td>11</td>
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<td>16</td>
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<td>19</td>
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<td>20</td>
<td>-</td>
<td>1.029</td>
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<tr>
<td>21</td>
<td>60</td>
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<tr>
<td>22</td>
<td>-</td>
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<td>85</td>
<td>0.836</td>
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<td>37</td>
<td>90</td>
<td>0.799</td>
</tr>
<tr>
<td>42</td>
<td>95</td>
<td>0.742</td>
</tr>
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</table>

Prediction of AFQT Category Change with AO as a Function of Initial DLIELC-MEPS ECLT Score Differences

(OR = Odds Ratio)

AO shows positive prediction of category change for those with smaller discrepancies in ECLT score between MEPS and DLIELC

Negative relation for higher discrepancies
Conclusions
Conclusions

- FLRI program successful
  - Nearly 60% of participants increase their AFQT Category from IV-A to III-B or higher
- ESL graduation rates uniformly high
- Little discrepancy between predictive power of AO and RPM
  - Use of DoD’s AO means no added monetary or administration time requirement
- GT Prep effective at improving post-ESL AFQT performance, but school differences remain
- Screening for “Fake FLRIs” recommended to ensure validity of selection process
Questions?
Behavioral Health Assessment for Soldiers

LTC Ingrid Lim
Command Psychologist
USAREC
Background

• Increases in suicidal behavior in Initial Entry Training and other areas, prompted Army leadership to reconsider utility of a mental health screening instrument.

• Senior military behavioral health professionals, convened by the TRADOC Surgeon have reviewed and made a recommendation of an updated screening instrument.

• The behavioral health professionals recommended adding questions for use by medical examiners at MEPS, and that further study be conducted on relationship between fitness and suicide.
Problem Statement

• Reduce the number of high-risk individuals entering the Army.

• Reduce the “unfavorable” attrition in the training bases.

• Revise AR 601-270 (MEPS) to establish the use of a psychological screening tool at MEPS to evaluate emotional, behavioral, and social suitability for military service.

AR 601-270 requires a psychiatric examination will be made whenever there is reason to question applicant’s emotional, social, or intellectual adequacy for military service. Applicants will be referred to a psychiatrist when deemed necessary by the Chief Medical Officer.
Initial Approach

• Integrate additional questions to the medical history and examination process at the MEPS to include:
  – Depression Screen (4 questions)
  – Alcohol Screen (3 questions)
  – Self-mutilation (1 question)
  – Suicidal behavior (1 question)
  – Impulsivity (1 question)
  – Sleep disturbance (1 question)
Interim Approach

• Study and analyze the relationship between occupational fitness and high-risk behaviors to include:
  – Establish working relationships and data use agreements among ARI, AMSARA, Army Suicide Prevention Program, CHPPM Behavioral Social Health Program’s Suicide Analysis Cell, and USAAC G2/9.
  – Conducting a retrospective analysis to assess if there is a significant difference in ARI’s Assessment of Individual Motivation scores and accession mental health/moral waiver in individuals who have committed/attempted suicide since 2005. (AMSARA).
  – Study the Tailored Adaptive Personality Assessment Screen (TAPAS) to determine if there are aspects of the test that are associated with an increased risk of occupational dysfunction (ARI/AMSARA).
  – Conduct legal review.
  – Determine resource requirements (i.e. manpower, TDY, databases, etc.).

• Further study the relationship between unfavorable attrition and conduct, medical and dependency waivers (USAAC G2/9).
  – Establishing a working relationship and data use agreements about TRADOC training bases and USAAC G2/9. This will allow on to drill down on the attrition data with greater fidelity.
  – Conduct data reduction and analysis to determine if there is a significant difference between Soldiers granted waivers and unfavorable attrition.
USAAC G2/9 Integration

**USAREC**
- Psychologist
  - Performs an assessment of questions

**USAAC G2/9**
- Provides data pulls
  - Attrition analysis

**AMSARA**
- Conduct retrospective analysis with AIM Scores and waivers in suicide victims/attempts

**BCT CDR**
- Provides detailed attrition data to USAAC G2/9

**MEPCOM**
- Perform a PA&E assessment of resources required

**ARI**
- ARI/TAPAS evaluation of mental waivers who have committed/attempted suicide
Psychological Screening Tool

Attrition captured at all levels until the First Unit of Assignment

Volunteer

MEPS
Screening Tool given to all MEPS

REC
Bn

OSUT

BCT

AIT

Unit of Assignment

Conduct attrition analysis to see if there is a significant difference in psychological screening scores and attrition

Data provided quarterly by training bases
Analysis Hierarchy

Attrition analysis of all Soldiers

What impact, if any, does the psychological screening tool have on attrition in the Army?

Is there a difference in the performance/conduct between Soldiers?

Maximize performance

Minimize unacceptable conduct

Maximize return on investment

Reduce training base attrition (i.e. to include EPTS)

Minimize unfavorable attrition

Minimize resources to recruit

Maximize quality recruits

AMSARA

Looking at Behavioral Health Waivers /AIM scores

What impact does the psychological screening tool have on the Army's ability to recruit quality Soldiers?

A holistic analysis approach will be taken to determine the impact of the screening tool on the Army. AMSARA will focus on retrospective analysis to assess if there is a significant difference in the ARI’s Assessment of Individual Motivation scores and accession mental/health conduct waiver in individuals who have committed/attempted suicide since 2005.
Experiment Development Approach

• Phase I – Develop the questions
• Phase II – Data Collection Plan
  – Data elements will be provided in the Concept Experimentation Plan.
  – Data will be collected over a one-year period at the MEPS and TRADOC training bases.
  – Data reduction and analysis will be conducted by AMSARA and USAAC G2/9.
• Phase III – Final Report
Way Ahead
Used regression analysis to determine

Sum of all completed physiological changes made by an organism in response to stress

Structural Equation

Constructs

Leadership
Genetics
Sociocultural Background

Warrior Ethos

Resilience
Allstatic Load

Sum of all completed physiological changes made by an organism in response to stress

Behavior of Interest

Unit Cohesion
Predictability of Violence
Emotion-Focused Coping
Secondary Appraisal of the Situation
Problem-Solving
Support Seeking
Privation
Fatigue
Temperature Extremes
Terrain
Proximity of Enemy
Length of Engagement
Lethality of Battlefield

11

11
SIMPLIFICATION OF INITIAL STRUCTURAL MODEL

- Measures of Warrior Values
- Eudaimonic Wellbeing
- Warrior Values
- Resilience
- Allostatic Load
- Social & Genetic Influences
- Measures of Resilience
- Adversity
- Battlefield Environment
- Behavior of Interest
Goals & Objectives

Dr. Stanczak Study

• Establish empirically-derived standards of psychological fitness for duty.
• Devise a procedure for screening potential recruits for psychological fitness prior to enlistment.
• Devise a reliable, valid, and legally acceptable measure for periodic psychological evaluation over the course of a Soldier’s career.
• To establish psychological fitness baselines against which future changes in a Soldier’s mental status may be gauged.
• To reduce the rate of suicides and other maladaptive behaviors.
• Identify those Soldiers who chances of success will be enhanced by a rational allocation of mental health and supportive resources.
• To institute a rational and criterion-referenced program to increase Soldier’s resilience and adaptability.
• To predict Soldiers’ behaviors in training and operational settings.
• To assess the effectiveness of psychological treatment.
Methodology & Approach
Dr. Stanczak Study

• Model of behavioral reliability will be tested
  – Structural equation modeling will be used and tested after data is collected.
  – Results correlated with early adverse attrition.
  – Metrics will be refined.
  – Method for evaluating psychological fitness will be developed allowing accurate prediction of early adverse attrition before recruits arrive at the Reception Battalion.
Validation of Measures

• Collection of psychometric data on enlisted accessions at Ft Jackson and 1000 enlisted accessions at each of the other training bases.
• Collection of data of all incoming USMA students.
• Collection of medical and psychometric data on 300 basic trainees at Ft Jackson.

Purpose: Examine the hypothesized relationships between variable/constructs in the preliminary model.
TYPE OF EARLY ADVERSE ATTRITION BY TIME IN SERVICE - FY00 COHORT

Data Source: MEDCOM
EFFECT OF AIR FORCE SCREENING PROCESS
Potential Benefits

• Pecuniary savings
  – Training expenses
  – Medical services
  – Recruiting costs
• Nonpecuniary savings
  – Force stability
  – Force health
  – Increased readiness
  – Improved morale
  – Better unit cohesion
Additional Benefits

• Multiple evaluation over career
• Developmental changes evident
• Allow better evaluation for selection for special duties
  – Drill Sergeant
  – Recruiters
  – Special Operations
  – White House Communication
Challenges

• Who will fund this study?
  – TRADOC
  – AAC
  – Department of the Army
• Who will be responsible for managing the study?
  – ???
• MEPCOM has joint responsibilities
  – Difficult to make changes
  – Limitations to their network
  – Increase cost at MEPS for small changes
• TRADOC has multiple initiatives going at BT sites
  – Confounds?
  – Impact on training?
Questions

Ingrid Lim
Command Psychologist
USAREC
502-626-0135
Challenge & Motivation:
How New BCT Soldiers Respond to Tough Training

stephanie.muraca@us.army.mil

Directorate of Basic Combat Training/Experimentation & Analysis Element,
FT Jackson ATC (DBCT/EAE)
Problem Statement

Fear of Overwhelming New Soldiers:
- DSs “Hold back”
- Lower Standards
- Fewer Consequences
- Lower Intensity
- Relaxed Training Environment

DSs and Company COs believe that New Soldiers are physically, emotionally, socially, and intellectually WEAKER than Soldiers who came before.

- Unflattering portrayals of New Soldiers in the Media
- Confusion about new Recruiting guidelines/screening tests
Research Question

How can BCT Leadership maximize Confidence, Motivation, Commitment, and Respect in BCT Soldiers?

In order to thrive, do New Soldiers need a more relaxed, less stressful training environment, or will they rise to the challenge of a physically and mentally demanding BCT?

• Do all New Soldiers respond to “challenge” in the same way, or will some Soldier types succeed while others fail?

  e.g., Soldiers with high stress-tolerance vs. low stress-tolerance, Soldiers entering BCT with high self-confidence vs. Soldiers entering with low self-confidence
## Research Protocol *study/findings replicated JUL 09*

**Where:** 2-39th IN BN  
**When:** October – December 2008  
**n = 1,212 BCT Soldiers**

<table>
<thead>
<tr>
<th>Incoming Soldier Survey (Reception Battalion)</th>
<th>Outcome Survey (End of Cycle)</th>
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<tbody>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
</tr>
<tr>
<td>Age, Sex, Education, Marital Status, Dependent Children, Civilian Employment &amp; Activities, Family Members in Service/Prior Service</td>
<td></td>
</tr>
<tr>
<td><strong>Incoming Soldier Attributes</strong></td>
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</tr>
<tr>
<td>General Motivation, Motivation to Pursue Success/Avoid Failure, Achievement Motivation, Locus of Control, Self-Confidence, Self-Efficacy, Army ID/Commitment (prospective), Peer Leadership, Stress Tolerance, Team-Work Orientation</td>
<td></td>
</tr>
<tr>
<td><strong>Expected Difficulty of BCT &amp; Expected Accomplishments</strong></td>
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</tr>
<tr>
<td>Expectation of Expending Mental, Physical, Social, and Emotional Effort/Achieving Mental, Physical, Social and Emotional Growth</td>
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</tr>
<tr>
<td><strong>Pre-BCT Preparation</strong></td>
<td></td>
</tr>
<tr>
<td>Weight Gain/Loss, Effort to Improve Physically, Effort to Improve Mentally (learn more about Army, BCT, MOS, Soldier knowledge)</td>
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<tr>
<td><strong>Reason for Enlisting</strong></td>
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<tr>
<td><strong>Perceived Difficulty of BCT (Challenge)</strong></td>
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<td>Mental, Physical, Social, and Emotional Effort Expended</td>
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<td><strong>Army-Specific Self-Confidence</strong></td>
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<tr>
<td>Combat Skills, Mental &amp; Emotional Preparedness, General Soldier Knowledge</td>
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<tr>
<td><strong>Army Attributes &amp; Values</strong></td>
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</tr>
<tr>
<td>Motivation, Respect, Pride &amp; Professionalism, Integrity, and Accountability</td>
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<tr>
<td><strong>Evaluation of Drill Sergeants</strong></td>
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<tr>
<td>Toughness, Professional Engagement, Personal Nature/Warmth</td>
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<tr>
<td><strong>Evaluation of Other Soldiers in Platoon</strong></td>
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<tr>
<td>Relative Knowledge, Ability, and Skills</td>
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<tr>
<td><strong>Army Identification &amp; Commitment</strong></td>
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</table>
Empirical Findings (replicated JUL 09)
EOC Soldier Motivation*

At EOC, the Soldiers with the toughest Drill Sergeants were the most motivated.

EOC Soldier Motivation Scale
1 = not at all Motivated
5 = extremely Motivated

Measures Soldier’s EOC Motivation to:
- complete missions & tasks
- do the right thing
- live the Army Values
- work as a team with other Soldiers
- continue training

*Stepwise Regression: EOC Motivation on Drill Sergeant Toughness & Engagement Scales, controlling for Soldier demographics, incoming attributes and attitudes, and BCT preparedness (solution holds all control variables at their respective means). adjR²=.32; F(8, 801)=47.53

Directorate of Basic Combat Training/Experimentation & Analysis Element
## Why Soldiers Enlist (n~1,200)

<table>
<thead>
<tr>
<th>Reason</th>
<th>MALES (66.9%)</th>
<th>FEMALES (33.1%)</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>To support myself/my family</td>
<td>29.9%</td>
<td>25.2%</td>
<td>28.5%</td>
</tr>
<tr>
<td>To build foundation for civilian career</td>
<td>27.6%</td>
<td>30%</td>
<td>28.4%</td>
</tr>
<tr>
<td>To challenge/improve myself</td>
<td>19.8%</td>
<td>24.1%</td>
<td>21.2%</td>
</tr>
<tr>
<td>To serve my country</td>
<td>14.1%</td>
<td>12.2%</td>
<td>13.4%</td>
</tr>
<tr>
<td>Family Tradition</td>
<td>2.5%</td>
<td>3.9%</td>
<td>3%</td>
</tr>
<tr>
<td>Boredom/Escape from home</td>
<td>2.2%</td>
<td>1.8%</td>
<td>2.1%</td>
</tr>
<tr>
<td>For the bonus</td>
<td>2.3%</td>
<td>0.7%</td>
<td>1.8%</td>
</tr>
<tr>
<td>To get in shape</td>
<td>1%</td>
<td>0.9%</td>
<td>1%</td>
</tr>
<tr>
<td>To earn U.S. citizenship/prove I am an American</td>
<td>0.3%</td>
<td>0.7%</td>
<td>0.5%</td>
</tr>
<tr>
<td>The Recruiter talked me into it</td>
<td>0.2%</td>
<td>0.5%</td>
<td>0.3%</td>
</tr>
</tbody>
</table>
Reason for Joining Affects Motivation to Train

Soldier Motivation to Train Scale
0 = not at all Motivated
7 = extremely Motivated

Measures Soldier’s Motivation to:
• complete missions & tasks
• work as a team with other Soldiers
• continue training

Directorate of Basic Combat Training/Experimentation & Analysis Element
At EOC, the Soldiers with the toughest Drill Sergeants were the most confident about their ability to perform in combat.

*Stepwise Regression: EOC Confidence, Combat on Drill Sergeant Toughness & Engagement Scales, controlling for Soldier demographics, incoming attributes and attitudes, and BCT preparedness (solution holds all control variables at their respective means). adjR²=.33; F(9,797)=49.05
EOC Soldier Army Identification and Fit*

EOC Army Identification & Fit Scale

1 = lowest ID & Fit
5 = highest ID & Fit

Measures Soldier’s EOC feeling that:
• The Army is an important part of who he/she is
• He/she belongs in the Army – the Army is “right” for him/her

At EOC, the Soldiers with the toughest Drill Sergeants were most likely to believe that the Army is right for them.

*Stepwise Regression: EOC Army ID & Fit on Drill Sergeant Toughness & Engagement Scales, controlling for Soldier demographics, incoming attributes and attitudes, and BCT preparedness (solution holds all control variables at their respective means). adjR²=.41; F(6,799)=93.69

Directorate of Basic Combat Training/Experimentation & Analysis Element
The more challenging BCT is – the more mental and physical effort Soldiers expend – the less Frustrated Soldiers are with their Peers.

The more challenging BCT is, and the less frustrated a Soldier is with his/her peers, the more Respect he/she has for others.

*Stepwise Regression: EOC Frustration & EOC Respect on BCT Challenge Scale, controlling for Soldier demographics, incoming attributes and attitudes, and BCT preparedness (solution holds all control variables at their respective means). Frustration adjR²=.11; F(5,819)=20.35; Respect adjR²=.12; F(5,795)=21.70
How Challenging was BCT?

1 = Not At All Challenging  3 = Neutral  5 = Extremely Challenging

- **EOC Mental & Physical Challenge Scale** (measures mental & physical effort expended during BCT): 3.56

- **EOC Stress Scale** (measures sense of being overwhelmed/having to do too much too fast during BCT): 2.56

- Percentage of Soldiers who expected BCT to be more challenging than it actually was: 62% (expected challenge > actual challenge)

Soldiers who found BCT to be more challenging than they expected it to be (actual challenge > expected challenge) showed higher EOC Motivation, Confidence, Commitment, Respect, and Pride & Professionalism levels than did Soldiers who expected BCT to be more challenging than it actually was.*

*Stepwise Regressions controlling for Soldier demographics, incoming attributes and attitudes, and BCT preparedness. Pride&Prof adjR²=.16; F(4,810)=38.45; Respect adjR²=.10; F(6,793)=16.13; Motivation adjR²=.20; F(7,815)=30.74; Confidence adjR²=.29; F(10, 809)=35.07; Commitment adjR²=.37; F(5, 813)=97.49
<table>
<thead>
<tr>
<th>Setting High Standards</th>
<th>Arbitrarily Changing Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consequences &amp; Punishment</td>
<td>Excessive Physical Punishment</td>
</tr>
<tr>
<td>Criticize + Correct</td>
<td>Harsh Criticism <em>Without</em> Correction</td>
</tr>
<tr>
<td>Praise Only When Earned/No Easy “Go”</td>
<td>Breaking Them Down but Never Building Them Up</td>
</tr>
<tr>
<td>Discipline</td>
<td>Brutality</td>
</tr>
<tr>
<td>It's Not Done Until It's Done Right</td>
<td>Never Demonstrating “Right”</td>
</tr>
<tr>
<td>“No Excuses!”</td>
<td>Ignoring Legitimate Soldier Problems</td>
</tr>
</tbody>
</table>
Challenge Strategies: More than Just PT

Introduce Leadership, Training, and Mental Challenges as well.

Examples from BCT:

• Have Soldiers prepare & teach a class (e.g., from Smart Book) to PLT/Bay
• Have Soldiers turn-in a weekly Training Summary (e.g., what I learned and how I can use it in combat)
• Have Soldiers turn-in a weekly Army Values essay
• Individual competitions (e.g., fastest weapon assembly/disassembly, best inspection score, most PT improvement, highest PT score) with rewards (e.g., extra phone time, on post pass)
• PLT competitions with rewards (to encourage teamwork)

• Identify “strong” Soldiers and pair them with weaker ones. Hold stronger Soldiers accountable for helping their battle buddies.
Drill Sergeant Style and Soldier Outcomes

On Average, Drill Sergeants with the **BEST** Soldiers are rated **HIGHEST** on **Toughness, Discipline, & Professional Engagement**, and **LOWEST** on **Personal Warmth and Friendliness**.

<table>
<thead>
<tr>
<th>Toughness &amp; Discipline</th>
<th>Professional Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Are tough</td>
<td>• Seem like they want to be here</td>
</tr>
<tr>
<td>• Are strict</td>
<td>• Seem to know what they’re doing</td>
</tr>
<tr>
<td>• Demand a lot from us</td>
<td>• Care about training us</td>
</tr>
<tr>
<td>• Set high standards</td>
<td>• Are motivated</td>
</tr>
<tr>
<td>• Enforce the standards</td>
<td>• Push us</td>
</tr>
<tr>
<td>• Do NOT try to be “cool”</td>
<td>• Challenge us</td>
</tr>
<tr>
<td>• Do NOT try to be “friendly”</td>
<td>• Don’t give up on us</td>
</tr>
<tr>
<td>• Are NOT easy-going</td>
<td></td>
</tr>
</tbody>
</table>

*Here, “BEST” Soldiers are construed as Soldiers with highest EOC Motivation, Combat Confidence, Mental Confidence, Respect, and Army Commitment & Identification averages, and lowest Frustration Averages.*
Conclusions

1. New Soldiers thrive in a challenging BCT environment.
   - Drill Sergeant “toughness” drives Soldier Motivation, Confidence, Commitment, and Respect, and lowers Soldier Frustration.
   - All Soldier “types” benefit from challenge.

2. The “intangible” aspects of Soldierization can be measured.
   - Reliable, valid, and efficient scales developed to assess:
     • Drill Sergeant Attributes
     • New Soldier Confidence, Commitment, and Motivation
     • New Soldier Respect, Integrity, Accountability, and Pride & Professionalism

3. Drill Sergeants have the greatest individual impact on New Soldiers.
   - Differences in Drill Sergeant style (easy-going/tough) lead to differences in New Soldier outcomes. These differences are visible between Platoons, within Companies.
Additional Information
## BCT Soldier Demographics (n~1,330)

<table>
<thead>
<tr>
<th></th>
<th>MALES (66.9%)</th>
<th>FEMALES (33.1%)</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>22.34 (17 - 42)</td>
<td>22.19 (17 - 42)</td>
<td>22.29 (17 - 42)</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>GED (17.8%), High School (40.3%), Some College (37%), 4yr College Deg. (4.9%)</td>
<td>GED (6.4%), High School (34.6%), Some College (50.9%), 4yr College Deg. (8%)</td>
<td>GED (14%), High School (38.5%), Some College (41.5%), 4yr College Deg. (6%)</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td>Single (76.6%), Married (20.8%), Divorced (2.6%)</td>
<td>Single (77%), Married (18%), Divorced (5%)</td>
<td>Single (76.6%), Married (19.9%), Divorced (3.5%)</td>
</tr>
<tr>
<td><strong>Dependent Children</strong></td>
<td>22% have at least one child.</td>
<td>25% have at least one child.</td>
<td>22.8% have at least one child.</td>
</tr>
<tr>
<td><strong>Single-Parent Soldiers</strong></td>
<td>7% are single-fathers</td>
<td>13% are single-mothers</td>
<td>9% are single-parents</td>
</tr>
<tr>
<td><strong>Before BCT</strong></td>
<td>School Only (7.7%) Work Only (48.3%) School &amp; Work (28.4%) Nothing (15.6%)</td>
<td>School Only (13.9%) Work Only (34.9%) School &amp; Work (38.7%) Nothing (12.5%)</td>
<td>School Only (9.8%) Work Only (43.8%) School &amp; Work (31.8%) Nothing (14.6%)</td>
</tr>
</tbody>
</table>
Pre-BCT Physical Fitness (n~1,330)

<table>
<thead>
<tr>
<th>Activities</th>
<th>MALES (66.9%)</th>
<th>FEMALES (33.1%)</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Made effort to gain weight before BCT</td>
<td>27%</td>
<td>20%</td>
<td>25%</td>
</tr>
<tr>
<td>Made effort to lose weight before BCT</td>
<td>44.5%</td>
<td>51%</td>
<td>46.5%</td>
</tr>
<tr>
<td>Made effort to eat healthy food before BCT</td>
<td>78%</td>
<td>80%</td>
<td>79%</td>
</tr>
<tr>
<td>Made effort to get stronger/build muscle</td>
<td>84%</td>
<td>76%</td>
<td>81%</td>
</tr>
<tr>
<td>Made effort to get faster/improve run</td>
<td>75%</td>
<td>75%</td>
<td>75%</td>
</tr>
<tr>
<td>Routinely engaged in athletic/physical activities</td>
<td>62.8%</td>
<td>54%</td>
<td>60%</td>
</tr>
</tbody>
</table>
# EOC Soldier Confidence (n~1,200)

1 = Not At All Confident                3 = Neutral              5 = Extremely Confident

<table>
<thead>
<tr>
<th>How confident are you…</th>
<th>MALES (66.9%)</th>
<th>FEMALES (33.1%)</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>…in the knowledge, skills &amp; ability of your DSs?</td>
<td>4.89</td>
<td>4.30</td>
<td>4.72</td>
</tr>
<tr>
<td>…that you can execute basic Battle Drills &amp; Warrior Tasks?</td>
<td>4.39</td>
<td>4.26</td>
<td>4.34</td>
</tr>
<tr>
<td>…that you can maintain your weapon &amp; correct malfunctions in combat?</td>
<td>4.42</td>
<td>4.11</td>
<td>4.32</td>
</tr>
<tr>
<td>…that you can properly move as a member of a fire team?</td>
<td>4.29</td>
<td>4.08</td>
<td>4.22</td>
</tr>
<tr>
<td>…that you can accurately engage enemy targets?</td>
<td>4.33</td>
<td>3.91</td>
<td>4.19</td>
</tr>
<tr>
<td>…that you can effectively react to enemy fire?</td>
<td>4.23</td>
<td>3.97</td>
<td>4.15</td>
</tr>
<tr>
<td>…that you can effectively operate in combat?</td>
<td>4.14</td>
<td>3.79</td>
<td>4.03</td>
</tr>
<tr>
<td>…in your ability to defend yourself in hand-to-hand combat?</td>
<td>4.10</td>
<td>3.87</td>
<td>4.02</td>
</tr>
<tr>
<td>…that you can care for an injured Soldier until a MEDEVAC arrives?</td>
<td>3.85</td>
<td>4.06</td>
<td>3.91</td>
</tr>
<tr>
<td>…that you can effectively react to a gas or chemical attack?</td>
<td>3.92</td>
<td>3.75</td>
<td>3.86</td>
</tr>
<tr>
<td>…in the knowledge, skills &amp; ability of the other Soldiers in your Platoon?</td>
<td>3.57</td>
<td>3.71</td>
<td>3.61</td>
</tr>
</tbody>
</table>
2009 ARC: Market Track Overview

Prepared By: Krista Selph
USAAC G2/9
7/27/2009
Market Track: Conference Goals

Research:
• Develop an interactive research calendar that incorporates MRA’s planned research (FY10) with parallel efforts of ARC attendees.
• Visibility and collaboration with industry and other services initiatives.

Data:
• Plan for JROTC/Planning4Life/March2Success Data
• Timeline for JROTC/PFL/M2S Plan

Tools:
• Assessment of US-NEXUS/Virtual Worlds
# Market Track: Agenda Overview

## DAY ONE:

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Briefer</th>
<th>Organization</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15</td>
<td>10:30</td>
<td>Krista/Nancy</td>
<td>CAR G2/9</td>
<td>Track Opening</td>
</tr>
<tr>
<td>10:30</td>
<td>11:15</td>
<td>Lonnie Williams</td>
<td>USAAC G6</td>
<td>Overview – USAAC G6 Capabilities</td>
</tr>
<tr>
<td>11:15</td>
<td>11:45</td>
<td>All</td>
<td>CAR G2/9</td>
<td>Meet &amp; Greet/ Review of MRA Research</td>
</tr>
<tr>
<td>11:45</td>
<td>12:45</td>
<td>ALL</td>
<td>CAR G2/9</td>
<td>LUNCH</td>
</tr>
<tr>
<td>12:45</td>
<td>13:45</td>
<td>Michael</td>
<td>TRU</td>
<td>Overview 12-16 Year Old Population</td>
</tr>
<tr>
<td>13:45</td>
<td>14:45</td>
<td>Dr. Cynthia Ogden</td>
<td>CDC</td>
<td>Q&amp;A on Youth Obesity/Related Studies</td>
</tr>
<tr>
<td>14:45</td>
<td>15:00</td>
<td>ALL</td>
<td>CAR G2/9</td>
<td>BREAK</td>
</tr>
<tr>
<td>15:00</td>
<td>16:15</td>
<td>Dr. Jill Lindsey</td>
<td>Wright State U.</td>
<td>21st Cent. Tng. for 21st Cent. Learners</td>
</tr>
<tr>
<td>16:15</td>
<td>16:45</td>
<td>COL J. Vanderbleek</td>
<td>JROTC</td>
<td>JROTC Program Overview</td>
</tr>
<tr>
<td>16:45</td>
<td>17:00</td>
<td>Krista/Nancy</td>
<td>CAR G2/9</td>
<td>Outbrief/Recap of Day</td>
</tr>
</tbody>
</table>

## DAY TWO:

<table>
<thead>
<tr>
<th>Start</th>
<th>End</th>
<th>Briefer</th>
<th>Organization</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00</td>
<td>11:00</td>
<td>COL S.W. Chandler</td>
<td>ARCIC</td>
<td>The Human Dimension (IS)</td>
</tr>
<tr>
<td>11:00</td>
<td>12:00</td>
<td>Dr. S. Acchione-Noel</td>
<td>FCS</td>
<td>Cognitive Research in Battle Command</td>
</tr>
<tr>
<td>12:00</td>
<td>13:00</td>
<td>LUNCH</td>
<td>CAR G2/9</td>
<td>LUNCH</td>
</tr>
<tr>
<td>13:00</td>
<td>14:00</td>
<td>Krista/Nancy</td>
<td>CAR G2/9</td>
<td>JROTC/March2Success Data Overview</td>
</tr>
<tr>
<td>14:00</td>
<td>15:00</td>
<td>Athlynne/G2/9 G6</td>
<td>JROTC G2/9, G6</td>
<td>JROTC/March2Success Working Group</td>
</tr>
<tr>
<td>15:00</td>
<td>15:15</td>
<td>BREAK</td>
<td>CAR G2/9</td>
<td>BREAK</td>
</tr>
<tr>
<td>15:15</td>
<td>16:00</td>
<td>A. Tyler/G2/9 G6</td>
<td>JROTC G2/9</td>
<td>Working Group -JROTC/March2Success</td>
</tr>
<tr>
<td>16:00</td>
<td>17:00</td>
<td>LTC Greg Pickell</td>
<td>Army National Guard</td>
<td>US-NEXUS Virtual World Demo</td>
</tr>
<tr>
<td>17:00</td>
<td>17:30</td>
<td>Krista/Nancy</td>
<td>CAR G2/9</td>
<td>Input Session – Recap of Day</td>
</tr>
</tbody>
</table>
1. Is there any existing or planned research that indicates when the obesity epidemic will level out or plateau? Additionally, is their insight into how many individuals in the population (overall and youth) will be affected when the plateau is reached?

2. Has there been any research into the reduction of recess/gym classes in public schools and the effect it has on the health of the youth population?

3. What is the rate or projected rate of Type 1 Diabetes among the youth population over the next 3-5 years? What is the trend for this group over the next 10-20 years if we stay on the same course, and how can the Army help make a difference?

4. Aside from the obesity epidemic clearly effecting the youth population, is the CDC noticing secondary medical effects/complications/trends? If so, how are we tracking this? What are some recommendations and thoughts on how to holistically address these issues?

5. Is there any research into the differences in gender and youth obesity? We noticed in preliminary research that teenage girls are less likely to be obese than their male counterparts, although the males are slightly more active. However, when adulthood is reached, that tends to reverse itself. Is there research or insights into this?

6. What are the most common causes of fatality with the youth population, and at what rate? Is there insight or research into youth fatalities on the job? If so, what industries pose the biggest risk?

7. Is there any information that indicates organizations making the biggest impact in addressing youth health/obesity issues? If so, who are they? What are they doing? Are they having an impact?

8. What does the CDC have planned in terms of upcoming research to keep a more real-time pulse on the changing health landscape of the U.S. aside from the overarching census dates? Is there a plan to leverage technology to more accurately report changes? If so, what is it and in what format will it be available to the general public or other government entities?

9. How can the Army interface with the CDC’s efforts to mitigate the growing obesity epidemic? As a researcher and public health official, are there things you would like to see a large organization such as the Army or the Department of Defense do to assist the total population given our focus on health and physical fitness?

10. Has there been a significant change in growth rates over the past two decades? For instance, are babies being born bigger and continuing to grow both in height and weight at a faster rate than before? If so, what are supposed reasons? Is there any insight into this?
A Preliminary Research Project on Training for 21st Century Learners

Dr. Jill L. Lindsey, Wright State University

Sponsored by and in cooperation with Capt. Scott Pierce, Lt. Dennis Riechman, AFRL/RHAL Mr. Pat Vincent, Northrop Grumman Corp. Ms. Gina Johnson, AETC/82TRW
- To better understand current technical training challenges related to trainees’ attributes and learning preferences
- To examine alignment of teaching and learning modalities in current technical training and identify areas for improvement
- To identify leverage points in training where innovations in technology could improve training outcomes
1. A review of literature
   21st century learners’ attributes and preferences
   Instructional practices for 21st century learners

2. Data Gathering Tools.
   21st Century Training Observation Rubric
   Grasha-Reichmann Learning Styles Inventory (LSI)
   Grasha-Reichmann Teaching Styles Inventory (TSI)

3. Data Collection and Analysis
   Teaching Observations (n=17) in six courses
   Training Learning Styles Inventory responses (n=172)
   Teaching Styles Inventory responses (n=22)

4. Findings and Recommendations
A constellation of key attributes

- desire meaningful work
- are self-directed
- prefer social interaction & collaboration
- have a sense of capability and competence
- have strong visual-spatial skills
- tend toward parallel processing/multi-tasking
- are technologically literate (intuitive)
Best Practices draw on these attributes:

- collaboration through teams/cooperative learning
- technology tools
- visual tools
- content-related multi-tasking
- opportunities for choices, decision-making, and selecting appropriate learning strategies
- establishing high expectations
- metacognition
- frequent praise and feedback
- meaningful work
Data Gathering Tools & Findings

21st Century Technical Training Observation Rubric (TTOR)

21st Century Criteria Preferences

Grasha-Reichmann Learning Styles Inventory (LSI)

Grasha-Reichmann Teaching Styles Inventory (TSI)
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Mean Rating*</th>
<th>N=17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meaningful</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td>Self-direction</td>
<td>0.94</td>
<td></td>
</tr>
<tr>
<td>Metacognition</td>
<td>1.80</td>
<td></td>
</tr>
<tr>
<td>Collaboration</td>
<td>1.53</td>
<td></td>
</tr>
<tr>
<td>Competence</td>
<td>1.76</td>
<td></td>
</tr>
<tr>
<td>Parallel processing</td>
<td>1.47</td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>0.11</td>
<td></td>
</tr>
<tr>
<td>Variety</td>
<td>2.18</td>
<td></td>
</tr>
<tr>
<td>Traditional</td>
<td>2.59</td>
<td></td>
</tr>
</tbody>
</table>

* 0 = not observed  1 = seldom  2 = half of the time  3 = most/all of the time
**Independent:** self-paced, working alone

**Dependent:** look to the teacher/peers for direction

**Competitive:** self against peers/ recognition

**Collaborative:** cooperating/small group work

**Avoidant** uninterested and overwhelmed by attention

**Participant:** activities and discussion, desire to meet, teacher expectations.

**LSI Learning Types**
1. Classroom activities are interesting.
2. Class sessions make me feel like a part of a team where people help each other learn.
3. When I don’t understand something, I try to figure it out for myself.
4. I feel very confident in my ability to learn on my own.
5. I would like to play interactive web-based games to learn.
6. I like classes where I can work at my own pace.
7. Students should be told exactly what material is to be covered on the exams.
### LSI Items Mapped to 21st c. Criteria Preferences

<table>
<thead>
<tr>
<th>21st c. Criteria</th>
<th>Mean*</th>
<th>N=172</th>
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<tbody>
<tr>
<td>Meaningful</td>
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<td>Self-direction</td>
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<td>Traditional</td>
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*1= strongly disagree  2=moderately disagree  
3= undecided  4= moderately agree  5= strongly agree
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<th>Category</th>
<th>L</th>
<th>M</th>
<th>H</th>
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<tr>
<td><strong>Independent</strong></td>
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<td>2.8-3.8</td>
<td>3.9-5.0</td>
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<tr>
<td><strong>Avoidant</strong></td>
<td>1.0-1.8</td>
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<td><strong>Competitive</strong></td>
<td>1.0-1.7</td>
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<td>2.9-5.0</td>
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<tr>
<td><strong>Participant</strong></td>
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<td>3.1-4.1</td>
<td>4.2-5.0</td>
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<tr>
<td>Learning Style</td>
<td>Mean*</td>
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<tr>
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</tbody>
</table>

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Grasha-Reichmann LSI
LSI with Technology
1. Sharing my knowledge and expertise with students is very important to me.
2. I give students negative feedback when their performance is unsatisfactory.
3. Students are encouraged to emulate the example I provide.
4. I spend time consulting with students on how to improve their work on individual and/or group projects.
5. Activities in this class encourage students to develop their own ideas about content issues.
6. I have interacted/would interact with my students using online chat or email
<table>
<thead>
<tr>
<th>Teaching Style</th>
<th>Mean*</th>
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<td>Expert</td>
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<tr>
<td>Formal Authority</td>
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<tr>
<td>Facilitator</td>
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<td>Delegator</td>
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<td></td>
</tr>
<tr>
<td>Technology</td>
<td>2.57</td>
<td></td>
</tr>
</tbody>
</table>

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TSI with Technology
### Grasha Style Clusters

<table>
<thead>
<tr>
<th>TSI</th>
<th>LSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Expert/Formal Authority with personal model/facilitator/delegator</td>
<td>1- dependent/participant/competitive</td>
</tr>
<tr>
<td>2 - <strong>Personal Model</strong>/Expert/Formal Authority with facilitator/delegator</td>
<td>2- participant/dependent/collaborative</td>
</tr>
<tr>
<td>3 - Facilitator/Personal Model/Expert with formal authority/delegator</td>
<td>3- collaborative/participant/independent</td>
</tr>
<tr>
<td>4 - Delegator/Facilitator/Expert with formal authority/personal model</td>
<td>4- independent/collaborative/participant</td>
</tr>
</tbody>
</table>
# Alignment of Preferences

<table>
<thead>
<tr>
<th>INSTRUCTORS (N=22)</th>
<th>TRAINEES (N= 172)</th>
</tr>
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<tbody>
<tr>
<td>Personal Model</td>
<td>3.48</td>
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<tr>
<td>Expert</td>
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</tr>
<tr>
<td>Technology</td>
<td>2.57</td>
</tr>
</tbody>
</table>
Findings

- Technical Trainees are 21st Century Learners with 21st C. learning preferences

- There is alignment between Instructors’ preferred Teaching Style Cluster 2 and Trainees’ Learning styles preferences with the exception of greater technology use preferred by students

- Instructors were not observed teaching in their preferred Teaching Styles Cluster 2
Incorporate Cluster 2 methods into instruction:
- role modeling
- illustration
- demonstration
- examples
- discussions of alternative approaches
- sharing thought processes for obtaining answers
- sharing personal experiences
- coaching and guiding with feedback
Train Instructors to use 21st century best practices:

- collaboration
- technology tools
- visual tools
- content-related multi-tasking
- meaningful work
- metacognition
- choices
- decision-making
- selecting appropriate learning strategies
- high expectations
- frequent praise and feedback
• What role does curriculum design play in shaping/constraining instruction?
• What would class lessons look like if 21st century criteria were used to guide curriculum design?
• What impacts would the use of technology tools for learning have on trainee engagement and performance?
• How might Instructor Training better support 21st century instruction/Cluster 2 teaching methods?
• What would instructor training look like if the 21st Century Observation Rubric Criteria were used for self-reflection and providing feedback about instruction?

Questions Raised
MORE RESEARCH IS NEEDED focused on curriculum design, instructional methods, and Instructor Training.
QUESTIONS

Email contact information: JILL.LINDSEY@WRIGHT.EDU
U.S. Army Cadet Command

“Motivating young people to be better citizens”

Army JROTC

“Motivating young people to be better citizens”

Col John Vanderbleek, Director
Mr. Leon McMullen, Dep Dir
Ph: 757 - 788 - 4309 / 4656
Agenda

“Motivating young people to be better citizens”

- Current Status JROTC
- Program Expansion Criteria / Analysis
- Challenges: How can we find the right school/district?...identify successes/failures?
- Conclusion
Build upon Success: JROTC/NDCC

Goals

- Support Expected School wide Learning Results (ESLR’s)
- Promote citizenship
- Develop leadership
- Teach to Communicate effectively
- Improve physical fitness and promote healthy lifestyle
- Provide incentive to live drug-free
- Strengthen positive self-motivation
- Provide historical perspective of military service
- Train to work as a team member
- Inspire to graduate from High School, attend institutions of higher learning, and pursue meaningful careers particularly in the areas of science, technology, engineering, and mathematics

Measures of Effectiveness SY 07-08

<table>
<thead>
<tr>
<th></th>
<th>School</th>
<th>JROTC</th>
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</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>90%</td>
<td>93%</td>
</tr>
<tr>
<td>Graduation</td>
<td>86%</td>
<td>98%</td>
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<tr>
<td>Indiscipline</td>
<td>16.4%</td>
<td>5%</td>
</tr>
<tr>
<td>Drop Out (Seniors)</td>
<td>3%</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>GPA</td>
<td>2.7</td>
<td>2.9</td>
</tr>
</tbody>
</table>

Instructor Qualifications

JROTC Instructor certification is now equal to that awarded by States under NCLB and meets the requirements of NDAA for teaching JROTC and embedded subjects areas such as physical education, health/wellness, and civics.

Standards for JROTC instructor certification (< 5yrs)
- Bachelor’s degree for Senior Military Instructor
- Associate’s degree for Assistant Military Instructor

USACC awarded 4166 ROTC scholarships:
- 1138 / 27.3% - All JROTC services
- 801 / 19.2% - Army JROTC Cadets

JROTC Enrollment – All Services

- Army (1645)
- Air Force (869)
- Navy (613)
- Marines (222)
"Motivating young people to be better citizens"

**Fair & Equitable Formula**

1645 (funded ceiling) / 24199 (high schools in the nation) * number of schools in state

(Example: 1645 / 24199 * 627 (MI) = 43)

**NDCC units**

31

**DODDS**

- Germany 8/1
- Japan 2/1
- Italy 1/1
- Korea 2/1
- Portugal 1/1
- DODDS 5/14

**Under Subscribed States**

- Germany 8/1
- Japan 2/1
- Italy 1/1
- Korea 2/1

**Over Subscribed**

- Fair & Equitable Formula: 1645 (funded ceiling) / 24199 (high schools in the nation) * number of schools in state

(Example: 1645 / 24199 * 627 (MI) = 43)
## Program Expansion Criteria

### Expansion

- POM validated opening 265 new units
  - FY10 – 43 units; FY11 – 43 units; FY12 – ??
- 220 schools on the Order of Merit List (OML)
- 69 schools on the OML are in undersubscribed states

### Expansion Analysis

- Target schools to improve:
  - Attendance
  - Graduation Rates
  - Discipline
  - GPAs
  - Drop out rates

### Expansion Criteria

- Fair and Equitable Distribution (25 points)
- School Financial Solvency (20 points)
- School Facilities (20 points)
- Cost Effectiveness (student interest) (15 points)
- Time on Waiting List (10 points)
- Willingness to offer credit other than elective (10 points)
- Command interest (determined by CG, USACC)
- Total - 100 points

### Proposed Expansion Criteria

- Fair and Equitable Distribution (15 points)
- School Financial Solvency (20 points)
- School Facilities (20 points)
- Cost Effectiveness (student interest) (20 points)
- Willingness to offer credit for JROTC (15 points)
- Title I or Title I Eligible (10 points)
- Command interest (determined by CG, USACC)
- Total - 100 points
New Expansion Criteria Defined-July 2009

“Motivating young people to be better citizens”

1. **Title I or Title I Eligible:** (20 points)
   - Schools where at least 40% of the children in the school attendance area are from low-income families or at least 40% of the student enrollment are from low-income families are eligible to receive federal Title I funds.

2. **Indicators of Need:** (20 points)
   - Local Unemployment Rate (4 points)
   - High Illiteracy Rate Among Adult Population (4 points)
   - Graduation Rate (4 points)
   - RAMP - Reading and Mathematics Proficiency (NCLB) (4 points)
   - Post Secondary Education/Opportunities (4 points)

3. **Student Enrollment:** (15 points)
   - BDES will ensure schools have adequate student population and interest in participation
   - Enrollment of 100 or above (15 points); Enrollment of 75 to 99 (10 points); below 75 (5 Points)

4. **Willingness to offer credit other than elective for JROTC:** (15 points)
   - Health (15 points); Physical Fitness (10 points), Elective (5 Points)

5. **School Financial Solvency:** (10 points)
   - BDES will ensure schools are financially capable of supporting a unit in out-years

6. **School Facilities:** (10 points)
   - Exceed Minimum requirement (10 points); Minimum requirement (5 points)

7. **Fair & Equitable Distribution:** (10 points)
   - IAW SA guidance, provide additional points for schools from under-represented states in order to comply with 10 USC 2031(a)(1)
   - Undersubscribed (10 points); Oversubscribed (5 points)

8. **Command Interest (determined by CG, USACC)**
   - Rapid processing of school’s application and placement on OML according to CG guidance
JROTC PLUS envisions a partnership between JROTC high schools and their feeder middle schools in selected communities with high dropout rates.

- Provides academic support for drop out risks starting in middle school and extending through HS JROTC program.
- Middle school component could be a candidate for ARRA “Invest in What Works” funding consideration -- with NASBE acting as the integrator for a consortium of selected state and local education agency teams.
- Consortium members would agree on policies and programs to enable early intervention, rapid remediation and middle and high school alignment.
- NASBE would provide ongoing technical assistance to states and districts on policy initiatives and best practices, as well as collect data and provide program analysis and metrics.
- Could be aligned with other initiatives such as Service Nation and CSA’s Work Force development initiative.
- JROTC PLUS students could participate in Army sponsored, no-cost tools to help school systems:
  - March2Success (testing and remediation)
  - S-ASVAB and career counseling
  - Planning for life
  - President’s Physical Fitness Challenge
Challenges

- Possible future budget cuts impacting Army JROTC
- Local/state educational budget cuts
- Marketing in undersubscribed states
- Identifying schools where JROTC can “make a difference”
- Tracking progress/failure
“Motivating young people to be better citizens”

- JROTC is on target for the initial expansion goal of 43 new units in SY 2010-2011.
- Revised Expansion Criteria in place to influence school selection for new units in SY 11-12, 12-13
- JROTC PLUS program concept under development
- Data collection essential to make program adjustments and target the right locations in urban / rural school districts

Conclusion
United States Military Entrance Processing Command

VIPS 101 Briefing

2009
Purpose and Outline

• **Purpose:** Establish an awareness among USMEPCOM Accession Partners in reference to VIPS transformation

• **Outline:**
  - Transformation Overview
  - Current Processes
  - Customers
  - Goals and Impacts
  - Concept of Operations
  - Accession Enterprise
  - VIPS Initiatives
  - What VIPS means for Recruiting Personnel
  - Summary
USMEPCOM Transformation

**Strategic Vision:** “USMEPCOM is recognized as a customer-centered, future-focused learning organization driven by best business practices and cutting-edge technologies, providing real-time entrance processing and qualification.”

VIPS is the near-term “800 lb. gorilla” that supports transformation, but it does not get us all the way to our strategic vision.
VIPS Business Relationships

VIPS Main Relationship Types
- External Support Relationships
- Internal Support Relationships
- Operational/MEPS Relationships

**USD (MPP):** Under Secretary of Defense (Military Personnel Policy)
**OSD (P&R):** Office of Secretary of Defense (Personnel and Readiness)
**BTA:** Business Transformation Agency
**COI:** Community of Interest
Current Processes

Time Intensive for Applicants

Labor Intensive for Recruiting/MEPS Personnel

Considerable down time

Sequential

Improving the process for applicants will also improve the process for Recruiting/MEPS personnel and vice versa
For kids who have grown up accustomed to speed, accessibility and anonymity of the Internet, interfacing with an actual human being will seem cumbersome, while being asked to sit and wait for batch processing of others will seem intolerable.
Key Goals

• One visit, one accession
• Paperless processing
• Positive identification of applicants
• Enhanced data accessibility
• Validation of self-disclosed information
• Compliance with DoD IT mandates
  – Net-centric
  – Enterprise architecture
Impacts

- Reduce accession processing costs
- Reduce attrition
- Improve data quality
- Initiate electronic medical record
- Enable anytime, anywhere processing
- Enable business process flexibility, adaptability, scalability
- Enhance data exchange across DOD
**Current**

**CONCEPT OF OPERATIONS**

*Fiscal Year 2008 Processing Data*

- **Interest**
  - Enlistment Tests
    - 588,000
  - Medical Exams
    - 373,000
  - USMEPCOM Qualified and Service Waivers
    - 333,000
  - Initial Oath and Behavior Assessment
    - 328,000
  - Enlist and Ship
    - 259,000
  - Complete Basic
    - 230,000

- **Complete**
  - Basic
    - 230,000
  - Enlist
    - 283,000
  - Ship
    - 328,000
  - Initial Oath and Behavior Assessment
    - 328,000
  - USMEPCOM Qualified and Service Waivers
    - 333,000
  - Medical Exams
    - 373,000
  - Enlistment Tests
    - 588,000

- **Increased capacity - reduced workload**
  - 678,000 applicants
  - 1,124,000 applicant MEPS visits

**Future**

**CONCEPT OF OPERATIONS**

*Projected Workload*

- **Global Accessions Processing**
  - Applicant Processing Tools
    - Available On-Line
      - I-CAT Enlistment Test
      - Medical Pre-screen
      - Behavior Assessment
      - Waiver Prescreen
  - Testing
  - Tailored Medical Exam
  - Biometric Verification
    - 250,000
  - Initial Oath and Behavior Assessment
    - 240,000
  - Enlist and Ship
    - 235,000
  - Complete Basic
    - 230,000

- **Increased capacity - reduced workload**
  - 250,000 applicants
  - 250,000 applicant MEPS visits

*External Process* • *MEPS Process*
- Electronic capture of qualification data
- Support for DOD human resource systems
- Paperless, Net-centric environment
- Secure availability of accession data
- >90% applicant pre-qualification
- System scalability
Positive Identification

Today

• ID verified via driver’s license or other ID card
• e-Security developed for identification and tracking within the MEPS
• Prior processing history with other Services available only in USMIRS

VIPS

• Biometric capture at first contact
• Identity positively verified at each step of the accessions process
• Positive identification of applicant and biometrically sign documents
• Immediate notification if Applicant has processed for any other Service
  – Current status
  – Disqualifying conditions
Aptitude

Today

- ASVAB at MEPS
  - Computer-based test
  - Verified score delivered immediately
- ASVAB delivered at MET site
  - Paper and pencil test
  - Scores not immediately verified

VIPS

- I-CAT for testing
  - Web-based version for MEPS and MET use
  - Monitored testing
  - Verified score delivered immediately
  - Test scheduled in advance
  - Allows access from distance learning centers
Conduct

Today

• Batch verification of:
  – Social Security Number
  – Alien Registration Number
  – Prior Military Service

• More than 30-day turnaround for Special Agency Checks (ENTNAC)

VIPS

• Real-time verification of personal data

• Additional checks with:
  – State DMV records
  – Bureau of Vital Statistics (birth, death, marriage)
  – Department of Homeland Security
  – Credit Bureau

• Immediate notification to Service of conduct-related issues
Today

- Medical records almost entirely in paper files
- Medical history relies completely on self-disclosed information
  - Some conditions are not adequately reported
  - Treatment records provided by Applicant, often requiring additional trips by the Recruiter

VIPS

- Electronic medical records
  - Data-sharing via Web services
  - Interface with AHLTA
- Collection and verification of medical history
  - Online tool to collect self-reported medical history
  - Verify data via checks with insurance companies, health care providers, pharmacies
  - Electronic storage of all relevant medical data
Medical Processing - Exam

Today

- **Physicals at MEPS only**
  - Transportation and lodging costs
  - Wait time
- **Manual data entry**
  - Costly, time-consuming, and prone to error

VIPS

- **Medical exam options**
  - Local exam by qualified health care provider
  - Qualification decision from government employee
  - MEPS still an option
- **Interface from medical equipment to system**
  - Reduced data entry errors
  - Time savings
  - Complete medical record
Medical Processing - Profiling

Today

• Prescreen review occurs the night before MEPS visit
  – Little time for information gathering
  – Information may lack sufficient detail

• Medical profiling
  – Done by MEPS CMO
  – Little ability to balance workload

VIPS

• Reviewed upon Service request
  – Validation of self-reported medical history
  – Issues identified earlier
  – Fewer “wasted” trips by recruiters

• Centralized profiling
  – Done by any available, qualified profiler
  – Balanced workload
  – Faster, more consistent qualification decisions
Medical Processing - Other

Today

• Medical waivers
  – Service provides medical records
  – Waivers passed back through Service

• HIV and drug sample collection at MEPS only
  – Results available within 48 hours
  – Trip to MEPS required for testing

VIPS

• Medical waivers
  – MEPCOM provides medical data via interface at Service request
  – Waivers passed back electronically

• HIV and drug sample collection at remote locations or MEPS
  – Point-of-collection testing for instant results
  – Trip to MEPS not required
What Does VIPS Mean for Recruiting Personnel?

• Fewer trips to MEPS
  – Medical and conduct pre-screens eliminate trips for applicants we know up front will not meet qualification standards.
  – Pre-screens enable waiver consideration to occur before the MEPS visit.
  – ASVAB and medical exam can occur outside MEPS facilities in location closer to (or in) hometown.

• Elimination of paper
  – All required forms and paperwork completed digitally via a web portal (includes medical pre-screen form and eventually medical history form).

• Efficiency
  – Applicants scheduled throughout the day for specific MEPS activities instead of batch processed.
Agenda

- AEC Overview (brief)
- AEC Marketing Tools
- Social Media
- IT (Salesforce)
A review of recruiting processes revealed an industrial production model

- Process driven, rather than results driven
- Labor intensive production process
- Individual incentive structure minimizes teamwork
- Short performance periods and high pressure minimize long term planning and investment
- No incentive to document value of recruiting enablers (marketing)
- Information Technology designed to automate legacy processes, not to support enterprise decision making
True enterprise transformation requires a holistic approach to all facets of the business model.
Overarching strategy of the AEC

• Marketing strategy
  – Address prevailing misperceptions about the Army through direct engagement
  – Drive serious consideration (appointments) rather than leads
  – Create low-threat opportunities for recruiters to engage with prospects

• Recruiting Strategy
  – Educate and inform prospects about the Army
  – Focus on engaging personal interactions, not volume prospecting
  – Empower recruiters with state of the art information technology
  – Reduce administrative burden
  – Substitute Capital for Labor

• Experiment, measure, disseminate
Results

• Market share
• Recruiter productivity
• Mil/Civ work force
• Single Mega-Location
• AEC vs. Army Recruiting
• Compelling Marketing tools
AEC Marketing Tools

• Career Navigator
  – Explore Army Careers
  – View Soldier profiles with “Hotspots”
  – Army Compensation
  – Army Bases
  – Army Education (forthcoming)
  – Army Benefits (forthcoming)

• Mobile Kiosk

• Local Website with integrated Social Networking

• Deployable “Strike Package” for events
Career Navigator

TOUCH SCREEN TO BEGIN

WATCH SOLDIER PROFILES

EXPLORE ARMY CAREERS

DISCOVER EDUCATION BENEFITS

UNCOVER ARMY BENEFITS

PREDICT YOUR PAY

LOCATE GLOBAL BASES
AEC Website

- Soldier profiles with Social Networking links
- Future Soldier “Hometown Hero” profiles
- Upcoming events and activities
- Photos from past events (linked to Flickr page)
- Career Navigator
Strike Package
Social Media

• Types of pages
  – Individual
  – Organizational

• Recommended Rules of Engagement

• Uses of Social Media
  – Reaching new prospects
  – Maintaining contact with Future Soldiers
  – Soliciting customer feedback/input
  – Maintaining contact with new Soldiers

• Lessons Learned

• Next steps
  – Facebook Game Application (Mafia Wars)
 STATS & TRENDS

FACEBOOK STATISTICS

• 250MM active users worldwide
• 120MM users log on at least once a day
• Approx. 145MM monthly active users (MAU) for ALL social games on Facebook
• 35MM MAU for immersive role-playing games (RPGs)

FACEBOOK TRENDS

• Fastest growing Facebook demographic: 35+
Social Media: Rules of Engagement

- Chain of command has visibility of any sites used to contact prospects
- Be yourself, but remember that you represent the US Army
- Personal vs. Professional Personas
- Monitor and moderate any sites you create
- Generate dialogue vs. Post stories
Uses: Reach new Prospects

- Targeted ads
- Friends of friends
- Monitor Army, AEC, and other facebook pages
ARMY RECRUITING MEETING
Between You and Dennis Gibbons

**Dennis Gibbons**  
July 12 at 2:21am

I want to maybe come in and talk to you about the Army on Saturday. Are you going to be there? Let me know. I am interested in Airborne and later going into being a Ranger. Green Beret. I want to be a sniper. I would rather talk with an officer, than one of the other guys. If you won't be there, then can you set me up with the next ranking officer there?

**Jared Auchey**  
July 12 at 12:20pm

Dennis,

I will be coming home from the shore that day and will be available that following week. I can meet you at the AEC or even in NJ wherever is easier for you.

How was Bruno?

Did you watch UFC last night?

I am enjoying this beautiful beach weather.

My number is 215-206-3136 or you can just hit me up on here so we can set a time up to meet.

Jared
CPT Auchey

---

**Dennis Gibbons**  
July 16 at 11:17pm

Well next week I will probably be working every day until the weekend where I will be in Wildwood. Saturday is my only open day, can you maybe make a call over there and let me know I'm coming?

---

**Jared Auchey**  
July 17 at 12:18am

Just let me know when you will be arriving so I can coordinate one of my senior people to speak with you.
Uses: Future Soldier Maintenance

Samantha Bailey  
June 25 at 12:25pm

hey...just want u to know i got home safe...

Angel Espada  
June 25 at 1:34pm

Glad you made it safe. Enjoy ur time and have fun. Please keep in touch weekly. Take care.

Sent via Facebook Mobile

Samantha Bailey  
June 30 at 11:14am

hi...its me again...just want you to know that i'm doing ok...hope you are too...

Angel Espada  
June 30 at 11:26am

Hey private, thank you for checking in. Glad you are doing good. Be safe and keep in touch.

Sent via Facebook Mobile

Samantha Bailey  
June 30 at 11:33am

i will...

Samantha Bailey  
July 10 at 1:51pm

hey...its me again checking in...everything is ok...i'm doing ok,its wonderful to see everyone here...how are you doing?

Angel Espada  
July 10 at 9:25pm

Glad you are having fun. Keep in touch and take care. By the way I hope you are doing some PT there.

Samantha Bailey  
July 10 at 9:25pm

hi i am doing a little pt...and i'm doing ok so far.
Uses: Solicit Customer Feedback/Input

- T-shirt design
- Polls
- Army stories
Drill Sergeant Stories

**Army Experience Center** AEC Fans, we’d like to hear your Drill Sergeant stories. Often depicted as sinister caricatures in Hollywood movies, the real Soldiers who perform this job teach valuable life lessons. What was the greatest lesson you took away from BCT? What task did you achieve that you didn’t think possible? How did this shape the type of Soldier – and person – you have become?

**Steven C Kopplin** I learned a lot from BCT and my time in the Army just made me more as a person. I still talk to my BCT Drill Sergeant *Army ROTC*

**James Jackson** I went through BCT in 1973. The Drill Sergeant was fair, but tough. Though, I don’t remember his name, I remember him. I learned that with hard work, discipline and a good instructor that I could accomplish far beyond I ever imagined. There were times that I didn’t think I could make it, but my DS was there to encourage, push and give a helping hand when needed.

**Paul J Frabizzio** you guys are really inspiring. I have just begun enlisting procedures and are going to meps Thurs and Friday. I hope basic comes quick. I can’t wait to finally start my army career and serve my country. Thanks for all of your stories and words of wisdom and encouragement...

**Megan Miller** good luck at meps, just went through it myself. It can be a headache, but its worth it when you get to swear in.

**Maria Ruhnnow-North** even though my BCT was back in 1999 I learned how to overcome every obstacle the DS threw at me. DS Arroyo and DS Wert were the best and pushed me harder, I guess they saw something in me that I didn’t. Now I am and E-6 getting ready to go to ANOC. The obstacle course was the hardest since I am shorter than most. Though they knew before I did ...

**Isaac Vasquez** My Drill Sergeants laid the foundation for me to become the Soldier that I am today, the greatest lesson I took from basic is how to manage stress.

**Cristina Mungilla** It’s probably the simplest story, but for me, it was pivotal. It was the first week of BCT and I’m wanting to show my DS how forward-thinking I am. So I ask what the schedule was for the rest of the week and DS explained that I needed to worry about surviving the day. As all Soldiers experience the initial hardships of training, I learned really quickly the wisdom in her words! But even outside of training, people have a tendency to worry so much about past or future concerns, they tend to lose focus on what they can do RIGHT NOW.

**Tommy Bell** I went through in 1987, I learned team work, and discipline which I needed so badly in my life. I honestly believe it kept me out of prison or worse. I finally found somewhere I fit in. Drill Sgt Douglas & Johnson, I owe a lot to. It was a privilege to serve my country. I am very proud to have done so for 21 years. I still miss it. Thanks to all that have served and are still serving. Essayons!

**Karina Rivera** I don’t have these scary DS stories but I do know its a hard job to do and to put in all those hours. I happen to be lucky and have some great ones who really cared about soldiers. I know that isn’t always the case but sadly it happens regardless of if your a drill or not. Only thing I can say is.... I was always yelled at about my hair. Had this great ...

**Dennis Kregel** BCT was May 1985 for me but reading these comments brings it flooding back like it was yesterday. I travelled the world, met my wife in Germany, married her in Denmark and we just celebrated our 23rd wedding anniversary. I remember the moment I met Drill Sgt Jefferson. Nervously sat packed into the back of a “cattle car” when I first heard the ...
Uses: Maintain Contact with New Soldiers

Spencer Elmore Hey, Everyone!! Its Pv2 Elmore, id really like to say that the AEC was a vital reason why i joined the army and i have no regrets on the decision. The army so far has been a blast. Basic Training was actually very fun and filled with a lot of great experiences. I am now at Ft. Huachuca for Ait and so far its going great. Will update when more (unclassified) experiences come up.
June 12 at 5:16pm · Comment · Unlike · Report

You, Matt Garthoff, Kelly J Shavnoch-Jennings and Brenda Grundy Davis like this.

Brent Lee Congrat Pv2 Elmore, Are you going to make it a Career? SGT Lee
June 18 at 1:56pm · Report

Matt Garthoff Very good to hear. Thanks for sharing, I'd like to hear more every so often.
June 20 at 12:10am · Report
Social Media: Lessons Learned

• Requires active monitoring and deliberate engagement
• Don’t respond to “haters”
• Social media is not a particular site; it’s an ecosystem of activities across multiple sites
Social Media: Next Steps

• Game in development
• Crossover content
• “My Army Story” YouTube Upload
STATS & TRENDS

SOCIAL GAME STATS

- Mafia Wars: 15.2 Million
- World of Warcraft: 11.5 Million
- Street Racing: 2.9 Million
- Vampire Wars: 2.7 Million
STATS & TRENDS

PLAYER DEMO
- 61% are 18-34
- 72% of players are men
- 28% of players are women

ACTIONS PER DAY
- 97MM “jobs” completed
- 4MM items shared
New! Expand your criminal empire to Cuba at Level 85!

Boss Fight - Confront Giancarlo Morillo
Morillo roughed up your unde, and now it's time to return the favor. What's this?
Risk: $187
Payout: $1,321
Requires: 6 Energy, 2 Energy

Description | Payout | This job requires...
--- | --- | ---
Mugging | $215 - $322 | 1 Energy
Corner Store Hold-up | $857 - $1,285 | 3 Energy
Warehouse Robbery | $1,499 - $2,676 | 5 Energy
Auto Theft | $2,997 - $4,923 | 6 Energy
Beat Up Rival Gangster | $557 - $835 | 2 Energy
Home page with Dashboards
# Report of Daily Visitors

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<tr>
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<th>Last Name</th>
<th>Lead Source</th>
<th>Primary Phone</th>
<th>Email</th>
<th>Age</th>
<th>Photo</th>
<th>Recruiter Star Rating</th>
<th>Star Rating</th>
<th>Number of Visits</th>
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<td>Abience</td>
<td>Army Experience Center Walk-in</td>
<td>2158688359</td>
<td><a href="mailto:abience@hotmail.com">abience@hotmail.com</a></td>
<td>39</td>
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<td>★★★★★</td>
<td>1</td>
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<td>17</td>
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<td>★★★★</td>
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### Lead Records

#### Future Soldiers

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<th>Name</th>
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<th>Email</th>
<th>DEP Date</th>
<th>Ship Date</th>
<th>FS Status</th>
<th>Last Modified Date</th>
<th>OCS</th>
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<td>2674711541</td>
<td><a href="mailto:skrose0101x@kel.com">skrose0101x@kel.com</a></td>
<td>2/4/2009</td>
<td></td>
<td>Green</td>
<td>9/10/2009</td>
<td></td>
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<td>DUFFY, Thomas</td>
<td>2674020415</td>
<td><a href="mailto:falconf14@earthlink.net">falconf14@earthlink.net</a></td>
<td>4/28/2009</td>
<td></td>
<td>Yellow</td>
<td>9/10/2009</td>
<td></td>
<td></td>
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<tr>
<td>Ellis, Luan</td>
<td>(267) 237-4116</td>
<td><a href="mailto:truzimation1@aol.com">truzimation1@aol.com</a></td>
<td>5/29/2009</td>
<td></td>
<td>Green</td>
<td>12/3/2009</td>
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<tr>
<td>Everett, JCS</td>
<td>(804) 329-6007</td>
<td><a href="mailto:otseveret@yahoo.com">otseveret@yahoo.com</a></td>
<td>6/30/2009</td>
<td></td>
<td>Green</td>
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<td>Ferrant, Joseph</td>
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<td></td>
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<td>Eichhorn, Albert</td>
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<td>Green</td>
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<td>FRANZA, Michael</td>
<td>8562428225</td>
<td><a href="mailto:michael.frans@us.army.mil">michael.frans@us.army.mil</a></td>
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<td>Gerhardt, Jason</td>
<td>7277980865</td>
<td><a href="mailto:ilrinec@sol.com">ilrinec@sol.com</a></td>
<td></td>
<td></td>
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<td>7/11/2009</td>
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<tr>
<td>Green, Marco</td>
<td>2153294475</td>
<td><a href="mailto:maste.green1@comcast.net">maste.green1@comcast.net</a></td>
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<td>2165201624</td>
<td>george <a href="mailto:grunich@usa.net">grunich@usa.net</a></td>
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<td>Yellow</td>
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<td>Hemand, Kendal</td>
<td>2879638639</td>
<td><a href="mailto:kendal.hemend@us.army.mil">kendal.hemend@us.army.mil</a></td>
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<td>Johnson, Jason</td>
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<td><a href="mailto:munocha019@yahoo.com">munocha019@yahoo.com</a></td>
<td>4/24/2009</td>
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<td></td>
<td>8/25/2009</td>
<td></td>
<td></td>
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<tr>
<td>LEACH, Austin</td>
<td>(215) 255-3994</td>
<td><a href="mailto:castleon2017@ymail.com">castleon2017@ymail.com</a></td>
<td>7/12/2009</td>
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<td></td>
<td>6/30/2010</td>
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<tr>
<td>Li, Jimmy</td>
<td>(215) 778-8454</td>
<td><a href="mailto:epson.buys2008@comcast.net">epson.buys2008@comcast.net</a></td>
<td>7/12/2009</td>
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<td>8/25/2009</td>
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<td>Madison, Amber</td>
<td>2672434016</td>
<td><a href="mailto:amber.madison@us.army.mil">amber.madison@us.army.mil</a></td>
<td>8/25/2009</td>
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<td>Green</td>
<td>10/7/2009</td>
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<tr>
<td>Malenzo, Carlos</td>
<td>(703) 798-6671</td>
<td><a href="mailto:carlos.malenzo07@yahoo.com">carlos.malenzo07@yahoo.com</a></td>
<td>6/5/2009</td>
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<td>Michael, Graham</td>
<td>7177739042</td>
<td><a href="mailto:cam29@idrexel.edu">cam29@idrexel.edu</a></td>
<td>8/10/2009</td>
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<td>8/24/2009</td>
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</table>

---

*Note: 1-49 of 49 records selected.*
## Individual Lead Record

### Lead Details:
- **Name:** Amber Madison
- **Middle Name:** Marie
- **Address Type:** Home of Record
- **Address:** 303 Princeton Ave, Philadelphia, PA 19111-3020 USA
- **Star Rating:** ★★★★★
- **Email:** amber.madison@us.army.mil
- **Lead Type:** Lead
- **Lead Status:** Future Soldier/Army Reserve
- **Lead Source:** Call In
- **Lead ID:** 682
- **Lead Sub Source:** DEP Date: 6/25/2003
- **Date/Time of Registration:** 6/19/2009 1:26 PM
- **Number of Visits:** 2
- **Notes:** undefined
- **Education Information:**
  - **Level of Education:** High School Graduate
  - **Scholarship Interest:**
  - **Projected Level of Education:** High School Graduate
  - **Is Not Enrolled in School:**
  - **College Name:** PA, WIDENER UNIVERSITY-MAIN CAMPUSS
  - **ROTC Interest Flag:**
  - **College Grade Point Average:**

### Additional Details:
- **Hot Lead:** N
- **Recruiting Star Rating:** ★★★★★
- **Recruiter Rating:** 5
- **Photo:**

## Messages and Alerts:
- **Web1030:** All Hands Meeting/TOC
- **Search:**
  - **Search All**
  - **Limit to Items I Own**
  - **Advanced Search**
- **Create New:**

## Custom Links:
- **Email History**
- **Mass Email Leads**
- **Bounced Emails**

## Shortcut:
- **Calendar**

## Recent Items:
- **Amber Madison**
- **THOMAS FULLERTY**
- **International Christian High School**
- **David Schriner**
- **Jesse Crater**
- **Amanda Hoffsteder**
- **Jonathan Standish**
- **MICHAEL McDaniel**
- **300 students want to test the API**
- **Dennis Gilchrist**
Ideas

Chairs at the front desk needed.
Promote if you think they are needed.

1 Comment  •  Posted by scomp on 8/4/2009 12:01 PM

Hosts given Incentives
I think it would be a good idea to give the hosts incentives for who has the top number of registrants at the end of the week. Or who has given the Soldiers the most walk-ins.

1 Comment  •  Posted by Jessica on 8/3/2009 4:36 PM

Need more HRAPS
Promote if you think more could help.

1 Comment  •  Posted by scomp on 8/4/2009 12:02 PM
School Folders
School Activity Record
### Lead Detail

**Name**: Matthew Trucks  
**Middle Name**:  
**Address Type**: Home of Record  
**Address**: 3178 Emery St Philadelphia, PA 19134-5824  
**Lead Type**: Lead  
**Lead Status**: Future Soldier/Rog Army  
**Lead Source**: Army Experience Center Wall-in  
**Lead Sub Source**: Friend  
**Date of Birth**: 3/23/1989  
**Age**: 20  
**AA Gamer?**:  
**AA Gamer Handle**:  
**Lead Owner**: Angel Espada (Channel)  
**DEP Date**: 8/10/2009  
**Ship Date**: 11/10/2009  
**FS Status**: Green  
**Notes**: null

### Education Information

**Level of Education**: High School Graduate  
**Scholarship Interest**:  
**College Name**:  
**ROTC Interest Flag**:  
**Star Rating**: ★★★★★  
**Recruiter Star Rating**: ★★★★★  
**Recruiter Rating**: 4  
**Email**: matthew.trucks@us.army.mil  
**Phone Type**: Home of Record  
**Primary Phone**: 2154230182  
**Badge ID**: 50888730190  
**Date/Time of Registration**: 7/22/2008 8:30 PM  
**Number of Visits**:  
**More Information about the Army?**:  
**Learn about new AEC events?**:  
**Priority Code**:  
**Processor**: Stacy Weinert  
**Recruiter**: Rodney Smith
Address Mapping of Lead Record

Lower-income retirees in urban, ethnically diverse neighborhoods. Often widows and widowers living on fixed incomes and maintaining low-key lifestyles. Household traits: Watch daytime TV; Travel to Central/South America; Essence Magazine; CBS Face the Nation TV; French Accent

Lead Address Map

Matthew Tracks
3175 Emery St
Philadelphia PA 19134-5824

System Information
AEC Disclaimer
Created By: [Name]
Created: 7/2/2009 9:30 AM
Age in Stage: 0
Last Modified By: [Name]
Last Modified: 8/27/2009 1:11 AM

Registration Questions
- Reg Question Educational Opportunities
- Reg Question Relative in Military
- Reg Question Career Info
- Reg Question Army Interests
- Reg Question Followup

Reg Question Activities
- Reg Question Job Opportunities
- Reg Question Consider Army
- Reg Question Why Join Army
Lead Activity History

Activity History

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<tr>
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<th>Subject</th>
<th>Task</th>
<th>Due Date</th>
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<th>Lost Modified Date/Time</th>
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<tbody>
<tr>
<td>Edit</td>
<td>Del</td>
<td>Accept Conduct</td>
<td>✓</td>
<td>7/21/2009</td>
<td>Rodney Smith</td>
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AEC Interactions

No records to display

Prequalification Forms

No records to display

Lead History

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<th>User</th>
<th>Action</th>
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<tbody>
<tr>
<td>8/24/2009 2:57 PM</td>
<td>Angel Espada</td>
<td>Changed Email to <a href="mailto:matthew.trucks@us.army.mil">matthew.trucks@us.army.mil</a>.</td>
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<tr>
<td>8/22/2009 4:49 PM</td>
<td>Michael Fleming</td>
<td>Changed Lead Owner from Stacey Weinert to Angel Espada.</td>
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<tr>
<td>8/19/2009 1:10 PM</td>
<td>Michael Fleming</td>
<td>Deleted Franklin Town Charter in Other High School.</td>
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<tr>
<td>7/28/2009 1:00 AM</td>
<td>Stacey Weinert</td>
<td>Changed High School Name from Other to FRANKLIN TOWNE CHARTER HS.</td>
</tr>
<tr>
<td>7/21/2009 8:30 PM</td>
<td>Onsite Registration</td>
<td>Created.</td>
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</tbody>
</table>

Always show me fewer / more records per related list
Lead Appointment Notes

Task Appt Conduct

Assigned To: Rodney Smith
Subject: Appt Conduct
Due Date: 7/22/2009
Priority: Normal
Status: Completed
Comments: Matthew states that he wants to join the Reserve for the benefits. He feels like this would make him focus and complete college. He has a lot of respect for the people in uniform and this will be the driving force to make him a more productive citizen. He feels like he is letting his life waste away, by going from job to job. He is currently searching for a job he really is or his calling. He feels 100% that the Army is for him. He did not know a lot about the Army so explained to how the Army and ARMY Reserve work. He has no medical issues, no law violations, no dependents.

Name: Matthew Trucks
Spoke with: Lead
Disposition: Enthusiastic
Level of Interest: Very Interested

Related To:

Created By: Rodney Smith, 7/22/2009 4:40 PM
Last Modified By: Rodney Smith, 7/22/2009 4:49 PM

Reminder:

Edit | Delete | Create Follow Up Task | Create Follow Up Event

Task Appt Conduct -- Salesforce -- Enterprise Edition -- Microsoft Internet Explorer
Record update from Processor
Record Update from Future Soldier PSG

Task: Future Soldier Orientation -- Salesforce - Enterprise Edition - Microsoft Internet Explorer

Messages and Alerts
SAT/430TC: Sizzlin Summer Xbox Championship

Search

Custom Links
- Email History
- Mass Email Leads
- Bounced Emails

Shortcut
- Calendar

Recent Items
- Matthew Trucks
- Samantha Bailey
- Elvis Pata
- Latasha Williams
- Kenneth Felizano
- Nick Fiorio
- Shamere Newman

Task Detail

Assigned To: Angel Espada
Subject: Future Soldier Orientation
Due Date: 8/24/2009
Priority: Normal
Status: Completed
Comments: PVT Truck came in today for his Future Soldier Orientation. He was briefed on what is expected of him until he ships to basic training. Will be showing up on Thursdays for Future Soldier Training and explained to him what he needs to do to on the Futures Soldier Task list for possible promotion. Very excited about joining the Army.

Name: Matthew Trucks
Spoke with: Lead
Disposition: Enthusiastic
Level of Interest: Very Interested

Related To
Created By: Angel Espada, 8/27/2009 12:51 PM

Reminder
Reminder: 8/27/2009 12:51 PM

Edit, Delete, Create Follow Up Task, Create Follow Up Event

Last Modified By: Angel Espada, 8/27/2009 12:51 PM

Help for this Page

Salesforce.com - Army Experience Center
Dashboards
AR Strength Management
Shaping and Balancing the Force

USAAC ACC: Research Consortium
2 September 2009
Purpose

- Provide information on current strength posture, identify issues and resource constraints to help develop a way ahead for FY10 mission accomplishment and to adequately prepare for future missions

Agenda

- Strength Overview
- Shaping & Balancing Issues
- Accessioning Issues
- AR-RAP Update
# FY 09 Weekly Strength Update

## Weekly SELRES Strength

### As of 29-Aug-09

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<td>15,962</td>
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<tr>
<td>IMA</td>
<td>2,889</td>
<td>133</td>
<td>735</td>
<td>5,000</td>
<td>3,757</td>
</tr>
<tr>
<td>TOT</td>
<td>33,265</td>
<td>2,988</td>
<td>170,263</td>
<td>205,000</td>
<td>206,516</td>
</tr>
</tbody>
</table>

Change from previous week:
- Off: 15
- WO: 48
- Enl: (276)
- ESO: (213)

## Monthly ACC: and Transfers

### As of 31 JUL 09

<table>
<thead>
<tr>
<th>Agency</th>
<th>Annual Mission</th>
<th>YTD Mission</th>
<th>YTD Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>USAREC NPS</td>
<td>19,000</td>
<td>19,000</td>
<td>19,408</td>
</tr>
<tr>
<td>USAREC PS</td>
<td>3,500</td>
<td>3,040</td>
<td>3,206</td>
</tr>
<tr>
<td>ARCD (IRR-TPU)</td>
<td>9,000</td>
<td>7,623</td>
<td>7,776</td>
</tr>
<tr>
<td>HRC(AC-RC)</td>
<td>3,098</td>
<td>2,539</td>
<td>3,126</td>
</tr>
</tbody>
</table>

**Total**:
- Enlisted Missions: 34,598
- WO: 32,202
- Total Achieved: 33,516

### Officer Missions

<table>
<thead>
<tr>
<th>Agency &amp; Mission</th>
<th>Annual Mission</th>
<th>YTD Mission</th>
<th>YTD Achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>USAREC AMEDD Mission Glide</td>
<td>880</td>
<td>728</td>
<td>676</td>
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<tr>
<td>USAREC Chaplain Target</td>
<td>70</td>
<td>58</td>
<td>49</td>
</tr>
<tr>
<td>ARCD IRR-TPU Mission</td>
<td>1,600</td>
<td>1,355</td>
<td>1,505</td>
</tr>
<tr>
<td>USAREC OCS Mission Glide</td>
<td>120</td>
<td>100</td>
<td>131</td>
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<tr>
<td>ARCD OCS Mission Glide</td>
<td>25</td>
<td>21</td>
<td>2</td>
</tr>
<tr>
<td>USAREC DC Mission Glide</td>
<td>85</td>
<td>71</td>
<td>23</td>
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<tr>
<td>ARCD DC Mission</td>
<td>350</td>
<td>256</td>
<td>525</td>
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<tr>
<td>HRC AC-RC Mission</td>
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<td>354</td>
<td>456</td>
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<tr>
<td>USACC ROTC Mission Glide</td>
<td>650</td>
<td>560</td>
<td>291</td>
</tr>
<tr>
<td>ARCD Warrant Mission</td>
<td>350</td>
<td>291</td>
<td>317</td>
</tr>
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</table>

**Total**:
- 4,556
- 3,794
- 3,975
## FY 09 Strength Update

### SELRES Strength as of: 29-Aug-09

#### Weekly

<table>
<thead>
<tr>
<th></th>
<th>Current Week</th>
<th>Previous Week</th>
<th>Strength Changes from Previous Week</th>
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<tbody>
<tr>
<td></td>
<td>SELRES Strength</td>
<td>SELRES Strength</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TPU</td>
<td>TPU</td>
<td></td>
</tr>
<tr>
<td>Off</td>
<td>26,731</td>
<td>26,701</td>
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<tr>
<td>WO</td>
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<tr>
<td>Enl</td>
<td>157,856</td>
<td>158,494</td>
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<tr>
<td>ESO</td>
<td>183,830</td>
<td>183,830</td>
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<tr>
<td>Actual</td>
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<td>3,642</td>
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<tr>
<td>WO</td>
<td>645</td>
<td>644</td>
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<tr>
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<td></td>
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<td>IMA</td>
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</tr>
<tr>
<td>WO</td>
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<td>135</td>
<td></td>
</tr>
<tr>
<td>Enl</td>
<td>735</td>
<td>735</td>
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</tr>
<tr>
<td>ESO</td>
<td>5,000</td>
<td>5,000</td>
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</tr>
<tr>
<td>Actual</td>
<td>3,757</td>
<td>3,785</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOT</td>
<td>TOT</td>
<td></td>
</tr>
<tr>
<td>Off</td>
<td>33,265</td>
<td>33,238</td>
<td></td>
</tr>
<tr>
<td>WO</td>
<td>2,988</td>
<td>2,926</td>
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</tr>
<tr>
<td>Enl</td>
<td>170,263</td>
<td>170,830</td>
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</tr>
<tr>
<td>ESO</td>
<td>205,000</td>
<td>205,000</td>
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</tr>
<tr>
<td>Actual</td>
<td>206,516</td>
<td>206,994</td>
<td></td>
</tr>
</tbody>
</table>

#### Monthly

<table>
<thead>
<tr>
<th>Month of:</th>
<th>USAR ENL Total</th>
<th>USAREC Total</th>
<th>USAREC NPS</th>
<th>USAREC PS</th>
<th>HRC A RCT</th>
<th>ARCD</th>
<th>Total USAR</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1,326</td>
<td>230</td>
<td>0</td>
<td>230</td>
<td>259</td>
<td>837</td>
<td>1,326</td>
</tr>
<tr>
<td>Actual</td>
<td>1,605</td>
<td>489</td>
<td>239</td>
<td>250</td>
<td>396</td>
<td>720</td>
<td>1,366</td>
</tr>
<tr>
<td>Delta</td>
<td>279</td>
<td>259</td>
<td>239</td>
<td>20</td>
<td>137</td>
<td>(117)</td>
<td>40</td>
</tr>
<tr>
<td>Msn Pct</td>
<td>121.0%</td>
<td>212.6%</td>
<td>108.7%</td>
<td>152.9%</td>
<td>86.0%</td>
<td>103.0%</td>
<td></td>
</tr>
<tr>
<td>YTD Thru:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jul-09 Mission</td>
<td>32,202</td>
<td>22,040</td>
<td>19,000</td>
<td>3,040</td>
<td>2,539</td>
<td>7,623</td>
<td>13,202</td>
</tr>
<tr>
<td>Actual</td>
<td>33,516</td>
<td>22,614</td>
<td>19,408</td>
<td>3,206</td>
<td>3,126</td>
<td>7,776</td>
<td>14,108</td>
</tr>
<tr>
<td>Delta</td>
<td>1,314</td>
<td>574</td>
<td>408</td>
<td>166</td>
<td>587</td>
<td>153</td>
<td>906</td>
</tr>
<tr>
<td>Msn Pct</td>
<td>104.1%</td>
<td>102.6%</td>
<td>102.1%</td>
<td>105.5%</td>
<td>123.1%</td>
<td>102.0%</td>
<td>106.9%</td>
</tr>
</tbody>
</table>

| FY 09 Mission    | 34,598         | 22,500       | 19,000     | 3,500     | 3,098     | 9,000 | 15,598     |
| Actual          | 33,516         | 22,614       | 19,408     | 3,206     | 3,126     | 7,776 | 14,108     |
| Delta           | (1,082)        | 114          | 408        | (294)     | 28        | (1,224)| (1,490)   |
| Msn Pct         | 96.9%          | 100.5%       | 102.1%     | 91.6%     | 100.9%    | 86.4% | 90.4%      |

### Enlisted Accessions and Transfers

#### USAR ENL

<table>
<thead>
<tr>
<th>Mission</th>
<th>Total</th>
<th>PS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jul-09</td>
<td>230</td>
<td>259</td>
</tr>
<tr>
<td>Actual</td>
<td>489</td>
<td>396</td>
</tr>
<tr>
<td>Delta</td>
<td>259</td>
<td>137</td>
</tr>
<tr>
<td>Msn Pct</td>
<td>212.6%</td>
<td>86.0%</td>
</tr>
</tbody>
</table>

### Officer & WO Transfers

#### Total USAR

<table>
<thead>
<tr>
<th>HRC A</th>
<th>ARCD</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS</td>
<td></td>
</tr>
<tr>
<td>103.0%</td>
<td></td>
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### FYTD Msn Leadline

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<tr>
<th>Total</th>
<th>HRC A</th>
<th>ARCD</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>84.6%</td>
<td>83.1%</td>
<td>84.7%</td>
</tr>
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</table>
### AR Strength MSC and below (as of 21 Aug 09)

#### Enlisted

<table>
<thead>
<tr>
<th>GRADE</th>
<th>REQ</th>
<th>OH</th>
<th>%OH</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>0</td>
<td>9,479</td>
<td></td>
</tr>
<tr>
<td>E2</td>
<td>0</td>
<td>10,534</td>
<td></td>
</tr>
<tr>
<td>E3</td>
<td>26,055</td>
<td>24,675</td>
<td>172%</td>
</tr>
<tr>
<td>E4</td>
<td>40,274</td>
<td>44,867</td>
<td>111%</td>
</tr>
<tr>
<td>E5</td>
<td>31,145</td>
<td>30,840</td>
<td>99%</td>
</tr>
<tr>
<td>E6</td>
<td>23,607</td>
<td>23,416</td>
<td>99%</td>
</tr>
<tr>
<td>E7</td>
<td>22,723</td>
<td>13,509</td>
<td>59%</td>
</tr>
<tr>
<td>E8</td>
<td>6,812</td>
<td>6,686</td>
<td>98%</td>
</tr>
<tr>
<td>E9</td>
<td>1,493</td>
<td>1,559</td>
<td>104%</td>
</tr>
<tr>
<td>Total</td>
<td>152,109</td>
<td>165,565</td>
<td>109%</td>
</tr>
</tbody>
</table>

#### Officer

<table>
<thead>
<tr>
<th>GRADE</th>
<th>REQ</th>
<th>OH</th>
<th>%OH</th>
</tr>
</thead>
<tbody>
<tr>
<td>O1</td>
<td>0</td>
<td>1,954</td>
<td></td>
</tr>
<tr>
<td>O2</td>
<td>4,196</td>
<td>4,382</td>
<td>151%</td>
</tr>
<tr>
<td>O3</td>
<td>12,504</td>
<td>7,921</td>
<td>63%</td>
</tr>
<tr>
<td>O4</td>
<td>10,581</td>
<td>7,335</td>
<td>69%</td>
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<tr>
<td>O5</td>
<td>5,404</td>
<td>5,576</td>
<td>103%</td>
</tr>
<tr>
<td>O6</td>
<td>1,395</td>
<td>1,557</td>
<td>112%</td>
</tr>
<tr>
<td>O7</td>
<td>90</td>
<td>51</td>
<td>57%</td>
</tr>
<tr>
<td>O8</td>
<td>26</td>
<td>24</td>
<td>92%</td>
</tr>
<tr>
<td>Total</td>
<td>34,196</td>
<td>28,800</td>
<td>84%</td>
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#### Warrant Officer

<table>
<thead>
<tr>
<th>GRADE</th>
<th>REQ</th>
<th>OH</th>
<th>%OH</th>
</tr>
</thead>
<tbody>
<tr>
<td>W1</td>
<td>0</td>
<td>504</td>
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<tr>
<td>W2</td>
<td>2,005</td>
<td>1,044</td>
<td>77%</td>
</tr>
<tr>
<td>W3</td>
<td>882</td>
<td>597</td>
<td>68%</td>
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<tr>
<td>W4</td>
<td>638</td>
<td>470</td>
<td>74%</td>
</tr>
<tr>
<td>W5</td>
<td>109</td>
<td>76</td>
<td>70%</td>
</tr>
<tr>
<td>Total</td>
<td>3,634</td>
<td>2,691</td>
<td>74%</td>
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#### CSR

<table>
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<th>%OH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSR</td>
<td>0</td>
<td>1,090</td>
<td></td>
</tr>
</tbody>
</table>

#### Totals

- **Total:** 189,939 198,146 104%
Shaping and Balancing Issues

- Shaping and balancing the force will require targeted recruiting, precise missioning, tailored incentives (adequate funding) and available training.

- Currently, many of these elements are planned and coordinated independently and in different forums; this complicates precision accessioning.

- We have no method to enlist applicants who qualify for AR service but who do not qualify for available jobs; in times of plenty we need to enlist them into the IRR.

- AR Strength Management Strategy requires improved coordination with internal staff and with our accessioning agencies to yield resource savings and achieve the mission.
Accessioning Issues

- Over 40K vacancies in FY09
- Less than 22K vacancies
  - Less than 14K Primary SL1 Vacancies in REQUEST
  - ~8,000 SL1 Mobilization Vacancies supporting ARFORGEN
- Installments created significant “must fund” bill
- Discretionary incentives budget decreased by 38%

### Recruiting Incentives Funding
(Thousands of Dollars)

<table>
<thead>
<tr>
<th></th>
<th>FY 09</th>
<th>FY 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFP</td>
<td>$264,737</td>
<td>$295,332</td>
</tr>
<tr>
<td>Must Fund</td>
<td>$180,966</td>
<td>$243,133</td>
</tr>
<tr>
<td>Discretionary</td>
<td>$83,771</td>
<td>$52,199</td>
</tr>
</tbody>
</table>

31 AUG 09
LTC Stewart Slatton / AR G-1 ACC: Div / 404-464-8929
Current program pays $2K bonus to a recruiting assistant (RA) for every accession

FY10 a Tiered Bonus Program will pay RAs more for:

- Accessions into critical shortage MOSs
- Prior Service Accessions
- Officer Accessions
- OCS/DC Accessions

Tiered Bonuses will result in cost savings of $1.5M

Looking at ways to automate the transfer of RA contact information to USAREC
Recruiting Challenges will be greater in FY10

We need to develop a more detailed methodology to calculate recruiter/resource requirements

Improve synergy between Funding, Training, Accessioning and Incentives forums to achieve better precision

Consider IRR enlistments for other than 09L
QUESTIONS?

C. Stewart Slatton, II
Lieutenant Colonel
United States Army Reserve

Chief, ACC: Division, G-1
US Army Reserve Command
1401 Deshler Street SW
Fort McPherson, GA 30330-2000

charles.slatton@usr.army.mil
charles.slatton@us.army.mil
Office: (404) 464-8929
Cell: (678) 799-4627

goarmyreserve.com
www.usar.army.mil
AR-RAP Production (as of 29 Aug 09)

- **Annual Accessions**
  - FY 08 - ACC: 3,752
  - FY 09 - ACC: 4,117

- **Program To Date**
  - Active RAs: 66,161
  - FS Nominations: 26,990
  - PS ACC: 3,183
  - PS Affiliates: 2,312
  - NPS ACC: 4,904
  - NPS Shippers: 3,518
**Nominees by Current Status**

All Future Soldiers

- Nominated - Phase I: 836
- Nominated - Phase II: 916
- Nominated - Phase III: 17,131
- Re-instated: 20
- Spoken to ACC: 1,580
- Met ACC: 1,061
- Scheduled w/ AGR Recruiter: 1,259
- Met with AGR Recruiter: 2,018
- Waiver Required: 278
- Disqualified by AGR Recruiter - Temporary: 193
- Decision Pending: 1,066
- Scheduled for MEPS: 764
- NPS Contract: 977
- Prior Service Contract: 780
- BCT Shipped: 3,298
- SMP Contract: 8
- Affiliated With Unit: 2,204
- Payment Rejected: 60
- Qualified but Not Interested: 2,430
- Disqualified by AGR Recruiter - Permanent: 517
- Disqualified at MEPS - Temporary: 187
- Disqualified at MEPS - Permanent: 135
- Withdrawn for Other Reasons: 5,943
- Cancelled: 283
- Pre-accession: 266

Total Active FS: 26,929
Total Historical FS: 44,210
AR-RAP Regional Activity

Region 1
- RAs 5758
- FSs 1362
- ACC: 444

Region 2
- RAs 5164
- FSs 1355
- ACC: 444

Region 3
- RAs 4321
- FSs 1708
- ACC: 443

Region 4
- RAs 5789
- FSs 2592
- ACC: 639

Region 5
- RAs 4334
- FSs 3650
- ACC: 835

Region 6
- RAs 6015
- FSs 4214
- ACC: 1147

Region 7
- RAs 4652
- FSs 1315
- ACC: 457

Region 8
- RAs 4996
- FSs 1170
- ACC: 450

Region 9
- RAs 5631
- FSs 2146
- ACC: 777

Region 10
- RAs 4378
- FSs 1861
- ACC: 455

Region 11
- RAs 5213
- FSs 1923
- ACC: 666

Region 12
- RAs 5212
- FSs 1780
- ACC: 761

Region 13
- RAs 4181
- FSs 1290
- ACC: 505

OCONUS
- RAs 525
- FSs 549
- ACC: 117

Region
- RAs 5631
- FSs 1708
- ACC: 443
AR Data and Contract Ratio

**AR-RAP Accession to Recruiting Assistant**
- Remaining RCTG ASST: 5,089
- Nominees: 2,992
- Rate of: 37%

**Nominee to Contract Ratio**
- Nominees: 36,127
- Accessions: 8,081
- Ratio: 5 to 1
**Mission Process**

Mission the recruiting force to maintain FSTP levels

- Concentrate placement into critical MOS’
- Maintain presence in all recruiting markets
- Enable success and improvement

**Annual Contract Mission**

Monthly Phase Lines to meet DA Requirements

- DA Monthly Accession Flow
- Predicted In-Month Training Seat Losses
- Out Year Mission Requirements
- Entry / Exit Pool
- YTD Achievements
- Battalion Future Soldier Loss Rates
- Forecasted On Production Recruiter Strength

**DA Accession Requirements**

Based on

- Defense Planning Guidance
- Force Structure
- Retention / Attrition Rates
- Fiscal Constraints
FY Mission Draft

• Process used prior to FY2008
• FY Mission Draft not used until FY2007
• Very short planning horizon
• Quarterly missions issued at T-10 for planning with execution at T-2
Impact on Recruiting Force

• Recruiting organizations are different
  • It’s a continuous mission—no block leave or reset
  • When do you take leave and send NCO’s to their professional development courses
  • Quality of life becomes difficult to manage

• Limited ability to do long range planning
  • Impacts development of local campaign plans
    • Local advertising investment
    • Local partnerships
  • Lack of anticipation of future difficulty

• Commanders asked for an annual mission
Annual Mission Process

- Process used in FY2008 & FY2009
- Long range planning horizon
- No view of future FY beyond current FY
- Each FY mission was revised in 3rd or 4th quarter due to either force structure changes or external requirement changes
Resource Implications

• **Key resource elements for recruiting**
  • **Number of recruiters**
    • Changes require time to build-up or draw-down
      • 90-120 days to identify and move potential recruiters
      • Flow limited by Army Recruiter Course capacity
      • AR hiring process is more complicated
  • **Many tertiary support items**
    • GOV’s
    • Computers and communications
    • Facility space
  • **Temporary expansion**
Resource Implications

• Key resource elements for recruiting
  • Number of recruiters stations
    • Position, Analysis, & Evaluation (PAE) process aligns the recruiting force to the market
      • Evaluated periodically as the market moves
      • Evaluated when numbers of recruiters change significantly
    • Controlled through DoD and the Corp of Engineers
  • Commercial space based upon leases
• Operational costs
How Should Mission & Resourcing Work?

- Mission without resources doesn’t work
- Resource planning should be synchronized with the mission
- Local commanders should have some predictability for the future
Proposed process for FY2010
Long range planning horizon
Extends view of mission into future FY
Commanders always have next 4 quarters in view
Facilitates mission/resource synchronization
Supports continuous operations
Rolling Quarter Annual Mission Concept

Objectives

• Provide a continuous 4 quarter planning horizon for subordinate commands
• Seeks to stabilize mission
  • Maintain planned missions for next two quarters
  • Program mission changes into the QTRs beyond execution QTR +2
  • Synchronize deployment of augmented resources in time with the increased mission
• Can lead to improved quality of life
What if the command mission changes?

• Battle Staff Actions
  • Assess impact of size and timing of change
    • Can the command absorb increase without impact to contract mission?
    • Can the command buffer the increase so that any contract mission change occurs to the Draft Quarter and beyond?
  • Identify resource requirements to achieve the change
  • Identify timelines for resource augmentation

• G2 Specific Actions
  • Identify contract mission changes to the Bde/Bn level
  • WARNO to Bdes for staff involvement/review
  • Collaborative mission refinement

• Commander Involvement
  • CG approves all missions
  • Brigade Commander assessments of proposed mission collaborated for CG decision/approval
## Station Commander Pros & Cons

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Most prefer this concept over Annual cycle</td>
<td>- Increases time required to process missions by as much as a four-fold</td>
</tr>
<tr>
<td>+ Station Commanders will stay in touch with their mission (they touch missions every quarter)</td>
<td>- Will require several iterations to develop new processes</td>
</tr>
<tr>
<td>+ There will be a more fluid continuity during leadership changes</td>
<td>- RQAM may look further out than the station commanders can effectively plan for</td>
</tr>
<tr>
<td>+ Continuous mission view 9-12 months out... resulting in predictability and improved QOL.</td>
<td></td>
</tr>
<tr>
<td>+ More lead time for planning</td>
<td></td>
</tr>
<tr>
<td>+ Will create a consistent battle rhythm</td>
<td></td>
</tr>
<tr>
<td>+ Should slow down the “11th hour” changes in assigned missions</td>
<td></td>
</tr>
</tbody>
</table>
Implications for Higher Echelons

• Top sets the requirements—bottom identifies the resources

• Typically POM planning drives staff processes
  • Provides a 5 year resource horizon
  • Final requirements tweaked till execution
  • Resourcing not always synchronized

• How can we change the paradigm to adjust planning to facilitate execution?

• New mission dynamics
  • FY09 AR cap on NPS
  • New focus on precision
US Army Recruiting Command

Questions?

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502-626-1121
2009 Army Accessions Research Consortium

Recruiting Operations Track Outbrief

“Revolution in Recruiting Operations”
Operations Track: “Revolution in Recruiting Operations”

**Purpose:** Provide an informative set of briefings on recent initiatives that attempt to radically reshape both enlisted and officer recruiting. The briefings will provide an opportunity for attendees to learn **key findings** from recently completed initiatives, what initiatives are currently ongoing, and what future initiatives are being planned. The primary goal is to identify **gaps and potential solutions** in recruiting operations. Briefings will cover operational, administrative and technological revolutions.

**Goals:**
1. Provide research staff with an understanding of the recent, ongoing and planned operational, administrative and technological revolutions.
2. Identify current gaps.
3. Exchange ideas for transformation and potential solutions for future recruiting operations.
4. Establish collaborative relationships and provide opportunities to network with other researchers.
Participants

AEC
ARC
ARCIC
ASA-M&RA
Booz Allen Hamilton
JAMRS
MRM Worldwide
National Guard
Navy Recruiting Command
OCAR
Gallup Organization
HRC – Alexandria
TRAC -Lee
USAAC G2/9
USAREC G2
USAREC G5
USARC G1
USMEPCOM
## Revolution in Recruiting Operations

<table>
<thead>
<tr>
<th>Gaps</th>
<th>Potential Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruiting currently focused on volume and not MOS precision</td>
<td>Explore using precision bonus and tactical segmentation targeting for precision MOS missioning and recruiting</td>
</tr>
<tr>
<td>Current processes are not synched with ARFORGEN Model</td>
<td>Explore synchronization of mission process, training seats and ARFORGEN</td>
</tr>
<tr>
<td>Currently bonuses and incentives create inter-component competition</td>
<td>Explore possibility of elevating quarterly incentive review board to a quarterly GO panel to set incentives based on service requirements.</td>
</tr>
</tbody>
</table>
# Footprint vs. Geographic Diversity

<table>
<thead>
<tr>
<th>Gaps</th>
<th>Potential Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large recruiting footprint results in geographic diversity, but comes at a large cost. $43.5 M for 1,638 stations.</td>
<td>Explore mobile recruiting vehicles, MOU with Army Reserve for pilot program to use USAR centers in key locations.</td>
</tr>
<tr>
<td>Geographical diversity representing a cross section of America vs. reduced footprint</td>
<td>Determine the balance between targeting and exploiting markets and maintaining cross section of America.</td>
</tr>
</tbody>
</table>
## Revolution in Recruiting Operations

<table>
<thead>
<tr>
<th>Gaps</th>
<th>Potential Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative Cultural bias against recruiting duty</td>
<td>Force a cultural change, make recruiting attractive</td>
</tr>
<tr>
<td>Current process for managing recruiters is to focus on recruiter deficiencies</td>
<td>Shift focus to support Recruiters with resources</td>
</tr>
<tr>
<td>Suboptimal process, requiring many difficult individual tasks</td>
<td>Shift focus to a division of labor</td>
</tr>
<tr>
<td>Soldiers placed in unfamiliar environment requiring specialized training and experiences</td>
<td>Focus instead on critical Soldier tasks</td>
</tr>
<tr>
<td>Recruiting is focused on individual efforts</td>
<td>Instill team concept common to all other aspects of recruiting to the Army</td>
</tr>
</tbody>
</table>
# Revolution in Recruiting Operations

<table>
<thead>
<tr>
<th>Gaps</th>
<th>Potential Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overseas contingency operations create demand for recruiters. Results in fluctuation in the number of recruiters based on changing Army resources</td>
<td>Experiment by utilizing civilian manpower for non-Soldiers tasks and return NCO’s to the operational Army.</td>
</tr>
<tr>
<td>Shifting from a volume mission to a high quality precision mission or greater quality within a band of excellence requires greater resources</td>
<td>Conduct research to quantify the marginal increase in resources needed to shift to a precision mission.</td>
</tr>
</tbody>
</table>
## Revolution in Recruiting Operations

<table>
<thead>
<tr>
<th>Gaps</th>
<th>Potential Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closed, “stove-piped” architecture currently RA, AR, Civilian, ROTC, ARNG individual focus creates inter-component competition</td>
<td>Explore Total Army Recruiting and single location for seeking Army opportunities</td>
</tr>
<tr>
<td>Public image of Recruiters poor</td>
<td>Explore opportunities such as leveraging PAYS as incentive for high quality non-qualified applicants</td>
</tr>
<tr>
<td>Reserve and National Guard Market Share</td>
<td>Two years of data gathered, may begin utilizing data to create</td>
</tr>
<tr>
<td>Gaps</td>
<td>Potential Solutions</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Recruiting organizations are different than normal Army units –</td>
<td>Work with other stake holders to receive annual mission no later than six months</td>
</tr>
<tr>
<td>continuous mission, no reset, no block leave, difficulty finding</td>
<td>prior to start of the FY, USAREC then uses a rolling quarter annual mission to</td>
</tr>
<tr>
<td>time for professional development.</td>
<td>provide long range planning and always have next four quarters in view.</td>
</tr>
<tr>
<td>Results in reduced quality of life.</td>
<td></td>
</tr>
<tr>
<td>Limited ability to do long range planning impacts development of</td>
<td></td>
</tr>
<tr>
<td>local advertising campaign plans and partnerships.</td>
<td></td>
</tr>
<tr>
<td>Complicated hiring process and Army Recruiter School capacity</td>
<td></td>
</tr>
<tr>
<td>limitations.</td>
<td></td>
</tr>
<tr>
<td>Long logistics tail when recruiter number fluctuate includes of</td>
<td></td>
</tr>
<tr>
<td>GOV’s, computers, facility space</td>
<td></td>
</tr>
</tbody>
</table>
## Revolution in Recruiting Operations

<table>
<thead>
<tr>
<th>Gaps</th>
<th>Potential Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruiting environment has changed. Currently in the Army Reserve a recruiting a contract equals an accession, once mission is achieved this forces a cesation of recruiting, wasting valuable resources</td>
<td>Explore creation of a Army Reserve delayed entry program or delayed training program.</td>
</tr>
</tbody>
</table>
Gaps?

- Army Recruiting operates with a system that doesn't:
  - have the efficiencies of a division of labor and specialization of skills,
  - maximize recruiter interaction with the target population,
  - leverage the latest technology,
  - provide a positive quality of life for recruiters,
  - unify Army recruiting efforts.

- Army recruiting operates with a structure that:
  - uses more Soldiers than the Army can afford given current end strength caps and overseas contingency operations,
  - depends too heavily on fixed facilities instead of virtual and mobile capabilities,
  - forces leaders into a management role vice a leadership role.

- Process does not optimize Soldiers time for engaging the public resulting in greater inefficiency
- Recruiting requires so many soldiers that selection tools provide little screening ability
- System is completely reliant on individual efforts vice teams and often places Soldiers in an ethical dilemma to balance quantity and quality
- Soldiers and leaders find themselves operating in an entirely new career field requiring training and experiences they don’t normally have
- Initial and sustained training ineffective due to wide variety of tasks and lack of dedicated training time
- Efforts of multi-component Soldiers & Leaders are not synchronized due to lack of knowledge, time to train, and little reason for cooperation to achieve missions
- No standardized force development system in place for recruiting
- Public not provided a single location, real or virtual, for understanding and seeking Army opportunities
- Soldier heavy leads refinement process
- Quantity & Quality mission on back of individual Soldiers
- Server based, VPN accessed, non-integrated IT solutions
- Lack of integration with ROTC recruiting and local TPU support
- Redundant trips to MEPS
- Lack of well-defined, Army aligned Officer/NCO responsibilities
- Broad skill, unfocused, non-dedicated training
- RA or AR enlisted focus mindset
- Individual based, Soldier only process
- Extremely large number of Soldiers
- Some online applications
- Small stations servicing outlying communities
- Strip mall “offices” off the beaten path
- Bulkier, mid-tech equipment
- Dated table & banner event displays
- Nationally focused marketing with some local customization
- Non-professional, repetitive, local market event planning
US Army Recruiting Command

FY10 Mission and Recruiter Allocation Models

for

Army Accessions Research Consortium

by

MAJ Andrew Ehlert

01 September 2009
Agenda

- Purpose
- Facts
- New Concept Development
- Model Development
- Regular Army Mission and Position Model COAs
- Army Reserve Mission and Position Model COAs
- Combined Analysis (RA and USAR together)
Purpose

Provide an overview of the models used to distribute the enlisted contract mission and recruiter authorizations.
Facts

- **Accession mission range**
  - RA from 70 to 80
  - AR from 17K to 27K

- **Recruiter authorizations**
  - 100 Integrated Contract Recruiters (-300/ 75% reduction)
  - 6521 RA Recruiters (-564 / 8% reduction) (current plan)
  - 1524 AR Recruiters (-250 / 14% reduction) (current plan)

- **AR market limited to 50 miles from Reserve Center**

- **Field Force prefers simple models using established / accepted variables**
New Concept Development

• April 13-17, G2 and BDE S2s held a modeling conference to collaboratively develop COAs for the FY10 mission and position models

• Key recommendations:
  1. Shift strategy from volume success to pursuit / capture of the quality market
     • Achieve quality first, then volume will follow
     • Emphasize DoD GSA past production (proven quality market)
     • Limit modeling effort for “Other” contracts since those will result from prospecting for quality contracts
  2. Mission and position models should correlate more closely
  3. Balance the workload across the command
     • Pursue consistency in GSA required write-rate
     • Assign the ‘Other’ mission so as to balance the overall required effort
     • Consider the combined impact of RA & AR missions
Chicken or Egg

The Relationship of Allocation of Mission and Positioning of Recruiters:

1. Conduct market analysis, then…
2. Mission to the market, then…
3. Position recruiters to accomplish the mission
### USAR Mission Models

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Model Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY04</td>
<td>QMA Population 20%&lt;br&gt;17-21 NPS&lt;br&gt;22-29 PS&lt;br&gt;Past Production 20%&lt;br&gt;TPU Vacancies 60%&lt;br&gt;REQUEST PS MSN&lt;br&gt;Unencumbered NPS MSN</td>
</tr>
<tr>
<td>FY05</td>
<td>QMA Population 20%&lt;br&gt;17-24 NPS&lt;br&gt;25-29 PS&lt;br&gt;Past Production 20%&lt;br&gt;TPU Vacancies 60%&lt;br&gt;REQUEST PS MSN&lt;br&gt;Unencumbered NPS MSN</td>
</tr>
<tr>
<td>FY06 (1Qtr)</td>
<td>Army Potential 5%&lt;br&gt;W&amp;P College Enrolled 5%&lt;br&gt;QMA Population 30%&lt;br&gt;17-24 NPS&lt;br&gt;25-29 PS&lt;br&gt;Past Production 20%&lt;br&gt;TPU Vacancies 30%&lt;br&gt;REQUEST PRIMARY VAC</td>
</tr>
<tr>
<td>FY06</td>
<td>Army Potential 5%&lt;br&gt;W&amp;P College Enrolled 5%&lt;br&gt;QMA Population 20%&lt;br&gt;17-24 NPS&lt;br&gt;25-29 PS&lt;br&gt;Past Production 20%&lt;br&gt;TPU Vacancies 50%&lt;br&gt;REQUEST PRIMARY VAC</td>
</tr>
<tr>
<td>FY07</td>
<td>Past Production 50%&lt;br&gt;TPU Vacancies 50%&lt;br&gt;REQUEST PRIMARY VAC</td>
</tr>
<tr>
<td>FY08</td>
<td>Past Production 50%&lt;br&gt;TPU Vacancies 50%&lt;br&gt;REQUEST PRIMARY VAC</td>
</tr>
<tr>
<td>FY09</td>
<td>Past Production 50%&lt;br&gt;TPU Current Vacancies 50%&lt;br&gt;REQUEST PRIMARY VAC</td>
</tr>
</tbody>
</table>

Change in FY08 from “past 12 month average vacancies” to “current vacancies.”
Change in FY09 to TPU authorizations instead of vacancies.
Model Development: Overall Process

RA Mission Models

AR Mission Models

RA Position Models

AR Position Models

20 Separate Mission and Position Models

Model Development
1. Concept
2. Refinement
3. Data Calls to Brigades
4. Refinement
5. BDE and BN input (PCC)
6. Refinement
7. Brigade vetting
8. Courses of Action

9 Models: 6 Courses of Action

<table>
<thead>
<tr>
<th>Regular Army</th>
<th>Course of Action A</th>
<th>Course of Action B</th>
<th>Course of Action C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Army Reserve</td>
<td>Course of Action A</td>
<td>Course of Action B</td>
<td>Course of Action C</td>
</tr>
</tbody>
</table>
Model Development: Considered Variables

• Past production
  • Volume
  • By category (GA, SA, Other, Prior service)
• Qualified military available (QMA)
  • 17-24 year old population
  • 25-29 year old population
• Market potential for Army enlistment*
• School populations
  • High School
  • Two year college population
  • Four year college population
• AR unit structure
  • Authorizations (SL 1 only)
  • Unit vacancies (SL 1 only)

*Potential, Propensity, Penetration, Market Segmentation, etc.
Model Development: Screening Criteria

**Resources vs. Mission:** Difference between the Brigade’s share of recruiters and its share of quality mission (troops to task)

“Delta” = (Bde % of Cmd Recruiters) – (Bde % of Cmd GSA Mission)

<table>
<thead>
<tr>
<th>Regular Army</th>
<th>Army Reserve</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>BDE</strong></td>
<td><strong>Current</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Delta</strong></td>
<td><strong>Delta</strong></td>
</tr>
<tr>
<td>1st</td>
<td>1.24%</td>
<td>1.00</td>
</tr>
<tr>
<td>2nd</td>
<td>-3.08%</td>
<td>-1.00</td>
</tr>
<tr>
<td>3rd</td>
<td>0.74%</td>
<td>0.75</td>
</tr>
<tr>
<td>5th</td>
<td>-1.21%</td>
<td>-1.00</td>
</tr>
<tr>
<td>6th</td>
<td>2.31%</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*Current* = FY10 mission and recruiters allocated by FY09 models

*Goal* = the delta which is acceptable or desired by each BDE
In the past, we have used the same model methodology to distribute the GA, SA, and Other contract missions. This was called the “layered” approach.

This year, the proposal is to use two different methodologies, one method for the GSA contract mission and a second method for the Other contract mission.

The GSA contract mission will be distributed according to the methodology selected by the CG (COAs A, B, C).

The Other contract mission will be distributed according to a common methodology designed to balance the total contract workload at the battalion level. A single method was developed in concert between USAREC G2 and the Brigade S2s during the April mission conference.
Regular Army

Enlisted Contract Mission and Position Models
RA Contract Mission Models

• GSA contract mission distribution models

<table>
<thead>
<tr>
<th>RA Mission Model 1</th>
<th>RA Mission Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% DOD GSA Past Production</td>
<td>90% DOD GSA Past Production</td>
</tr>
<tr>
<td></td>
<td>10% Projected QMA (17-24)</td>
</tr>
</tbody>
</table>

• DOD GSA Past Production covers 4 years, weighted 40-30-20-10 (40% on most recent year)

• The “Other” contract mission is distributed to battalion level based upon the delta between a battalion’s required GSA gross write rate and its demonstrated (4-year average) volume gross write rate. The deltas for all battalions will be summed to USAREC level. A Battalion’s proportion of the Other mission is simply its share of USAREC’s total delta.

• Example: The Albany Bn historical volume GWR is 0.97 and its FY10 GSA required GWR is .56; the delta is 0.41. Given the total delta across USAREC is 27.7, then Albany’s proportion is ~1.48% (0.41/27.7)

• Model 1 is status quo (FY09 Model)
• Model 2 shifts to markets of opportunity
### RA “Other” Contract Mission Distribution

<table>
<thead>
<tr>
<th>BN</th>
<th>RSID</th>
<th>FY10 RQWR</th>
<th>4-yr AVG VOL WR</th>
<th>Delta</th>
<th>OTH Prop (% of total Gap)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALBANY</td>
<td>1A</td>
<td>0.56</td>
<td>0.97</td>
<td>0.41</td>
<td>1.48%</td>
</tr>
<tr>
<td>BALTIMORE</td>
<td>1B</td>
<td>0.57</td>
<td>0.98</td>
<td>0.41</td>
<td>1.48%</td>
</tr>
<tr>
<td>NEW ENGLAND</td>
<td>1D</td>
<td>0.56</td>
<td>1.18</td>
<td>0.62</td>
<td>2.25%</td>
</tr>
<tr>
<td>HARRISBURG</td>
<td>1E</td>
<td>0.58</td>
<td>1.31</td>
<td>0.73</td>
<td>2.62%</td>
</tr>
<tr>
<td>NEW YORK CITY</td>
<td>1G</td>
<td>0.53</td>
<td>0.99</td>
<td>0.47</td>
<td>1.68%</td>
</tr>
<tr>
<td>MID-ATLANTIC</td>
<td>1K</td>
<td>0.54</td>
<td>0.78</td>
<td>0.25</td>
<td>0.88% (0.88%)</td>
</tr>
<tr>
<td>SYRACUSE</td>
<td>1N</td>
<td>0.58</td>
<td>1.22</td>
<td>0.64</td>
<td>2.30%</td>
</tr>
<tr>
<td>BECKLEY</td>
<td>1O</td>
<td>0.59</td>
<td>1.23</td>
<td>0.65</td>
<td>2.33%</td>
</tr>
<tr>
<td>ATLANTA</td>
<td>3A</td>
<td>0.58</td>
<td>1.47</td>
<td>0.89</td>
<td>3.19%</td>
</tr>
<tr>
<td>COLUMBUS</td>
<td>3D</td>
<td>0.58</td>
<td>1.30</td>
<td>0.72</td>
<td>2.59%</td>
</tr>
<tr>
<td>JACKSONVILLE</td>
<td>3E</td>
<td>0.60</td>
<td>1.47</td>
<td>0.87</td>
<td>3.13%</td>
</tr>
<tr>
<td>MIAMI</td>
<td>3G</td>
<td>0.53</td>
<td>1.22</td>
<td>0.69</td>
<td>2.48%</td>
</tr>
<tr>
<td>MONTGOMERY</td>
<td>3H</td>
<td>0.59</td>
<td>1.63</td>
<td>1.04</td>
<td>3.74%</td>
</tr>
<tr>
<td>RALEIGH</td>
<td>3J</td>
<td>0.59</td>
<td>1.41</td>
<td>0.82</td>
<td>2.94%</td>
</tr>
<tr>
<td>TAMPA</td>
<td>3N</td>
<td>0.59</td>
<td>1.32</td>
<td>0.73</td>
<td>2.63%</td>
</tr>
<tr>
<td>BATON ROUGE</td>
<td>3T</td>
<td>0.57</td>
<td>1.35</td>
<td>0.78</td>
<td>2.81%</td>
</tr>
<tr>
<td>DALLAS</td>
<td>4C</td>
<td>0.60</td>
<td>1.75</td>
<td>1.15</td>
<td>4.15%</td>
</tr>
<tr>
<td>DENVER</td>
<td>4D</td>
<td>0.59</td>
<td>1.37</td>
<td>0.79</td>
<td>2.84%</td>
</tr>
<tr>
<td>HOUSTON</td>
<td>4E</td>
<td>0.59</td>
<td>1.59</td>
<td>1.00</td>
<td>3.59%</td>
</tr>
<tr>
<td>KANSAS CITY</td>
<td>4G</td>
<td>0.58</td>
<td>1.44</td>
<td>0.85</td>
<td>3.06%</td>
</tr>
<tr>
<td>OKLAHOMA CITY</td>
<td>4J</td>
<td>0.59</td>
<td>1.70</td>
<td>1.11</td>
<td>4.01%</td>
</tr>
<tr>
<td>SAN ANTONIO</td>
<td>4K</td>
<td>0.59</td>
<td>1.59</td>
<td>1.00</td>
<td>3.58%</td>
</tr>
<tr>
<td>PHOENIX</td>
<td>4P</td>
<td>0.59</td>
<td>1.42</td>
<td>0.84</td>
<td>3.01%</td>
</tr>
<tr>
<td>CHICAGO</td>
<td>5A</td>
<td>0.55</td>
<td>0.95</td>
<td>0.39</td>
<td>1.41%</td>
</tr>
<tr>
<td>CLEVELAND</td>
<td>5C</td>
<td>0.58</td>
<td>1.17</td>
<td>0.60</td>
<td>2.14%</td>
</tr>
<tr>
<td>COLUMBUS</td>
<td>5D</td>
<td>0.58</td>
<td>1.15</td>
<td>0.57</td>
<td>2.05%</td>
</tr>
<tr>
<td>INDIANAPOLIS</td>
<td>5H</td>
<td>0.58</td>
<td>1.30</td>
<td>0.72</td>
<td>2.58%</td>
</tr>
<tr>
<td>GREAT LAKES</td>
<td>5I</td>
<td>0.57</td>
<td>1.21</td>
<td>0.65</td>
<td>2.33%</td>
</tr>
<tr>
<td>MILWAUKEE</td>
<td>5J</td>
<td>0.58</td>
<td>1.25</td>
<td>0.67</td>
<td>2.42%</td>
</tr>
<tr>
<td>MINNEAPOLIS</td>
<td>5K</td>
<td>0.57</td>
<td>1.13</td>
<td>0.56</td>
<td>2.02%</td>
</tr>
<tr>
<td>NASHVILLE</td>
<td>5N</td>
<td>0.58</td>
<td>1.31</td>
<td>0.73</td>
<td>2.63%</td>
</tr>
<tr>
<td>LOS ANGELES</td>
<td>6F</td>
<td>0.54</td>
<td>1.17</td>
<td>0.62</td>
<td>2.24%</td>
</tr>
<tr>
<td>PORTLAND</td>
<td>6H</td>
<td>0.59</td>
<td>1.35</td>
<td>0.77</td>
<td>2.76%</td>
</tr>
<tr>
<td>SACRAMENTO</td>
<td>6I</td>
<td>0.59</td>
<td>1.80</td>
<td>1.21</td>
<td>4.35%</td>
</tr>
<tr>
<td>SALT LAKE CITY</td>
<td>6J</td>
<td>0.58</td>
<td>1.48</td>
<td>0.90</td>
<td>3.22%</td>
</tr>
<tr>
<td>SO CALIFORNIA</td>
<td>6K</td>
<td>0.57</td>
<td>1.35</td>
<td>0.77</td>
<td>2.79%</td>
</tr>
<tr>
<td>SEATTLE</td>
<td>6L</td>
<td>0.58</td>
<td>1.13</td>
<td>0.55</td>
<td>1.96%</td>
</tr>
<tr>
<td>FRESNO</td>
<td>6N</td>
<td>0.57</td>
<td>1.22</td>
<td>0.64</td>
<td>2.32%</td>
</tr>
</tbody>
</table>

Total: 27.79

Mid-Atlantic has the lowest volume write rate in the command (0.78). Given that its required GSA write rate consumes nearly all of its proven productivity, the Other mission allocation method will assign Mid-Atlantic only 0.88% of the command’s required Other contracts as a mission.

Sacramento has the highest volume write rate in the command (1.80). Given that its required GSA write rate consumes about 1/3rd of its proven productivity, the Other mission allocation method will assign Sacramento 4.35% of the command’s required Other contracts as a mission.

**Goal is balanced workloads!**
RA Recruiter Allocation Models

• Recruiter distribution of 6521 OPRA

<table>
<thead>
<tr>
<th>RA Position Model 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>30% Projected QMA (17-24)</td>
</tr>
<tr>
<td>25% DOD GA Past Production</td>
</tr>
<tr>
<td>15% DOD SA Past Production</td>
</tr>
<tr>
<td>10% Potential</td>
</tr>
<tr>
<td>10% 2 Year College</td>
</tr>
<tr>
<td>5% 4 Year College</td>
</tr>
<tr>
<td>5% Other</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RA Position Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>80% DOD GSA Past Production</td>
</tr>
<tr>
<td>20% Projected QMA (17-24)</td>
</tr>
</tbody>
</table>

• Model 1 is status quo (2005 – 2009)
• Model 2 shifts to markets of opportunity
## RA Courses of Action (Paired Combinations)

<table>
<thead>
<tr>
<th>COA A</th>
<th>COA B</th>
<th>COA C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Status quo</strong></td>
<td><strong>Middle ground</strong></td>
<td><strong>Markets of Opportunity</strong></td>
</tr>
<tr>
<td>RA Mission Model 1</td>
<td>RA Mission Model 2</td>
<td>RA Mission Model 2</td>
</tr>
<tr>
<td>100% DOD GSA Past Production</td>
<td>90% DOD GSA Past Production, 10% Projected QMA (17-24)</td>
<td>90% DOD GSA Past Production, 10% Projected QMA (17-24)</td>
</tr>
<tr>
<td><strong>RA Position Model 1</strong></td>
<td><strong>RA Position Model 1</strong></td>
<td><strong>RA Position Model 2</strong></td>
</tr>
<tr>
<td>30% Projected QMA (17-24)</td>
<td>30% Projected QMA (17-24)</td>
<td>80% DOD GSA Past Production, 20% Projected QMA (17-24)</td>
</tr>
<tr>
<td>25% DOD GA Past Production</td>
<td>25% DOD GA Past Production</td>
<td></td>
</tr>
<tr>
<td>15% DOD SA Past Production</td>
<td>15% DOD SA Past Production</td>
<td></td>
</tr>
<tr>
<td>10% Potential</td>
<td>10% Potential</td>
<td></td>
</tr>
<tr>
<td>10% 2 Year College</td>
<td>10% 2 Year College</td>
<td></td>
</tr>
<tr>
<td>5% 4 Year College</td>
<td>5% 4 Year College</td>
<td></td>
</tr>
<tr>
<td>5% Other</td>
<td>5% Other</td>
<td></td>
</tr>
</tbody>
</table>

* COA D screened out (RA Mission Model 1 combined with RA Position Model 2)
RA Courses of Action Comparison

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>COA A Status Quo</th>
<th>COA B Middle Ground</th>
<th>COA C Markets of Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metric</td>
<td>1.34%</td>
<td>1.91%</td>
<td>0.99%</td>
</tr>
<tr>
<td>Rank</td>
<td>3.4</td>
<td>2.8</td>
<td>3.8</td>
</tr>
<tr>
<td>Balances Troops to Task</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus on Quality</td>
<td>70%</td>
<td>65%</td>
<td>85%</td>
</tr>
<tr>
<td>Rank</td>
<td>3.2</td>
<td>2.9</td>
<td>3.9</td>
</tr>
<tr>
<td>Total Score</td>
<td>6.6</td>
<td>5.7</td>
<td>7.7</td>
</tr>
</tbody>
</table>

- **Sum of Scaled Ranks**
  - Distributed 10 points between the COAs per criteria
  - Retains a sense of the “distance” between metric values
- **Higher rank is better**
RA COA C Results

- Brigade quality mission distribution
- Assumed 72.7K contract mission (64K accessions, 12% LR)
- Quality write rate consistent across the Command
- For Table, A – B = D

<table>
<thead>
<tr>
<th>BDE</th>
<th>OPR Authorizations</th>
<th>OPR Share</th>
<th>Quality Mission</th>
<th>Quality Mission Share</th>
<th>OPR Share - Quality Mission Share*</th>
<th>Current Delta</th>
<th>Required Quality Write Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>1,251</td>
<td>19.18%</td>
<td>8,280</td>
<td>18.36%</td>
<td>0.82%</td>
<td>1.22%</td>
<td>0.55</td>
</tr>
<tr>
<td>2nd</td>
<td>1,347</td>
<td>20.66%</td>
<td>9,870</td>
<td>21.89%</td>
<td>-1.23%</td>
<td>-2.60%</td>
<td>0.61</td>
</tr>
<tr>
<td>3rd</td>
<td>1,336</td>
<td>20.49%</td>
<td>8,951</td>
<td>19.85%</td>
<td>0.64%</td>
<td>0.42%</td>
<td>0.56</td>
</tr>
<tr>
<td>5th</td>
<td>1,382</td>
<td>21.19%</td>
<td>9,970</td>
<td>22.11%</td>
<td>-0.92%</td>
<td>-1.19%</td>
<td>0.60</td>
</tr>
<tr>
<td>6th</td>
<td>1,205</td>
<td>18.48%</td>
<td>8,020</td>
<td>17.79%</td>
<td>0.69%</td>
<td>2.15%</td>
<td>0.55</td>
</tr>
<tr>
<td>Total</td>
<td>6,521</td>
<td>100.00%</td>
<td>45,091</td>
<td>100.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.58</td>
</tr>
</tbody>
</table>

* Screening and Evaluation Criteria
Army Reserve

Enlisted Contract Mission and Position Models
AR Contract Mission Model

- AR GSA contract mission distribution

<table>
<thead>
<tr>
<th>AR Mission Model 1</th>
<th>AR Mission Model 2</th>
<th>AR Mission Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>50% GSA Past Production (AR)</td>
<td>50% GSA Past Production (AR)</td>
<td>40% GSA Past Production (AR)</td>
</tr>
<tr>
<td>50% TPU Authorizations (SL1)</td>
<td>25% TPU Authorizations (SL1)</td>
<td>30% TPU Authorizations (SL1)</td>
</tr>
<tr>
<td></td>
<td>25% TPU Vacancies (SL1)</td>
<td>20% TPU Vacancies (SL1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10% Projected QMA (25-29)</td>
</tr>
</tbody>
</table>

- Model 1 is status quo (FY09 Model)
- Model 2 adopts a middle ground approach
- Model 3 shifts to emerging markets
AR Recruiter Allocation Model

• OPAR Recruiter distribution

<table>
<thead>
<tr>
<th>AR Position Model 1</th>
<th>AR Position Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>40% GSA Past Production (AR)</td>
<td>30% GSA Past Production (AR)</td>
</tr>
<tr>
<td>30% TPU Vacancies (SL1)</td>
<td>30% TPU Authorizations (SL1)</td>
</tr>
<tr>
<td>20% TPU Authorizations (SL1)</td>
<td>20% TPU Vacancies (SL1)</td>
</tr>
<tr>
<td>10% Projected QMA (25-29)</td>
<td>20% Projected QMA (25-29)</td>
</tr>
</tbody>
</table>

• Model 1 is status quo (2008 – 2009)
• Model 2 is population centric
## AR Courses of Action

<table>
<thead>
<tr>
<th>COA A</th>
<th>COA B</th>
<th>COA C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status quo</td>
<td>Middle ground</td>
<td>Markets of Opportunity</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AR Mission Model 1</th>
<th>AR Mission Model 2</th>
<th>AR Mission Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>50% GSA Past Production (AR)</td>
<td>50% GSA Past Production (AR)</td>
<td>40% GSA Past Production (AR)</td>
</tr>
<tr>
<td>50% TPU Authorizations (SL1)</td>
<td>25% TPU Authorizations (SL1)</td>
<td>30% TPU Authorizations (SL1)</td>
</tr>
<tr>
<td>25% TPU Vacancies (SL1)</td>
<td>25% TPU Vacancies (SL1)</td>
<td>20% TPU Vacancies (SL1)</td>
</tr>
<tr>
<td>10% Projected QMA (25-29)</td>
<td>10% Projected QMA (25-29)</td>
<td>10% Projected QMA (25-29)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AR Position Model 1</th>
<th>AR Position Model 1</th>
<th>AR Position Model 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>40% GSA Past Production (AR)</td>
<td>40% GSA Past Production (AR)</td>
<td>40% GSA Past Production (AR)</td>
</tr>
<tr>
<td>30% TPU Vacancies (SL1)</td>
<td>30% TPU Vacancies (SL1)</td>
<td>30% TPU Vacancies (SL1)</td>
</tr>
<tr>
<td>20% TPU Authorizations (SL1)</td>
<td>20% TPU Authorizations (SL1)</td>
<td>20% TPU Authorizations (SL1)</td>
</tr>
<tr>
<td>10% Projected QMA (25-29)</td>
<td>10% Projected QMA (25-29)</td>
<td>10% Projected QMA (25-29)</td>
</tr>
</tbody>
</table>

- **Combinations involving AR Position Model 2 were screened out, thus do not appear as viable Course of Action**
AR Courses of Action Comparison

<table>
<thead>
<tr>
<th>Army Reserve</th>
<th>Courses of Action</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>COA A Status Quo</td>
</tr>
<tr>
<td>Evaluation Criteria</td>
<td>Metric</td>
</tr>
<tr>
<td>Balances Troops to Task</td>
<td>1.41%</td>
</tr>
<tr>
<td>Focus on Quality</td>
<td>45%</td>
</tr>
<tr>
<td>Total Score</td>
<td>5.6</td>
</tr>
</tbody>
</table>

- **Sum of Scaled Ranks**
  - Distributed 10 points between the COAs per criteria
  - Retains a sense of the “distance” between metric values
- **Higher rank is better**
- “Simplicity” ranks were not calculated since each COA scored identically on the metric
AR COA C Results

- Supports AR goal of shape the force versus fill
- Assumed 23.2K contract mission (21K accession, 12% LR)
- Write rates based on 1524 Recruiter authorizations, a level to be reached at end of FY 11
- For Table, A – B = D

<table>
<thead>
<tr>
<th>BDE</th>
<th>OPR Authorizations</th>
<th>OPR Share</th>
<th>Quality Mission</th>
<th>Quality Mission Share</th>
<th>OPR Share - Quality Mission Share*</th>
<th>Current Delta</th>
<th>Required Quality Write Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>340</td>
<td>22.31%</td>
<td>2,494</td>
<td>22.12%</td>
<td>0.19%</td>
<td>1.22%</td>
<td>0.61</td>
</tr>
<tr>
<td>2nd</td>
<td>331</td>
<td>21.72%</td>
<td>2,507</td>
<td>22.24%</td>
<td>-0.52%</td>
<td>-2.60%</td>
<td>0.63</td>
</tr>
<tr>
<td>3rd</td>
<td>312</td>
<td>20.47%</td>
<td>2,313</td>
<td>20.52%</td>
<td>-0.05%</td>
<td>0.42%</td>
<td>0.62</td>
</tr>
<tr>
<td>5th</td>
<td>294</td>
<td>19.29%</td>
<td>2,184</td>
<td>19.37%</td>
<td>-0.08%</td>
<td>-1.19%</td>
<td>0.62</td>
</tr>
<tr>
<td>6th</td>
<td>247</td>
<td>16.21%</td>
<td>1,775</td>
<td>15.75%</td>
<td>0.46%</td>
<td>2.15%</td>
<td>0.60</td>
</tr>
<tr>
<td>Total</td>
<td>1,524</td>
<td>100.00%</td>
<td>11,273</td>
<td>100.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.62</td>
</tr>
</tbody>
</table>

* Screening and Evaluation Criteria
Combined Quality Workload Analysis

• Regular Army and Army Reserve together
• Brigade Share: Total workload per Brigade. This holistic approach examines total quality mission and total recruiter resources
• For chart, A – B = D

<table>
<thead>
<tr>
<th>BDE</th>
<th>OPR Authorizations</th>
<th>OPR Share</th>
<th>Quality Mission</th>
<th>Quality Mission Share</th>
<th>OPR Share - Quality Mission Share*</th>
<th>Current Delta</th>
<th>Required Quality Write Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>1,591</td>
<td>19.78%</td>
<td>10,774</td>
<td>19.12%</td>
<td>0.66%</td>
<td>1.22%</td>
<td>0.56</td>
</tr>
<tr>
<td>2nd</td>
<td>1,678</td>
<td>20.86%</td>
<td>12,377</td>
<td>21.96%</td>
<td>-1.10%</td>
<td>-2.60%</td>
<td>0.61</td>
</tr>
<tr>
<td>3rd</td>
<td>1,648</td>
<td>20.48%</td>
<td>11,264</td>
<td>19.98%</td>
<td>0.50%</td>
<td>0.42%</td>
<td>0.57</td>
</tr>
<tr>
<td>5th</td>
<td>1,676</td>
<td>20.83%</td>
<td>12,154</td>
<td>21.56%</td>
<td>-0.73%</td>
<td>-1.19%</td>
<td>0.60</td>
</tr>
<tr>
<td>6th</td>
<td>1,452</td>
<td>18.05%</td>
<td>9,795</td>
<td>17.38%</td>
<td>0.67%</td>
<td>2.15%</td>
<td>0.56</td>
</tr>
<tr>
<td>Total</td>
<td>8,045</td>
<td>100.00%</td>
<td>56,364</td>
<td>100.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.58</td>
</tr>
</tbody>
</table>

* Screening and Evaluation Criteria for RA and AR COAs
Problems with the RAM model
- Not a simple model to understand or justify to the field
- Did not adequately adjust for changes in the Battalion markets
- Often developed Battalion missions that were perceived as “unachievable”
- Was not a good predictor of Battalion performance
USAR Positioning Models

60/20/20 Model
- QMA Population 20%
  - 17-21 NPS
  - 22-29 PS
- Past Production 20%
- TPU Vacancies 60%
  - Unencumbered

FY03-FY05

5-Factor Model
- College Enrolled 5%
- Army Potential 5%
- QMA Population 30%
  - 17-24 NPS
  - 25-29 PS
- Past Production 30%
- TPU Vacancies 30%
  - REQUEST PRIMARY VAC

FY06

5-Factor Model
- College Enrolled 5%
- Army Potential 5%
- QMA Population 20%
  - 17-24 NPS
  - 25-29 PS
- Past Production 20%
- TPU Vacancies 50%
  - REQUEST PRIMARY VAC

FY07-FY08

4-Factor Model
- TPU authorizations (SL1) 40%
- QMA Population 10%
  - 17-24 NPS
  - 25-29 PS
- Past Production 30%
- TPU Vacancies 20%
  - REQUEST PRIMARY VAC SL1

FY09-FY10
RA Mission Models (RY07 – RY08)

Past Production Model Advantages

• Provided each battalion a more achievable mission (very big change in proportions)
• Was more predictive of actual performance
• Was simpler to understand and explain
• FY07 also saw the issuance of a “Net Contract Mission” which helped eliminate the “double whammy” effect of redundant FS Loss factors
• FY08 Mission Model was the same, except that the command switched back to issuing a “Gross Contract Mission”
FY09 Mission Model differs in 2 significant ways from FY07-FY08:

1. Replaced DoD past production for Other Services (sum of Navy, Air Force, Marine Corps) past production. This is more responsive to market share realities and does not over-represent Army productivity.

2. Years of past production are weighted as follows:
   - Most recent 12 months production: 40%
   - Next most recent 12 months production: 30%
   - 2nd oldest 12 months production: 20%
   - Oldest 12 months production: 10%

End result is a model that is more responsive to recent market shifts.
Continuing Long Term Challenges

- Army has a strong, negative cultural bias against recruiting duty
- Soldiers and Leaders operate in unfamiliar environment requiring training and experiences outside Army expertise
- System reliant on individual efforts vice teams
- Sub-optimal process results in inefficiency
- Fluctuating Soldier requirements, dependent on environment, impacts Army operating strength
- Initial and sustained training ineffective due to wide scope of tasks and lack of dedicated training time
- Multi-component Soldier & Leader efforts not synchronized in an Area of Operations
- No standardized force modernization system in place for recruiting
- Public not provided a single location, real or virtual, for understanding and seeking Total Army opportunities

Develop experimentation & testing framework
Focus on station level reengineering experiments
Integrate proven reengineering efforts
Integrate tests into strategic plan (DOTMLPF)
Revise leadership & management construct

- Holistically Develop (Local)
- Statistically Test (Regional)
- Deliberately Expand (National)
What Pinnacle Does

• Modernizes a recruiting process still operating under the ‘70’s All-Volunteer Force model by adopting industry best practices

• Holistically alters recruiting process – not just another option, add-on, or accessory

• Reduces Soldier requirements and optimizes Soldier visibility & interaction with the market

• Integrates multiple recruiting experiments and innovations into single cohesive focus

• Open Architecture allows integration of:
  – Cadet Command recruiting efforts
  – ARNG recruiting efforts
  – DA Civilian recruiting efforts
Total Army Integration

**Closed Architecture**
- Regular Army
- Army Reserve
- Civilian
- ROTC
- ARNG

**Open Architecture**
- Regular Army
- ROTC
- Army Reserve

**Recruiting Support**
- DA Civilian
- ARNG
- Develop Leads
- Screen & Set Appointments
- Accurate Processing
- Admin Support

**Future**
- Total Army Cyber Recruiting

**Local Market Strategy Support**

A Recruiting Support Core provides the base for a Total Army Recruiting operation in a community of interest.
Recruiting Duty for Soldiers

Current
“I’ve got my eye on you”

Future
“I’m supporting your success”

Must force a cultural change!

HQs
Brigade
Battalion
Company
Station
Recruiters

National
Army
Community
Influencers
CO
BN
BDE
HQs

Soldiers must be the focus at the center of our formations!

• Current structure & process puts a recruiter at the bottom of the hierarchy
• Weight of the organization borne by individual performance of individual recruiters
• Leaders spend the majority of their time “watching” individuals below them instead of supporting team accomplishments
• Performance often depends on random “meeting” engagements with a market suspicious of their intentions

Must move to planned, deliberate, & rehearsed engagements by Soldiers recognized as Heroes in the community
### Prospecting
- P1 (telephone)
- P2 (COI/VIP)
- P3 (face-to-face)
- P4 (internet)

### Interviewing
- Pre-Qualify Applicant
- Administer CAST, EST
- Tell the Army story
- Counsel Applicant
- Gain an Army commitment

### Processing
- Transportation, Hotel lodging, Meals
- Test ASVAB, AIMS
- Special Test if required DLAP, ESL, EPLT,
- Physical, Flight, Consult if required
- Background Check
- Police Checks, if required
- Project Applicant
- Waiver Processing

### Maintain School Program
- Gather school lists
- Develop COI’s
- March 2 Success
- MET Sites
- SASVAB Proctor

### Follow-up
- Lead followup
- Prospect followup
- Applicant followup
- FS followup
- COI followup
- VIP followup

### Ship FS
- Project for shipping
- Confirm required Documents and actions
- Provide transportation to Hotel

### Lead generation
- Develop School lists
- Referrals
- Walk-ins, and Call-ins

### Hometown Recruiter Assistance Program
- Plan use of HRAP participants
- Define goals of HRAP participants
- Manage HRAP Participants

### Operations management
- Recruiter Work Station
- Recruiter Operation Plan
- Recruiter Zone Calendar
- Enlistment Records Management
- Develop Station Accomplishment Plan
- Manage Applicant Processing List

### Update GOV Log
- Update DAT logs
- Update Stamp Log

### Future Soldier Training Program (FSTP)
- Training new FS’s in BCT common tasks
- Administer the APFT
- Conduct FS Events

---

### Training Level vs Experience Level

<table>
<thead>
<tr>
<th>Training Level</th>
<th>Experience Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novice</td>
<td>Adept</td>
</tr>
<tr>
<td>Novice</td>
<td>Adept</td>
</tr>
</tbody>
</table>

#### Level of training after RRS
- Trained in all tasks resulting in broad spectrum of skills with a low level of expertise
- Responsible for all recruiting tasks resulting in a broad range of experience but low level of expertise
- Overall results are a long, slow learning curve that fails to maximize productivity of uniformed personnel
Critical Soldier Tasks in Recruiting

- Tell the Army story
- Counsel Applicant – gain a commitment
- Develop COIs
- Lead FSs / HRAPs

Prospecting
- School visits
- All events - career fairs, PaYS etc
- Home visit
- COI maintenance & development
- Market maintenance & development

Army Interview
- Tell Army Story
- Gain commitment
- Verifying qualification
- Influencer marketing
- Counseling
- Temporary contract
- Team introduction

FS Training
- FS Orientation/Training
- Physical Training / PFA
- Identify HRAP
- Event participation

- Face-to-face engagements
- Lead and establish Army presence
- Ensure applicant suitability for “our” Army
**Future Construct**

- Division of labor and specialization of skills improves level of training resulting in deeper ability in most critical skill sets.
- Focusing on smaller range of tasks equates to more experience gained in a faster manner.
- Overall results are a more rapid learning curve that maximizes productivity of uniformed personnel.

**Soldiers focus on Training & Experience in Face-to-Face Communications**

<table>
<thead>
<tr>
<th>Prospecting</th>
<th>Novice</th>
<th>Adept</th>
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<tbody>
<tr>
<td>Telephone</td>
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<td>COI / VIP</td>
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<tr>
<td>Face-to-face</td>
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<td>Cyber</td>
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<tr>
<td>Pre-Qualify Applicant</td>
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<tr>
<td>Administer CAST, EST</td>
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<tr>
<td>Tell the Army story</td>
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<tr>
<td>Counsel Applicant</td>
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<td>Gain an Army commitment</td>
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<td>Special Test if required DLP, ESL, EPLT</td>
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<tr>
<td>Physical, Flight, Consult if required</td>
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<td>Background Check</td>
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<tr>
<td>Develop COI's</td>
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<td>March 2 Success</td>
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<tr>
<td>Applicant followup</td>
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<tr>
<td>FS followup</td>
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<tr>
<td>COI followup</td>
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<td>VIP followup</td>
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<td>Confirm required Documents and actions</td>
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<tr>
<td>Provide transportation to Hotel</td>
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<tbody>
<tr>
<td>Develop School lists</td>
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<tr>
<td>Referrals</td>
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<tr>
<td>Walk-ins, and Call-ins</td>
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<table>
<thead>
<tr>
<th>Hometown Recruiter Assistance Program</th>
<th>Novice</th>
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<tbody>
<tr>
<td>Plan use of HRAP participants</td>
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<tr>
<td>Define goals of HRAP participants</td>
<td></td>
<td></td>
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<tr>
<td>Manage HRAP Participants</td>
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<tr>
<td>Recruiter Work Station</td>
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<tr>
<td>Recruiter Operation Plan</td>
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<tr>
<td>Recruiter Zone Calendar</td>
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<table>
<thead>
<tr>
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<th>Novice</th>
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<th>Master</th>
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</thead>
<tbody>
<tr>
<td>Develop Station Accomplishment Plan</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Manage Applicant Processing List</td>
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<table>
<thead>
<tr>
<th>Update GOV Log</th>
<th>Novice</th>
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<th>Master</th>
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<tbody>
<tr>
<td>Update DAT logs</td>
<td></td>
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<tr>
<td>Update Stamp Log</td>
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<table>
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<tr>
<th>Future Soldier Training Program (FSTP)</th>
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<th>Master</th>
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<tbody>
<tr>
<td>Training new FS's in BCT common tasks</td>
<td></td>
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</tr>
<tr>
<td>Administer the APFT</td>
<td></td>
<td></td>
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<tr>
<td>Conduct FS Events</td>
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</tr>
</tbody>
</table>

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**Level of training after RRS**

**Level of experience after one year**
Focused on developing and screening appointments, customer relations, and accurate processing.

**Recruiting Support Team Role**

- **Stn Cdr**
  - Focused on coaching & mentoring Soldiers, planning support, integrating Future Soldier plan, and being the recruiting SME.
  - Selected for leadership.

- **ASC**
  - Leads to **Recruiting SPT Team**
  - 2-3 Civilians

- **DAC**
  - Leads to **Future Soldier Training Cell**
  - Focused on maintaining the FSP, training, and referrals.

**Organization**
- Detailed Force
  - 3-4 Soldiers
  - **RA**
  - **AR**

**Functions**
- **Conduct Appointment**
- **Schools & Events**
- **Lead Gen**
- **Lead Gen & Development Cell**
- **Develop Contact Plan**
- **Schedule Appointment**
- **In Brief Cell**
- **Processing Cell**
- **Shipping Cell**

**Prep for BCT Referral Program**
Radcliff Area of Operations

Proposed

Owensboro Center

Bowling Green Center

Central Kentucky Area of Operations

Ronald Reagan Center

Elizabethtown Center

Glasgow RS

Bardstown RS

Danville RS

Mobile, Satellite or TPU based

Mobile or Satellite

ROTC Integration
Radcliff Area of Operations
Nashville Battalion

ZIP Code 17-24 QMA
- Red: 5,400
- Yellow: 580
- Green: 400
- Cyan: 250
Way Ahead

• Radcliff Recruiting Company IOC 22 SEP 09
• Developing Concept Plan for Civilian Authorizations and Funding
• Planning 4 additional companies and one BN IOC in FY10 with Military Manpower
• Continue data collection and analysis to evaluate Pinnacle concept
• Endstate: Entire command transformed by 1st QTR, FY15
Pinnacle Metrics

Soldiers and Resources Used to Recruit
1. Number of Soldiers returned to the Operational Army (Data)
2. Mileage driven (Data)
3. Facility costs (Data)
4. Cost per Contract (Data)

Skill Specialization
1. Soldier task reduction (Survey/Soldier Calendar)
2. Assessment of seamless processing (Survey/Lean Six Sigma)
3. Soldiers’ perception of support (Survey)
4. Number of errors in packet processing (Data/Lean Six Sigma)
5. Processing time (Data)

Quality of Life
1. Job satisfaction (Survey)
2. Work hours per week (Survey)
3. Membership in local community activities (Survey)
4. Self assessment of amount of family time (Survey)
5. Number of voluntary conversions to 79R PMOS (Data)
6. Civilian turnover rate (Data)
7. Amount of station commander update time and sustainment training required (Data)
8. Recruiter assessment of access to services (e.g. gym, medical, child care) (Survey)
9. Recruiters in remote locations (Data)
10. Leadership Opportunities Available (Data)

Maximize Face Time and Maintain Recruiter Performance
1. Time spent face to face with public (Survey)
2. Amount of time spent in non-value added tasks (Survey)
3. Volume production (Data)
4. Quality recruits (Data)
5. Future Soldier loss rate (Data)
6. Market Share (Data)
7. Market Segmentation (Data)
## Major Pinnacle Changes

### Present
- Individual based, Soldier only process
- Extremely large number of Soldiers
- Some online applications
- Small stations servicing outlying communities
- Strip mall “offices” off the beaten path
- Bulkier, mid-tech equipment
- Dated table & banner event displays
- Nationally focused marketing with some local customization
- Non-professional, repetitive, local market event planning

### Future
- Team based, Soldier/Civilian integrated process
- Balanced Soldier-Civilian workforce
- Expanded Cyber-recruiting with interactive application system
- Larger central opportunity centers with mobile/TPU/ARNG satellites
- High-traffic, easily accessible locations
- High-tech, highly mobile equipment
- High-end interactive event displays
- Nationally branded, locally focused customizable marketing
- Professionally developed, locally relevant, market planning
**Major Pinnacle Changes (continued)**

<table>
<thead>
<tr>
<th>Present</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Soldier heavy leads refinement process</td>
<td>• Centralized leads refinement focusing on qualified appointments</td>
</tr>
<tr>
<td>• Quantity &amp; Quality mission on back of individual Soldiers</td>
<td>• Split of mission between teams allowing Soldiers to focus on quality</td>
</tr>
<tr>
<td>• Server based, VPN accessed, non-integrated IT solutions</td>
<td>• Internet based, single sign-on, directly accessed, integrated IT</td>
</tr>
<tr>
<td>• Lack of integration with ROTC recruiting and local TPU support</td>
<td>• Full integration of ROTC and local TPU’s</td>
</tr>
<tr>
<td>• Redundant trips to MEPS</td>
<td>• Single trip to MEPS</td>
</tr>
<tr>
<td>• Lack of well-defined, Army aligned Officer/NCO responsibilities</td>
<td>• Well-defined, Army aligned Officer/NCO responsibilities</td>
</tr>
<tr>
<td>• Broad skill, unfocused, non-dedicated training</td>
<td>• Specific skill focused dedicated training</td>
</tr>
<tr>
<td>• RA or AR enlisted focus mindset</td>
<td>• Fully integrated enlisted, officer, and civilian opportunities</td>
</tr>
</tbody>
</table>
Benefits to Total Army

• Reduces:
  – Soldier Footprint – substitutes civilian manpower and returns Soldiers
  – Facility Footprint – trades “brick & mortar” for mobile and virtual
  – Mobile IT Footprint – reduces equipment & PII losses
  – Equipment Footprint – requires less vehicles, cell phones, & laptops

• Optimizes:
  – Marketing – professionally developed & locally relevant
  – Visibility – Soldiers spend more time “face to face”
  – Efficiency – improved process results in higher ROI

• Provides a team structure and effort with a better QOL
• Elevates Recruiters to “Hometown Heroes” improving Army’s relationship with America
• Focuses effort on investment in Future Soldier to reduce spoilage
• Closes the recruit to veteran loop to ensure “Once a Soldier, Always a Soldier”

All-Component integration for officer, enlisted, & civilian recruiting
How Pinnacle Works

- Holistically alters recruiting “chassis”
- Seamless Information Technology & Innovative Equipment
- Improved Leads Delivery System
- Efficient Facility Support Plan
- Dedicated FS Management Process
- Improved Army Community Support
- Dedicated Recruiting Support Team
- Local and Virtual Processing System
- Continuous Soldier Relationship Management
- Integrated Community Marketing Strategy

Division of Labor Specialization Of Skills

Core Critical

Enhancing

Enabling
Streamlining the Recruiting Process
(Division of Labor/Specialization of Skills/Substitution of Civilian for Military Manpower)

• Historical Processing

Prospect

1-18 days
15 Average

Process

1-8 days
5 Average

FST

1-364 days
61 Mean
33 Median

Flow Time: 53 days to ship
20 days for contract (average)

• Future Processing

~5000 Soldiers
~3000 Civilians

Prospect

Process

FST

First recruit

~8850 Soldiers

X ~4000

X ~1000

First recruit

First recruit

43 days to ship
5 days for contract

Specialized Skills
Time Savings
Better Tools
Less Soldier Manpower

** Numbers are estimates based on averages
Detailed distribution analysis & simulation required
Supporting Recruiting at each Level

79R Force focused on execution of the process at each level and training of subordinates

Entire organization’s focus must shift to enabling our Recruiter’s ability to have successful face to face contact in an Army positive environment

**Recruiter**
Focused at individuals, high schools, 2 & 4 year colleges, and local events

**Company Commander**
Focused on priority school events, community partners, and centers of influence

**Battalion Commander**
Focused on major events, centers of influence, development of partners in recruiting

**Brigade Commander**
Focused on regional marketing, state leaders, and major partners
Improved Leads Delivery System  
(Providing Qualified Prospects)

Leads Generation & Development

Leads Refinement

Schedule Appointments

Contract

Development Center
Large Volume
Simple Screening
INTERESTED

Refinement Center
Medium Volume
Validate Interest
Refined Screening
QUALIFIED

Recruiting Support
Small Volume
Detailed Screening
APPOINTMENT

Soldiers
Small Volume
Conduct Appointment
Gain Referrals
COMMITMENT

Internet, Mail, 1-800, Regional Events, Lists

Local Engagements

Prospects

Face to Face
Local and Virtual Processing System

- Leverage process improvements
  - Hometown shipping
  - Livescan
  - Local swear-in leveraging military community
  - Enhanced cyber recruiting – Army Career Explorer (ACE) expansion
    (ACE records have increased from 2,300 in FY07 to over 5,500 FY09 YTD)
  - Eliminate 2nd trip to MEPS by FY12
  - Eliminate MEPS brick & mortar by FY15

- Leverage MEPCOM Virtual Interactive Processing System (VIPS)
  - Streamlined data transfers
  - Online enlistment testing
  - Local physicals
  - Waiver pre-screens
  - Behavior assessment
Efficient Facility Support Plan

- Reduce total “brick & mortar” footprint from 1,600+ to ~1,000
- Larger Opportunity Centers vice small business offices
- Mobile offices cover outlying smaller communities on a cyclical schedule
- Maximize use of cyber recruiting capability for hot hand-off to recruiters reducing prospecting / travel requirements

Roughly 80% of all production comes from 60% of stations located in and around the 1,000 largest cities in the US
Information Technology

Business process changes will continue to drive reductions in IT requirements

- **Hardware**
  - Recruiters moved to palm-based convergent devices instead of laptop computers
  - Highly mobile presentation & office equipment supplements Recruiter kit bag
  - Provides a higher tech, polished image to the market

- **Software**
  - Internet based software solutions provide access to >90% of the force
  - NetCentric Army.mil based cloud computing software solutions
  - Adapt COTS solutions from the cloud where possible
  - Integrate with AKO for email, file sharing, and community software

- **Infrastructure**
  - Reduces requirements for servers & infrastructure
  - Reduces manpower moving from internally developed software to industry adapted solutions
  - Reduces requirement for managing software licenses and associated support costs
Leveraging the Total Army Community

- Dedicated FS Leaders focused on investing in Future Soldier preparation and reducing losses
- Soldier Relationship Management System to maintain relations through training, tour of duty, and on return to the community
- Leverage Grassroots Advisory and other community relations to gain local support
- Harness professional marketing expertise to provide annual, focused marketing strategy and develop locally relevant approach for Total Army Recruiting
Military Reduction / Civilian Growth

- Maintains a balance in Military Downsizing and Civilian Growth
- Aligns with DA Recruiter Reduction goals
- Reduces fluctuations in Soldier Requirements
- Resizes the 79R Force reducing approximately 230 positions

1,000 Army Opportunity Centers

Large, fluctuations in recruiter requirements over the years
1st Order Positive Effects of Pinnacle

- Better work hours and quality of life for Soldiers
- More desirable duty assignment for Soldiers as the Army’s Ambassador to the community
- Improved effectiveness of individual work efforts due to increased training and repetitive use of skills
- Ability to shorten the recruiting cycle due to focus on cell activities
- Ability to design better tools due to more knowledgeable skilled users
- Reduces chance of unethical choices due to split of quantity vice quality decision – better use of teams
- Reduced number of Soldiers required to perform recruiting duty enabling ability to select vice screen
- Sustained community relationships due to longer term civilian presence
- Soldier face-to-face encounters are structured engagements vice movement-to-contact prospecting
- Reduced recruiting time and effort due to applicant ability to self-process
- Reduced costs and time to process due to less/no time spent at MEPS
- Less risk of equipment or personal information loss
- Reduced Future Soldier losses
- Reduction in ethical misconduct and Soldier Investigations
## Benefit-Cost Analysis (Estimates)

### Long Term Savings (per year @FOC)
- **Facilities** (20-25% reduction)  
  $20-25 Million
- **Vehicles** (30-40% reduction)  
  $5-7 Million
- **Applicant Travel & Lodging** (90% reduction)  
  $22.5 Million
- **ARC Training**  
  $7-10.5 Million
- **Recruiter Expenses**  
  $13-20 Million
- **Info. Technology**  
  $ Undefined, but likely significant (10-20% of total IT budget)

### Intangible Benefits
- Changes recruiting culture for Total Army
- Returns Soldiers to the Operational Force
- Improves Quality of Life
- Reinvents recruiting & 79R force structure
- Teams… Not Individuals

### Short Term Investment

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<th>FY09</th>
<th>FY10</th>
<th>FY11</th>
<th>FY12</th>
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<td>$3.4M</td>
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<th>FY10</th>
<th>FY11</th>
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<tbody>
<tr>
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<tr>
<td>5 Companies</td>
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<tr>
<td>2 Battalions</td>
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<tr>
<td>5 Battalions</td>
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* Facility costs removed as they are a projected realignment of current facility projected costs

### Full Pinnacle Cost @ FOC ~$175-250 Million
Extended Timeline

- **PLAN**
  - FY09: Establish Prototype Experimental Unit
  - FY10: Expand Prototype Experimental Units
  - FY11: ARNG, TPU & Civilian Integration
  - FY12: ARNG, TPU & Civilian Expansion

- **Develop & Experiment**
  - FY09: Establish Prototype Experimental Unit
  - FY10: Expand Prototype Experimental Units

- **Test & Revise**
  - FY11: ARNG, TPU & Civilian Integration
  - FY12: ARNG, TPU & Civilian Expansion

- **Expand & Revise**
  - FY13: Begin Full Fielding

- **Field**
  - FY13: Begin Full Fielding

- **Review & Evaluate**
  - FY09: Conduct Test
  - FY11: Conduct Test
  - FY12: Conduct Integrated Test

- **Review & Evaluate**
  - FY13: Review & Evaluate
What We Need from Accessions Command

• Support the plan and gain Senior Leader approval & stakeholder buy-in (DA level G3, G1, ABO, G6)
• Work Army Recruiting Initiative $$ with higher
• Coordinate with ARNG & DA G1 (Civilian) to gain cooperation & support
• Champion change in facility rules & regulations with OSD Joint Facilities Program
• Refine leads process front-end to reduce garbage in-garbage out
• Lead re-evaluation of data requirements for enlistment packets with DA G-1
• Continued support from USAAC G2 for analysis, simulation, and metrics
• USAAC G6 align needs with current funding and pending changes to architecture (AKO)
• Major campaign to leverage ACE including marketing and IT support
• Focus from USAAC G7/Ad Agency on providing local, professional marketing strategy support

PINNACLE
US Army Recruiting Command

Tactical Segmentation – a practical application

Accessions Research Consortium

Mitch Stokan, USAREC G-2
1 Sep 2009
Targeting

Assess

Market

Must Keep (Sustain/Exploit success)

Must Win (Create success)

Set & achieve objective

Geographical Area

Events/COIs/etc.

Schools (HS & Colleges)

Target

Customize message

Allocate resources

Marketing
Market Types, Resourcing Strategy & Potential

Market of opportunity: Small potential. Maintain awareness, consider resourcing (create success) after Must Win.

Supplemental: Not a significant market, not a resource priority. Maintain awareness.

Must Keep: Doing well, sustain or exploit. Potential being achieved.

IPE: Assess Market Potential

Determine who is being recruited versus who is available to be recruited while considering competitive influences.

- Assess Potential
- Define Environment
- Describe Effects
- Evaluate Competition
Assess Market Potential (Segment Index)

• a. For each category,
  – Crosswalk segment production with representation to calculate the Segment Index:

\[
\text{Segment Index} = \frac{\text{Production by Segment}}{\text{Population by Segment}}
\]
Assess Market Potential (cont) (Benchmark Index)

• b. For each category,
  – Determine a Benchmark Index:
    • establishes a reasonable goal to achieve
    • based on historical production in similar markets
      – Other USAREC organizations or competitors
    • steady state, substantiated over time

You want to be here (Benchmark)
Segment Index is here →

Potential to be achieved
Assess Market Potential (cont) (Calculate Potential)

• c. For each category,
  – Determine potential for each segment by comparison with a benchmark index:
    • Segment Index < benchmark : Where can we improve (under-represented)
    • Segment Index > benchmark: Where can we exploit (over-represented)

• d. Determine beneficial markets by aggregating potential across categories
  – Determine dominant segments
  – Look for commonality for messaging across segments
Segmentation & Messaging

Exposure & Awareness

Attributes

Segments
- Demographic
- Lifestyle
- Psychographic

Customized message

Resonate with a specific attribute of the prospect
<table>
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<tr>
<th>PD</th>
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<th>TS SEQ#</th>
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<th>% PRD</th>
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</table>

% PRD: %TS Production

TS – Tactical Segment 1-39

%TS – Percentage of that TS in the specified RSID
Segmentation Analysis Market Assessment (SAMA) - Purpose

• Provide a standard methodology for Battalions, Companies and Stations to **Identify, Prioritize** and **Target** the various markets within their areas.

• Customize messaging to integrate advertising and prospecting efforts

• Optimize resource allocation and recruiting focus.
SAMA Calculations

\[
\text{PotentialPenRate}_{TS} = \max \left( \text{PenRate}_{RS}, \text{PenRate}_{RTC} \right)
\]

\[
\text{TotalArmyVolPot}_{ZIP} = TSPotential_{ZIP} + 4\text{YrAvgNotCoded}_{ZIP}
\]
ZIP Code Types and Strategies

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<tr>
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<th>Total DoD Potential</th>
<th>Army Share Of Potential</th>
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<tr>
<td>Must Keep</td>
<td>&gt;= 12</td>
<td>AND &gt;= 50%</td>
</tr>
<tr>
<td>Must Win</td>
<td>&gt;= 12</td>
<td>AND &lt; 50%</td>
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<tr>
<td>Market of Opportunity</td>
<td>4 &gt;= Total DoD Potential &lt;12</td>
<td>-</td>
</tr>
<tr>
<td>Supplemental</td>
<td>&lt; 4</td>
<td>-</td>
</tr>
</tbody>
</table>

- **Must Keep** – to keep you must achieve the Army’s Share of the Total DoD Potential.
- **Must Win** – to win you must achieve 50% Share of the Total DoD Potential.
- **Markets of Opportunity & Supplemental**: to sustain you must achieve the Army’s Share of the Total DoD Potential.
<table>
<thead>
<tr>
<th>RSID</th>
<th>NAME</th>
<th>ZIP CODE</th>
<th>TS TOTAL</th>
<th>NOT CODED</th>
<th>ARMY VOL</th>
<th>DoD (-) VOL</th>
<th>TOT DoD POT</th>
<th>ARMY SHARE OF POT</th>
<th>CAT</th>
<th>AR</th>
<th>AF</th>
<th>MC</th>
<th>NA</th>
<th>DoD</th>
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<td>ALBANY</td>
<td>(2 Zip Codes)</td>
<td>22</td>
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<td>28</td>
<td>15</td>
<td>43</td>
<td>64.93%</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>12</td>
<td>28</td>
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Note: Target Production Remaining having a Negative Value indicates that the Army Potential Production for that Zip Code has been exceeded.

**Must KEEP Zip Code - Market Production Assessment**

Pct YTD Rctg Days: 41.02%

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<th>Total DoD Potential Data</th>
<th>YTD Market Share Data</th>
<th>Targeted Production</th>
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<td>As Of RCM:</td>
<td>DEC</td>
<td>Army Prod As Of:</td>
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<td>12-Feb-08</td>
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<table>
<thead>
<tr>
<th>Amyt</th>
<th>Tgt Prod</th>
<th>Tgt Prod Actv</th>
<th>% of Lead Line</th>
<th>% of Lead Line</th>
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<td>2</td>
<td>1</td>
</tr>
<tr>
<td>GA</td>
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<td>SA</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
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</table>

| Vol  | 2        | 2             | 3              | 0              | 7              |
| GA   | 2        | 1             | 2              | 0              | 5              |
| SA   | 0        | 1             | 0              | 0              | 1              |

| Vol  | 4        | 2             | 5              | 1              | 12             |
| GA   | 2        | 1             | 2              | 0              | 5              |
| SA   | 1        | 1             | 1              | 0              | 3              |

Total (2 Zip Codes) | Vol 4 | 2 | 5 | 1 | 12 |

Army Prod As Of: 12-Feb-08

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<th>48.78%</th>
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<td>52.02%</td>
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# Tactical Segmentation Market Report

**Recruiting Year 2009**

**As Of: 22-Apr-2009**

**1G - USA RCTG BN NEW YORK CTY**

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<th>Strategic Segment</th>
<th>Ts Population</th>
<th>Ts Population Percent</th>
<th>YTD Production</th>
<th>YTD Production Percent</th>
<th>Current Index</th>
<th>YTD Production Previous Yr</th>
<th>YTD Production Previous Yr Percent</th>
<th>YTD Production Previous Yr Index</th>
<th>Average Production 4 Yr</th>
<th>Average Production 4 Yr Percent</th>
<th>Average Production 4 Yr Index</th>
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<td>0.25</td>
<td>0.03%</td>
<td>0.19</td>
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Army Custom Segments

Send

• the right message
• in the right medium
• to the right target
• at the right time.
Why Segment?

- Select target markets
- Prioritize marketing dollars
- Help determine future opportunities (Mkt Expansion, Opportunity, Exploitation)
- Help understand target market wants and needs
- Make marketing communications more efficient and effective
Market Intelligence in Recruiting
Synchronizing Efforts through Segmentation

National
- Generate Awareness
- Increase Interest
- Generate Leads

Local
- Communicate the Army Message
- Develop Community Relations
- Develop COIs & Partners

Events, Partnerships, COIs, PR
- Provide face-to-face interaction
- Create a positive experience
- Generate Leads

Strategic Segments
LEADS
Tactical Segments

• Plan Recruiting Ops
• ID Priority of Effort
• Develop Marketing Plans

Brigade
- Plan Recruiting Ops
- ID Must Win/Must Keep ZIPs & Schools
- Develop Local Events

Battalion
- Develop Detailed Prospecting Plans
- Execute Local Events
- Gather HS Lists
- Generate Leads

Station
- Develop Community Relations
- Develop COIs & Partners
- Provide face-to-face interaction
- Create a positive experience
- Generate Leads

Segmentation ensures marketing communicates the right message through the right medium at the right target.

Segmentation ensures recruiters knock on the right door, call the right number, and send the right email.
Top Motivators
1-Develop leadership skills
2-Improve self and develop potential
3-Immediate financial benefit.

Top Barriers
1-Personal relationships would suffer
2-Inability to change plans once enlisted
3-Don't want to fight for cause I might not support

Hispanic 16-20 HS and early college students from mid to low economic status.

Summary: Likely, many of these potential recruits will seek out the Army, and require very little direct marketing. Obviously, the theme for messaging should focus on patriotism and personal development. The key will be to not waste too much effort on these individuals, as you will be to some degree “preaching to the choir.”
Targeting

Simply stated…

Targeting is the process of selecting targets and matching the appropriate response to them, in some priority order, considering operational requirements and available capabilities.

The D3A methodology facilitates the attack of the right target at the right time with the most appropriate asset!
USAREC D3A Process

• **Detect** - markets with high potential (method TBD), where the opportunity exists for Army to seize market share and increase production

• **Decide** - from the list of available assets, which are the most appropriate to accomplish the mission IAW Commander’s intent and when they should be employed

• **Deliver** - the right assets, at the right time, in coordination with the Brigade’s plan…in order to maximize effects in support of mission accomplishment

• **Assess** - the effectiveness of the attack and any remaining potential for future yield in the same market
Target Board Purpose

• Conduct Target Board to determine:
  – what opportunities exist
  – when and what resources/assets can be leveraged to best capture their markets.

• Provide a staff estimate and recommendations to CG to facilitate resource decisions
Target Board Intent

• The Target Board will synchronize the CG’s desired effects based on intent:
  – Reinforce success
  – Try to make up ground in losing markets
  – identifies emerging markets to create success in new areas
Recruiting Market Strategic Targeting Matrix (STarMat)

- **Strong**
  - **Protect and Refocus**
    - Concentrate on best locations
    - Defend strengths
    - Manage for contracts
  - **Build Selectively**
    - Invest heavily in best locations
    - Build ability to counter competition
  - **Protect Position**
    - Maximum growth thru investment
    - Maintain strength

- **Medium**
  - **Manage for Contracts**
    - Protect position in best locations
    - Minimize investment
  - **Protect Existing Program**
  - **Invest to Build**
    - Challenge for leadership
    - Build on strength
    - Reinforce vulnerabilities
  - **Build Selectively**
    - Specialize on strengths
    - Seek to overcome weaknesses

- **Weak**
  - **Minimal Investment**
    - Targets of Opportunity
  - **Limited Expansion**
    - Expand in less risk locations
    - Upgrade products
  - **Build Selectively**
    - Invest heavily in best locations
    - Build ability to counter competition
  - **Protect Existing Program**
    - Protect position in best locations
    - Minimize investment

Adapted from “Analysis for Strategic Decision Making”, George Day
STarMat and Must Win/Must Keep

<table>
<thead>
<tr>
<th>Market Value</th>
<th>Market Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Weak</td>
</tr>
<tr>
<td>0.33</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>Strong</td>
</tr>
<tr>
<td>0.67</td>
<td></td>
</tr>
<tr>
<td>1.00</td>
<td></td>
</tr>
</tbody>
</table>

- **Must Keep**
- **Must Win**
- **Market of Opportunity**
### Priorities

- % Gross Mission Accomplishment: 0.50
- % Army Market Share: 0.20
- DOD Penetration: 0.30

### Market Strength

- % Gross Mission Accomplishment: 0.50
- % Army Market Share: 0.20
- DOD Penetration: 0.30

### Market Value

- % TSC A ASVAB Scores: 0.35
- QMA 17-21 M/F Population: 0.25
- % Propensed (Potential): 0.40

**COA #3: Matrix Plot of Market Value vs Market Strength**

Points represent cities, with Sacramentos's location highlighted in blue.

**Priorities Table**

<table>
<thead>
<tr>
<th>Market Strength</th>
<th>Priorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>7</td>
</tr>
</tbody>
</table>
Targeting Cycle

- USAREC Targeting Board
- Market share
- Demographics
- Historical Data

Gather Intel
- Identify Targets/Events
- Identify HS/Colleges
- Message/Programs (Smart)

Develop target list

Execution/AAR
- ROI
- Goals
- Achievements
- AAR

Resourcing
- USAREC Assets
- BDE/BN Assets
- ADSW, TAIR, ECT
- AD Dollars
- PSA
- Radio Interview
SAMA Calculations
Step 1: Best Potential Penetration Rate for each TS

- Sum # of Contracts by TS for past 4 years
- Sum TS Population
- For each TS, determine the Potential Penetration rate:

\[ \text{PotentialPenRate}_{TS} = \frac{4YrAvgContracts_{TS}}{TSPop_{TS}} \]

- For each TS, determine the best rate by comparing the RS to RTC:

\[ \text{BestPotentialPenRate}_{TS} = \max \left( \text{PotentialPenRate}_{RS}, \text{PotentialPenRate}_{RTC} \right) \]
Step 2: Determine the Army Volume Potential for each TS by ZIP

- Multiply the BestPotentialPenRate by the TS Population for each TS by ZIP

\[ TSPotential_{ZIP} = \sum_{TS=1}^{39} BestPotentialPenRate_{TS} \times TSPop_{ZIP,TS} \]

- Determine the 4 year average uncoded contracts

- Calculate Army Volume Potential

\[ ArmyVolumePotential_{ZIP} = TSPotential_{ZIP} + 4YrAvgNotCoded_{ZIP} \]
Step 3: Determine the Army Share of DoD Volume Potential for each ZIP

- Calculate 4 year average Other DoD Volume
- Calculate the Total DoD Volume Potential

Total DoD Potential = Army Vol Potential + Other DoD Volume

- Calculate the Army Share of the Total DoD Volume Potential

Army Share of Potential = \frac{\text{Army Vol Potential}}{\text{Total DoD Potential}}
When you mouse over a LEAD, the Household and Custom Segments appear. The number that is associated with them are the numbers you’ll refer to when looking in the reference tables. The reference tables will give you a brief description which will be used to develop a message based off of motivators and barriers.

Segmentation GAMAT shows the Tactical Segment (Custom) within the "mouse-over" of the LEADS (Contracts/Future Soldiers TBD) field. The Station Commander may download or print out an Adobe .pdf file that can be used as reference tool. The number that is associated with the mouse-over, will coincide with the Tactical Segment number in the Adobe .pdf file. By analyzing and referencing Market Share layers + LEADS in the GAMAT system, the Station Commander; along with the Recruiter, can develop a well planned avenue of approach to the Prospect by utilizing the Segmentation code. Simple analysis will also show that most LEADS in the specified zip code will fall under the segmentation code providing the Recruiting Station with great potential to enlist and enhance the stations productivity.
Spatial Analysis

in brief

Elizabeth Hagensen
Center for Accessions Research
USAAC G2/9
What is spatial analysis?

An empirical examination of the relationship between a phenomenon and place

- Is there an observed geographic pattern… is it due to random chance?
- Is the observed value in a particular place dependent upon the values of surrounding features?
- How well does location predict the value at another location?
- Are there spatial trends in the data?
TODAY

• Brief overview of spatial analysis

• Brief overview of ‘special considerations’

• Questions
THERE’S STRONG, AND THEN THERE’S ARMY STRONG!

1-800-USA-ARMY • goarmy.com
Basic terminology

• Enumeration units
• Aggregate
• Autocorrelation
• Interpolation
• Hotspots
• Raster/vector data types
• Adjacency

• MAUP
• Buffer
• Local
• Global
• Point, line, polygon
• Attribute
• Classification
Geographic Hierarchy

Scale & Precision

United States
Region
State
County
City
Census Tract
Census Block Group
Census Block

THERE’S STRONG, AND THEN THERE’S ARMY STRONG!

1-800-USA-ARMY • goarmy.com
The arbitrary and modifiable nature of area units can influence observed values, analysis, and modeling results.

<table>
<thead>
<tr>
<th>Scale:</th>
<th>homogeneity of variance assumed across large enumeration units; exaggerated distributions; conceal underlying patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boundary:</td>
<td>Arbitrary; can overlap Physical Social Geopolitical Hierarchical = nested</td>
</tr>
<tr>
<td>Pattern:</td>
<td>Assumes even distribution across place Assumes uniform directionality Do not abruptly end at boundary end</td>
</tr>
</tbody>
</table>

THERE’S STRONG, AND THEN THERE’S ARMY STRONG!
Geographic Hierarchy

- United States
- Region
- State
- County
- City
- Census Tract
- Census Block Group
- Census Block

Facts at this level

may not be true at this level
There's strong, and then there's Army strong!
# Classification

<table>
<thead>
<tr>
<th>Unique Values</th>
<th>Best Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equal Interval</td>
<td>No less than four</td>
</tr>
<tr>
<td>Equal Frequency</td>
<td>No more than six</td>
</tr>
<tr>
<td>Natural Breaks (Jenks)</td>
<td>Logical divisions of data</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>No empty classes</td>
</tr>
<tr>
<td>Manual</td>
<td>Mutually exclusive</td>
</tr>
<tr>
<td></td>
<td>All exhaustive</td>
</tr>
</tbody>
</table>
Spatial Measurements and Statistics
Geographic Analyses

• Central Tendency
  – Mean center: average x,y for all features
  – Median center: shortest total distance to all study features
  – Central feature: most centrally located feature

• Dispersion
  – Standard distance: compactnessness
  – Direction: compactness and direction
Geographic Analyses

Locations

- Quadrat analysis; points patterns; uniform/random/dispersed
- Nearest Neighbor: average distance to nearest neighbor; clustering vs. dispersion
- Ripley’s-K function: adjacency; clustering vs. dispersion
- Join Count: adjacency or shared boundary similarity
- Geary’s C: similarity of nearby features
- Morans I: similarity of nearby features
- General G: whether hot spots and cold spots exist within study area
- Gi and Gi*: hotspots statistics

Feature Values

THERE’S STRONG, AND THEN THERE’S ARMY STRONG!
So what?

• Be cautious about generalizing

• Be mindful and justified in your methods
QUESTIONS
Back Up Slides
Equal Interval

- Each class occupies an equal interval along the number line
  - Range/# classes
  - Upper limits, lower limits: add the interval starting with lowest observation

- Advantages
  - Easy to compute
  - Easy to interpret
  - Good for data with homogeneous (equal) variance

- Disadvantages
  - Ignores the distribution of data
  - Does not find logical clusters
  - Empty classes
Quantiles

- Data is ranked in ascending order, equal number of observations in each class
- Tiles:
  - Quartile: 4 classes
  - Quintile: 5 classes
  - Sextile: 6 classes
- Total # of observations/# of classes

- Advantages
  - No empty classes
  - Legend clarity, simplicity
  - Good for data with homogeneous (equal) variance
  - Good for ordinal data

- Disadvantages
  - Ignores the distribution of the data
  - Reader must carefully read the legend
Mean-Standard Deviation

• Considers the distribution of the values along the number line: how far the value(s) are away from the mean
• Used to show contrast of values
• Classes according to SD (-2, -1, 0, 1, 2)

• Advantages
  – Good for a normally distributed dataset
  – Useful for showing extremes, difference, contrast

• Disadvantages
  – Average reader not knowledgeable of SD and statistics
  – Few datasets are normally distributed
Maximum Breaks

- Raw data is ordered from high to low, differences between adjacent values calculated: largest of these differences are used as class breaks

- Advantages
  - Easy to compute
  - Can focus on areas of large value differences

- Disadvantages
  - Miss natural clusters
  - Not widely used
  - Must read legend carefully
  - Odd sized classes, gaps in number line
Natural Breaks

• Classifies data according to natural clusters
• Mapper subjectively groups the data after referencing data graphs or number lines
• Advantages
  – Best for showing character of the dataset
  – Computer can do for you (Jenks method)
  – Very common for thematic mapping
• Disadvantages
  – Subjective
  – Must be defended
Optimal

- Numerically find similar values, class the data, and compare the median value
- Group values based upon equal levels of variance
- Rarely used

Manual

- User-defined classes
- Must justify classes, know dataset
- Hypothesis testing ($H_0$, $H_a$)
Human Research Protection Refresher Training

2009 Accessions Research Consortium (ARC) Hampton, Virginia
1-3 September 2009
PURPOSE: To provide an overview of the responsibilities in conducting and reviewing social & behavioral research (SBR) in the Army

1. Why Must Social & Behavioral Research (SBR) be Reviewed by an IRB?
2. Background: The Common Rule
3. IRB Review Responsibilities in SBR
4. Informed Consent
5. Obtaining Informed Consent in SBR
6. Special Considerations in Conducting SBR with Active Duty Military
I. Background: The Common Rule

32 CFR 219
Common Rule Subparts


- **Subpart B**: Additional Protections Pertaining to Research, Development, and Related Activities Involving Fetuses, Pregnant Women, and Human In Vitro Fertilization
- **Subpart C**: Additional Protections Pertaining to Biomedical and Behavioral Research Involving Prisoners as Subjects
- **Subpart D**: Additional Protections for Children Involved as Subjects in Research
Basic Protections

The regulations contain three basic protections for human subjects:

• Institutional Assurances
• IRB Review
• Informed Consent
Defining Human Subject Research

• **Research**: A systematic investigation, including research, development, testing and evaluation, designed to develop or contribute to generalizable knowledge (32 CFR 219.102(d))

• **Human Subject**: A living individual about whom an investigator conducting research obtains
  – data through **intervention** or **interaction** with the individual; or
  – **identifiable private information**

(32 CFR 219.102(f))
How SBR is Conducted

• By social scientists and qualitative researchers
  – Direct or concealed observations with field notes
  – Face-to-face interviews
  – Focus groups
  – Diaries or journals
  – “Testing”

• As most commonly seen in DoD
  – Pencil & paper questionnaires
  – Computer-based or Internet surveys
  – Mailed surveys
  – Telephone surveys
How SBR Data are Recorded

- Field notes (unstructured or structured)
- Interview guides (unstructured or structured)
- Questionnaires (open-ended or forced choice)
- Pre-coded questionnaires or answer sheets
- Direct entry into computerized data files
  - PDAs; Notebook Computers; Physiological Monitors; Computers stationed at kiosks, homes, offices
- Audio or video-recordings
- Transcriptions
IRB Review Responsibilities in SBR
IRB Responsibilities

• Identify risks

• Determine that risks are minimized

• Determine that “risks to subjects are reasonable in relation to anticipated benefits”

• Determine that subjects are adequately informed about “any reasonably foreseeable risks or discomforts”
Examples of Potential Risks in SBR

- **Emotional or psychological harm**
  - Research interaction causes upset
  - Worry about breach of confidentiality

- **Social harm**
  - Stigma or other negative social outcomes resulting from breach of confidentiality

- **Physical harm**
  - Studies focusing on domestic violence, gang activity, political activity in a conflict zone, or other phenomena concerning violence-prone individuals if study results become known to others

- **Financial harm**
  - Revelations could result in the loss of employment or insurance coverage

- **Legal harm**
  - The disclosure of illegal activities
Primary Risk in SBR

• Primary source of social risk results from a breach of confidentiality
  – Confidentiality and privacy are not the same
    • Confidentiality refers to data; and to the agreements that are made about ways in which information is restricted to certain people
    
    Privacy refers to persons; and to their interest in controlling the access of others to themselves
  – Names are not the only identifiers
  – Subjects’ participation in the research may need to be kept confidential as well as their data
IRB Responsibilities

• Identify risks

• **Determine that risks are minimized**
  • Determine that “risks to subjects are reasonable in relation to anticipated benefits”
  • Determine that subjects are adequately informed about “any reasonably foreseeable risks or discomforts”
Minimizing Risk

Three ways to minimize risk

• **Alternatives**
  – IRB evaluates whether other procedures that are less risky could be used

• **Precautions**
  – IRB ensures procedures are in place to decrease the likelihood that harms will occur
  – IRB ensures methods used to identify potential research subjects or to gather information about subjects do not invade the privacy of the individuals
  – IRB ensures adequate measures are taken to protect individually identifiable information once it has been collected to prevent breach of confidentiality that could lead to a loss of privacy and potentially harm human subjects

• **Safeguards**
  – IRB ensures there are procedures in place to deal with harms if they occur
Protecting Privacy and Confidentiality

- Separate personal identifiers from data sets
- Anonymized vs. de-identified vs. coded
- Demographic and other data
  - What is “nice” to know
  - What “needs” to be known
- Aggregate vs. Individual Data (When is the cell too small to protect identity?)
- Use of e-security
  - Lap tops & hand-held devices
  - Use of Internet: Passwords, firewalls, encryption, back-up files
- Controlling access to hard copy data
- Planning for storage of e-files & hard copy
- Access (who, when, how, what?)
- Disposition of data (When, how, by whom?)
IRB Responsibilities

- Identify risks
- Determine that risks are minimized
- **Determine that “risks to subjects are reasonable in relation to anticipated benefits”**
- Determine that subjects are adequately informed about “any reasonably foreseeable risks or discomforts”
Risk/Benefit Evaluation

- Evaluation of risk benefit ratio is subjective

- IRB must decide whether the anticipated benefit justifies asking subjects to undertake the risks

- IRB should take into account different subject populations and individual differences among subjects
IRB Responsibilities

- Identify risks
- Determine that risks are minimized
- Determine that “risks to subjects are reasonable in relation to anticipated benefits”
- Determine that subjects are adequately informed about “any reasonably foreseeable risks or discomforts”
Informed Consent

32 CFR 219.116 & 117
Informed Consent

- **What is it?**
  - A continuous process that involves providing subjects with sufficient information about the conduct of the research and potential benefits and risks so that the subject can make a reasoned and informed decision about whether to participate in the research study

- **When does it begin?**
  - Prior to collecting any research related information from the subject
Informed Consent

- Consent process should empower subjects to make their own determination about risk
- Risks should be explained in terms that the subject can relate to – i.e., everyday life experiences
- Consent process should not do more harm than the research
- There is no such thing as “passive consent”
  - Consent is required unless formally waived
  - Documentation of consent is required unless formally waived
- There is no such thing as a “secondary subject”
  - If an investigator obtains “identifiable private information” about a living individual, the individual is a human subject, regardless of the source
Informed Consent Process
(32 CFR 219.116)

Legally effective informed consent shall:

• Be obtained from the subject or the subject’s legally authorized representative;

• Be in language understandable to the subject or representative;

• Be obtained under circumstances that provide the subject with the opportunity to consider whether or not to participate (sufficient time), and that minimize coercion influences;

• Not include language through which the subject is made to waive any of his legal rights or which releases the investigator, sponsor or institution from liability for negligence.
8 Required Elements of Informed Consent
(32 CFR 219.116(a); 1 of 2)

• Statement that study involves research; explanation of purposes of research and expected duration of subject’s participation; description of procedures to be followed; and identification of any procedures which are experimental

• Description of foreseeable risks or discomforts to the subject

• Description of any benefits to the subject or to others which may reasonably be expected from the research

• Disclosure of appropriate alternative procedures or courses of treatment, if any, that might be advantageous to the subject
8 Required Elements of Informed Consent
(32 CFR 219.116(a); 2 of 2)

• Description of the extent to which confidentiality of records identifying subjects will be maintained

• For research involving greater than minimal risk, explanation as to whether any compensation and/or medical treatments in the event of injury will be provided and if so what will be covered

• Explanation of whom to contact if questions arise about the research, the subjects’ rights or whom to contact if research-related injury occurs

• Statement that participation is voluntary, that refusal to participate involves no penalty or loss of benefits, and that subject may discontinue at any time
Special Considerations in Conducting SBR with Active Duty Military
Uniform Code of Military Justice

- Examples of behaviors addressed in the UCMJ
  - Substance use/abuse
  - Sexual conduct
  - Violence

- Duty to Report
  - Military investigator
  - Non-military investigator
Uniform Code of Military Justice

- Consequences for violations of UCMJ: Non-judicial punishment or court martial
  - Monetary fines
  - Incarceration
  - Stuck in place (Non-promotable – not an actual penalty but is a common and likely consequence of having been convicted)
  - Reduction in grade
  - Dishonorable discharge (only if convicted at court martial)
SBR Issues with Active Duty Military Personnel

- Identifying potential participants
  - Accessing databases and databanks
  - Obtaining support from the Chain of Command
- Individual recruitment
  - Newspaper, flyers, posters, e-mail or web-based
  - Introduction and endorsement letters (Role of Commanding Officer)
- Group Recruitment
  - Setting
  - Ombudsperson
  - Ensuring autonomy
- Enticements (incentives)
  - Compensation
  - Rewards or penalties
Consent Issues

• Obtaining consent
  – Who (Military vs. civilian)
  – How (one-on-one or group setting)
  – When (On-duty vs. off-duty)
  – Where (On-base vs. off-base)
  – Potential for Coercion
  – What & Why
SBR with Military Personnel

- Military personnel are a population with special characteristics
- Social & behavioral data can jeopardize the participant’s military career and personal well-being
- Under the UCMJ, military investigators have special responsibilities
Contact Information

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Army Accessions Research Consortium

Neural Networks in Selection Research

David J. Scarborough, Ph.D.
Scientist at Large
Kronos Hiring Solutions Group
Current applications of artificial intelligence

**Expert Systems**
- Logistics planning, internet routing, financial analysis, credit rating, customer service decision support, commodities trading, computer aided design and manufacturing, *employee selection, psychological assessment interpretation*, medical diagnosis, air traffic control, inertial navigation, software help and installation programs, software engineering.

**Genetic Algorithms**
- Data compression and encryption, aircraft design, anticipatory switching in telecommunications, international security policy analysis, robotic movement control, chemical engineering, fault diagnosis, sonar information processing, combinatorial optimization, flight combat strategy.

**Fuzzy Logic**
- Bullet train operations, climate control systems, flight control systems, automotive carburetion, elevators, weather simulations, econometric modeling, smart consumer products (VCR's, Radios, Televisions), robotic vision and pattern recognition, postal sorting equipment, nuclear power fail-safe control systems, refinery production control systems.

**Neural Networks**
- Actuarial risk assessment, marketing research, missile guidance systems, DNA sequencing, satellite and sonar imaging, investment analysis, voice and handwriting recognition, manufacturing, scheduling, quality control, real-time process control, currency arbitrage, commodities trading, airline route scheduling, policy analysis, medical diagnosis, horse racing, gambling, *employee selection*, child abuse risk assessment.
Types of feed-forward networks

**Linear**
- Perceptron
- ADALINE
- General Regression

**Nonlinear**

**Unsupervised**
- Counter Propagation
- **Self-Organizing Maps**
- Neocognitron
- Clustering Networks
- MADALINE

**Supervised**
- Backpropagation
- Bayesian Probabilistic
- Levenberg-Marquardt
- Quick Propagation
- Delta-bar-Delta
- Quasi-Newton
- Learning Vector Quantization
- Conjugant Gradient Descent
- Radial Basis Function
- Reinforcement Networks
In feed forward networks data flow is in one direction, from input to output. Connection weights and node outputs are independent of values in successive nodes.

Supervised learning - Correct answers are known and connection weights are modified in proportion to their contribution to output error.

Unsupervised learning - Data inputs are not associated externally (no correct answers). Iterative exposure to sample data causes connection weight matrix to converge in a pattern that resembles the features of the sample data.
Using neural nets for employee selection

Input Predictors
- Experience
- Ability
- Attitudes
- Personality
- Biodata

Output Criteria
- Performance
- Tenure
- Reliability
- Delinquency

Backpropagation of error to modify hidden node weights

\[
E_j = O_j(1-O_j) \sum_k E_k w_{jk}
\]

\[
\Delta w_{ij} = \eta E_j O_i
\]

\[
E_j = (T_j - O_j)O_j(1-O_j)
\]

\[
\Delta w_{ij} = \eta E_j O_i
\]

\[
\frac{\partial O_i}{\partial a_j} = O_j(1-O_j)
\]

\[
O_j = \frac{1}{1+e^{-a_j}}
\]

Werbos (1974)
Training cycle for a three-layer backpropagation network

1. Single case data is passed to the input layer. Output is passed to the hidden layer and multiplied by the first set of connection weights.

2. Incoming signals are summed, transformed to output and passed to second connection weight matrix.

3. Incoming signals are summed, transformed and network output is produced.

4. Modified connection weights saved for next cycle, next case input set queued for next cycle.

5. Connection weights are adjusted in proportion to their error contribution.

6. Output value is subtracted from known value for that case. Error terms passed backward through network.
Gradient descent of the connection weight matrix under the Delta rule (Caudill and Butler 1990).
Gradient descent of weight matrix on the energy surface
In the social sciences, neural nets can be applied to:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Ranking</th>
<th>Prediction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sorting people or objects into categories using measures of defining characteristics</td>
<td>Identifying the ordinal position of people or objects on an unknown independent variable using related dependent variables</td>
<td>Estimating the amount of an unknown independent variable using related dependent variables</td>
</tr>
</tbody>
</table>

**Statistical corollaries:**
- Discriminant analysis
- Multi-dimensional scaling
- Cluster analysis

**Statistical corollaries:**
- Non-parametric rank correlation analysis
- Kruskal-Wallace rank sum test

**Statistical corollaries:**
- Linear and nonlinear multiple regression
- Structural equation modeling
A neural model trained to estimate tenure in days of video rental service personnel

**Input Variables**
- Plan to stay?
- Former employee?
- Education level?
- Applied before?
- Source of Referral?
- Desired position?
- Desired hourly pay?
- Desired employee category?
- Full time or part time?
- Available to start?
- Other commitments?
- Personal commitments?
- Reason for leaving Hollywood?
- Reason for leaving last job?
- Last job function?
- Last work area?
- Supervisor last name?
- Contact Information?
- Reason for leaving prior job?
- Prior job function?
- Prior job work area?
- Prior supervisor last name?
- Awards?
- Last name of referral?
- 25 psychological Questions

**Output = Tenure in days**

- Quickprop network
- 47 input variables
- 36 hidden layer nodes
- 1 output node
- Activation: hyperbolic tangent function
- 3000 Training epochs

**Performance on New Data**
- Error Mean: 39.9388
- Correlation with Tenure: 0.5151
- Significance (p<0.01)
- Development Sample N=2495
- Independent test sample N = 600
ANN Tenure Model #2-
Longitudinal trend on average length of service

180-day Retention

Tenure Model v.1

Tenure Model v.2
3. You sometimes find it hard to make up your mind. (U) dep_cl
4. You spend a lot of time weighing the pluses and minuses before making major decisions. (U) dep_cj
6. You never make major decisions quickly. (U) dep_ca
10. You are confident that you will be successful at whatever you do. (U) dep_ci
13. You are a fairly impulsive person. (U) dep_ch
15. You are confident in your skills and abilities. (U) dep_cn
19. You are a fast decision-maker. (U) dep_cb
20. You have a lot of confidence in your ability to succeed. (U) dep_co
22. Once you make a decision, you stick with it (U) dep_cc
28. You rely on yourself to get what you need. (U) dep_cm
33. You act quickly without worrying too much about whether you are doing the right thing. (U) dep_cg
39. You rarely change your mind after you make a decision. (U) dep_cd
43. You can handle complex problems. (U) dep_ck
44. You don’t make a decision unless you are certain it the right thing to do. (U) dep_cf

When deployed, each incoming applicant assessment record will be parsed and computationally pre-processed for presentation to the neural engine. Each neural net will produce a prediction that will be combined and converted to a traditional Red/Yellow/Green score output that can be normed by client and industry.
Involuntary termination trend among grocery store clerks

ANN Tenure Model #2 Termination Rate Trend

- 2003: 23%
- 2004: 20%
- 2005: 19%
- 2006: 18%

Involuntary Termination Percentage
ESNN trained to estimate sales productivity

Q2038: You always have a lot of activities going on.
Q2039: In your free time, you go out more than stay home.
Q2044: You don't care if you offend people.
Q2045: You don't care what people think of you.
Q2068: You try to make everything you do perfect.
Q2076: You worry about saying the wrong things to people.
Q2079: You often tell other people what to do.

Layer Summary
Inputs
Linear- 7 Nominals, 3 Continuous
Hidden 6
Hyperbolic Tangent
Output
Logistic

Profile: MLP 11:35-6-1:1
Training (n=829)  r = 0.426  p = .000
Test set (n=213)  r = 0.408  p = .000
Holdout (n=213)  r = 0.324, p = .000
Average time to average sales productivity occurs within the first three months of employment.

Average sales revenue per hour = $112

Sales Associate Productivity Curve
Quantile-Quantile Scatterplot (all new hires) N = 8684
Translate $ = 81.5166 + 0.8916 \times x$

Average sales revenue per hour = $135

Average time to average sales productivity occurs by the second month of employment.
Data mining is a set of procedures for revealing

Biodata interactions with length of service (n=1117)

Desired hourly pay and Desires full or part time work (n = 1117)
expected and unexpected patterns in data.

Biodata and Personality interactions with length of service (n= 1117)

Desired hourly pay and CSQ1030
"You are unsure of what to say you first meet someone." (n = 1117)
Employee selection neural networks (ESNN) are

Q2057-Q2083 Assessment item interactions with normalized sales per hour (n=881)

Q2057: When you are done with your work you look for more to do.
Q2083: When things go wrong, it's hard to control your temper.
developed to simulate the observed relationships

Q2058-Q2083 Assessment item interactions with normalized sales per hour (n=881)

Q2058: You are skilled at convincing people.
Q2083: When things go wrong, it's hard to control your temper.
between applicant data and employee performance.
ESNN’s are then converted to software

Q2042-Q2075: Assessment item interactions with normalized sales per hour (n=881)

Q2042: You pay close attention to people's feelings.
Q2075: You bounce back right away from disappointments.
and embedded in the decision support system.

Q2003-Q2058 Item interactions with normalized sales per hour (n=881)

Q2058: You are skilled at convincing people.
Q2003: You are good at leading people.
When should NNs be considered?

- When sample data shows high dimensionality, multiple variable types, complex interaction effects or does not meet parametric assumptions
- When evaluation of alternative models is required
- When relationships between independent and dependent variables are weak and unexplained variance is large.
- When the research application supports or requires the use of data mining procedures
- When the theoretical basis of prediction is ambiguous or poorly understood
- When operational use of the predictive model requires high fault tolerance
- When conventional modeling is unnecessary or cannot be completed under operational time constraints.
Summary

- Neural nets are general function simulators that store data patterns in connection weights through iterative exposure to sample data.
- Used to solve complex problems previously considered intractable.
- ANN’s “learn” pattern information stored in sample data and then apply that learning to new data.
- Neural nets use “brute force” computational techniques to discover hidden relationships in complex data.
- ANN’s produce meaningful estimates even when incoming data is noisy or flawed.
- Neural nets can process different types of data simultaneously.
Discussion
Neural Networks in Selection Research

U.S. Army Accessions Research Consortium

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Artificial Neural Networks

Artificial intelligence (AI) is a specialized branch of computer science that attempts to simulate human intelligence with computer circuits and sophisticated software. Historically, AI research has taken two approaches to machine intelligence: expert systems and neural networks. Expert systems capture the knowledge of human experts using rule-based programs to gather information and make sequential decisions based on facts and logical branching. These systems require human experts to construct the decision models necessary to simulate human information processing. Expert systems are used to standardize complex procedures and solve problems with clearly defined decision rules (Lawrence 1993).

Neural networks (also commonly called neural systems, associative memories, connectionist models, parallel distributed processors, etc.) are computer simulations of neuro-physiological structures (nerve cells) found in nature. Unlike expert systems, artificial neural networks learn by association or experience, rather than by being programmed. Like their biological counterparts, neural networks form internal representations of the external world as a result of exposure to stimuli. Once trained, they can generalize or make inferences and predictions about data that they have not been exposed to before. Neural networks are able to create internal models of complex, nonlinear multivariate relationships, even when the source data is noisy or incomplete. It is this capacity to function with uncertain or missing data that makes a neural processor valuable in the real world (Caudill 1990).

Computer simulated neural networks do not approach the complexity and capabilities of biological nervous systems. Even so, neural networks show tremendous potential for solving a wide variety of problems in machine intelligence, classification, optimization, pattern recognition and other areas. Neural networks are currently being used in missile guidance systems, deep space navigation, robotic vision and control systems, investment analysis, computer recognition of voice and handwriting, manufacturing, scheduling, quality control, real-time process control, currency arbitrage, commodities trading, airline route scheduling, bullet train operation, climate control systems, policy analysis, medical diagnosis, horse racing and gambling to name only a few (Glatzer 1992; Schwartz 1992; Bylinsky 1993). This paper describes the application of neural
network technology as a viable alternative to traditional statistical prediction of employee job performance.

As is often the case with a commercially successful innovation, applications of neural networks in the business community have outpaced published academic research. Expanding application of neural processors to address classification and prediction problems are one indicator of the perceived utility of these programs. Market acceptance alone, however, does not prove that neural networks are superior to or should replace traditional statistical methods. Formal research and documentation comparing the accuracy of neural programs to statistical methods is needed to determine if this growing acceptance is justified.

Neural networks may represent an entirely new approach to employee selection research that is well suited to the nature and complexity of criterion-related validation. Should the neural network approach compare favorably to traditional methods by obtaining similar or higher predictive accuracy, documentation of the development of such networks will be a useful reference for future industrial and academic researchers. Paradigm selection, training alternatives, data preparation, learning rates, neuronal configuration and a host of other technical issues must be resolved before a neural network is operational. Finally, a self-learning algorithm, able to continuously revise predictive models using longitudinal feedback, may overcome some of the problems associated with one-time concurrent research designs. Validation models are subject to temporal decay as demographic and social variables change. The adaptive ability of neural processors to adjust internal models when exposed to new data is well documented and may represent a significant advantage of neural network based selection over traditional methods.

Neural Network Theory

Artificial neural networks are theoretical representations of the information processing behavior of living nerve cells. Although computer simulated neural processing is advancing rapidly, the complexity and processing capacity of the most advanced applications are many orders of magnitude less complex than their biological counterparts. Table 1 provides an approximation of the relative size of several neural systems:
<table>
<thead>
<tr>
<th>Neural System</th>
<th>Approximate number of neurons</th>
<th>Typical number of connections (per neuron)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Brain</td>
<td>100,000,000,000</td>
<td>1000 to 10,000</td>
</tr>
<tr>
<td>Dragonfly</td>
<td>10,000</td>
<td>1000</td>
</tr>
<tr>
<td>Computer neural systems</td>
<td>1,000</td>
<td>100-300</td>
</tr>
</tbody>
</table>

Table 1. Relative size of biological vs. artificial neural systems (Kempka 1992)

Despite their simplicity when compared to organic nervous systems, computer simulated neural networks are no longer viewed solely in terms of their bio-theoretical origin. Artificial neural networks have been widely deployed as general function approximators in an expanding list of industrial, scientific, financial and technological applications. Nevertheless, it is useful to briefly describe the organic structures from which neural network theory has evolved to describe how artificial neural networks behave.

A biological neuron has three basic parts as shown in Figure 1. The soma is the main body of the cell, where incoming electro-chemical signals are received through hair-like extensions called dendrites. Incoming messages from the dendrites are stored until the level of ionic activity within the soma exceeds a threshold level, at which time the cell releases an electrical impulse through a branching structure called an axon. The electrical impulse travels to the end of the axon and is released in an area between the axon of the sending cell and the dendrites of other cells. This area between cell structures is called a synapse.
Synaptic junctions can have different effects on the magnitude of the electrical impulses traveling between neurons. Excitatory synapses amplify signal strength, making the receiving neuron more likely to activate and send the impulse along to other neurons. Inhibitory synapses have the opposite effect. The numbers of ions in the soma accumulate as incoming signals are received. When the electrical charge reaches about 75 millivolts above the resting state of the neuron, the charge is passed to the axon and the soma returns to a resting state (Lawrence 1993). For more information about the human brain and neurons, see (Arbib 1989; Kosko 1993).

An artificial neuron also processes input and produces output. Instead of neurotransmitters, computer simulated neurons receive and process arrays of numbers. Ionic activity within the neuron is simulated by a summation or activation function. Synapses between neurons are represented by connection weights that modulate the effect of each input. Thresholding effects are modeled by a transfer function that processes the summed weighted inputs...
of the activation function into the final output of the neuron.

Figure 2 illustrates basic neural processing with a graphic representation of an early artificial neuron known as the Perceptron. Input \((x_1, x_2, \ldots, x_n)\) is multiplied by the connection weights \((w_1, w_2, \ldots, w_n)\) and given to the activation function. The activation function specifies how the weighted input is processed. Activation values can be discrete or continuous, bounded or unbounded. The state of activation refers to the state of the neuron at a given point in time. Some activation functions include a residual that records the previous output value allowing a neuron to “self-excite,” while others include a stochastic noise factor.

![Figure 2. The McCulloch-Pitts/Perceptron neuron (Wasserman 1989)](image)

Neural networks can also be classified by the type of transfer function employed. In general, transfer functions are either linear or non-linear. The output of the linear neuron is a linear function of the activation value. The activation value is simply multiplied by the gain to derive the output. Linear transfer functions are not widely used because most problems cannot be adequately represented by multiplication. The perceptron used a linear threshold transfer function, shown in Figure 3, in which the output is a constant multiple of the input over some range. Below that range, the activation value is 0, above that range, +1.
Because of thresholding, the output of threshold transfer functions are linear. Linear thresholding was found to limit perceptron learning to problems that are linearly separable and as a result, of limited value in most real world applications (Minsky and Papert 1969).

The most commonly applied transfer function is the sigmoid function, shown in Figure 4. Also called a semi-linear, or squashing function, the sigmoid function and its derivatives are a continuous, monotonic function of the input that asymptotically approaches both high and low values. At the center point, gain is directly proportional to the derivative, while at high and low gain the sigmoid is almost a step function. The sigmoid derivative exhibits a Gaussian distribution and results in a continuous output between 0 and 1. The sigmoid and its cousin, the hyperbolic tangent transfer function work particularly well with backpropagation neural networks.
The hyperbolic transfer function, shown in Figure 2-5, also produces continuous, monotonic output and a Gaussian derivative but is bounded by -1 and 1 with 0 at the center point. Other neural transfer functions include the hard limit/step, staircase, Gaussian, threshold exponential, exponential-distribution, ratio polynomial, pulse coded and competitive signal transfer functions. For more information about neural network transfer functions see Kosko (1992).
Neural networks can be further classified by their training algorithm or learning rule. A supervised network has its output compared to known correct values for each input set during training and uses the difference to adjust its weights accordingly. Unsupervised networks are not provided with corrective supervision but instead learn to associate through trial and error.

Networks of individual neurons can be configured in a variety of architectures. Some networks employ only a single layer, others use multiple layers. Input and output connections between neurons can flow forward and/or backward through the network. If a neuron’s output is never dependent on the output of subsequent neurons, the network is of the feed forward type. Incoming signals flow only in one direction. Other networks employ feedback loops in which the output of some neurons is fed back as input to other neurons.

There are over forty different paradigms of neural networks which vary by architecture, activation and transfer function, training parameters, applications and so on. Figure 6 provides a simple classification of the various network designs. For more information about the taxonomies of neural networks see Caudill and Butler (1992); Kosko (1992); and Lawrence (1993).

**Neural Network Paradigms**

- **Feedback**
  - Constructed
    - BAM
    - Hopfield
  - Trained
    - CAM
    - T.S.P.

- **Feed forward**
  - Linear
    - Adaline
    - Perceptron
  - Nonlinear
    - Supervised
      - Backprop
    - Unsupervised
      - Counterpropagation
      - Kohonen
      - Neocognitron

Figure 6. Neural network paradigms (Lawrence 1993)
A network architecture is selected according to the particular application or problem to be solved. Different designs have specific capabilities, advantages and disadvantages. The backpropagation network used in this research is a supervised, fully connected feed-forward type like that shown in Figure 7.

![A fully connected feed-forward network](image)

Figure 2-7. A fully connected feed-forward network

A typical feed-forward network contains an input layer of neurons, one or more hidden layers, and an output layer. In most classification, optimization, and prediction applications, the number of input neurons corresponds to the number of predictor or independent variables. The number of output neurons corresponds to the number of criterion or dependent variables to be estimated by the network. For backpropagation, no quantitative criterion for the determination of the optimum number of hidden layers or neurons in each hidden layer has been generally recognized (Kosko, 1992).

In practice, such networks rarely contain more than two hidden layers, with one being most common. Finding the right number of hidden layers and neurons involves a process of “tuning,” in which various architectures and network parameters are varied systematically. Modifications proportional to changes in improved performance are retained, otherwise, adjustments are rejected and experimentation continues. This process goes on until no further performance improvements are obtained. Certain recent version software features a proprietary
network architecture optimization scheme involving the ranking and deletion of hidden neurons that contribute minimally to the objective function (NeuralWare Inc. 1994).

Neural network computer programs are intended to simulate the parallel distributed processing activities of many neurons acting simultaneously and in concert. Massively parallel computing systems are not widely available, so almost all neural network software, including that used in selection research, employs single processor computing. Neural networks are represented computationally using linear algebra to perform vector and matrix analysis.

Neural networks estimate input-output functions using distributed encoding. Exposure to sample data iteratively changes or “shapes” the connection weight matrices between neurons resulting in a stored pattern of the underlying function. Unlike statistical estimators, neural networks do not require a mathematical model of how output depends on input, rather, they are model-free estimators.

Neural networks geometrize computation. Input variables are presented to the network as vectors in multiple dimensions. As the network is trained, the connection weights between neurons evolve to superimpose pattern or function information in a state space of large dimension. Each point in this hyperspace model defines a possible neural network configuration of connection weights.

Although a computer can function in multi-dimensional hyperspace routinely, the human mind cannot easily visualize more than three dimensions. In 1982, physicist John Hopfield noted that neural network estimation of an underlying function is mathematically similar to the phenomena of spin glasses and energy wells in physics (Hopfield 1982). This similarity provides a very useful tool for visualizing network activity as the connection weights map an underlying function.

Figure 8 illustrates the geometry of fixed point stability in neural networks. Hidden patterns in the data appear as protrusions and basins underneath a sheet draped over the “energy surface” of the data. Network activity burrows a trajectory beginning with a computational problem and ending with a computational solution. Likened to a ball bearing rolling down hill, the computational solution comes to rest when the network converges in a fixed point of equilibrium (Kosko 1992).
The computational energy surface, also called an energy sheet or a Lyapunov function, is used to represent the total behavior of physical systems and neural networks. Basins of attraction, global and local minima, convergence and other references to the energy surface are used to visually represent interactions and nonlinearity among variables. As such, they are a useful tool for interpreting neural net processing. The following section will discuss the evolution of neural network theory leading up to the backpropagation network used in selection research.

Evolution of Neural Network Theory

In 1943, biologist Warren McCulloch and statistician Walter Pitts published a mathematical theory of neural behavior that significantly influenced future research activity in digital computing, expert systems and neural processing, as well as neurophysiology (McCulloch and Pitts 1943). The classical McCulloch-Pitts neuron is a simplified model of a biological neuron. According to this early theory, internal neuron activity is governed by five principles:

1. Neural activity is binary (activation is either on or off).
2. Neurons have a fixed activation function so that any given input pattern always generates the same output.
3. Neuron activation is immediate, input stimulus results in output response with no delay except for that occurring in the synaptic junctions between neurons.

4. Any inhibitory input to the neuron will prevent it from turning on.

5. The connections between neurons do not change (Caudill 1990).

Although flawed as a paradigm for biological neural activity and limited in terms of problem solving ability, the McCulloch-Pitts neuron formed the basis of modern neural network theory by mathematically representing a model of neural activation that remains central to subsequent neural network designs. The McCulloch-Pitts neuron consisted of inputs, a weighting scheme, a summation function and a hard limit/step transfer function which determined what value the neuron’s output would take for a given set of inputs (see Figure 2-2).

A vector of input values \((x_1...x_n)\) representing a series of data points from the outside world (or other neurons), are multiplied by a set of weights \((w_1...w_n)\) representing an excitatory or inhibitory connection between the input source and the receiving neuron. The weighted inputs are then summed. If the sum of the weighted inputs exceeds a certain threshold, the output equals one. If the threshold value is not met, the output is zero. This activation function can be expressed as:

\[
\text{net}_i = \sum_{j=1}^{n} (w_{ij} \times o_j)
\]

where:

- \(\text{net}_i\) = neural output signal value for neuron \(i\);
- \(w_{ij}\) = weight of the synaptic connection between neurons \(i\) and \(j\) and;
- \(o_j\) = the output of neuron \(j\).

The net output signal value for neuron \(i\) equals the sum of the weight times the input signal for all input to neuron \(i\) from neuron \(j\) starting at output of neuron \(j=1\) and ending at \(j=n\) (Kosko 1992).

McCulloch and Pitts demonstrated that these neurons can be used to compute logical operators (such as AND, OR, ELSE, etc.) and when linked in networks, can solve more
complex logical operations. The central problem of the McCulloch-Pitts neuron was that each set of weights for each neuron had to be calculated in advance to solve a particular problem. There was no mechanism or procedure for adjusting synaptic weights so that the network could self-adjust to solve arbitrary problems. In short, the McCulloch-Pitts neuron had no learning rule.

In 1949, psychologist Donald Hebb was seeking to explain how neurons are physically changed during learning. Hebb theorized that "when an axon of cell A is near enough to excite a cell B and repeatedly or persistently takes part in firing it, some growth process or metabolic change takes place in one or both cells such that A's efficiency, as one of the cells firing B, is increased..." (Hebb 1949). The idea that neural connections vary in strength according to how often a particular neural pathway is stimulated became known as Hebb's law and was quickly integrated into mathematical models of neural behavior, most notably by Frank Rosenblatt, a biologist at Cornell University.

Building on the work of McCulloch, Pitts and Hebb, Rosenblatt invented a model of the optic nerve of the common housefly (Rosenblatt 1958). This early class of artificial neurons was collectively known as perceptrons, and received a great deal of popular and research interest throughout the 1960's. Rosenblatt demonstrated that a network of these two-state (on/off) neurons, using a variation of Hebb's law, was capable of classifying input data, making threshold logic operations and, that a self-adjusting system could retain information and self-modify as a result of training.

Rosenblatt's perceptron learning theorem demonstrated that a perceptron could learn anything it could represent. Representation refers to the ability of a neural network to simulate a specified function. Learning requires a systematic procedure for adjusting the network weights to produce that function. Rosenblatt’s perceptron training algorithm operationalized Hebbian learning theory to challenge McCulloch and Pitts' fifth rule of neural behavior which stated that connections between neurons are fixed. Rosenblatt’s methodology for training a network to find the correct input weights and threshold values is summarized in Figure 9. Using this supervised training procedure, the network will modify the input weights until the network will correctly classify a group of inputs in a finite number of iterations.
In the mid-1960’s, MIT professors Marvin Minsky and Seymour Papert identified an entire class of relatively simple problems that cannot be solved by a single layer perceptron network (Minsky and Papert 1969). In their book, *Perceptrons*, Minsky and Papert demonstrated that the perceptron is limited to functions that are linearly separable, i.e., problems in which sets of points (corresponding to input values) can be separated geometrically by a line, plane or hyperplane. Restriction to linear separability limits a single layer perceptron network to simple problems and severely limits utility with multivariate functions in which the underlying relationships are non-linear.

Two years after Rosenblatt published his work with perceptron networks, electrical engineers Bernard Woodrow and Ted Hoff patented the adaptive linear element, or ADELINE. Designed as an analog noise reduction filter for digital signal processing, the ADELINE is a single neuron with a simple additive activation function, a linear transfer function and one modifiable synapse for every element in the input pattern. The ADELINE and the multiple adaptive linear element (MADELINE), are the most commonly deployed neural network technology. They are used in echo cancellation in long distance telephone systems, real-time process control in medical and industrial applications,
computer modem communications and deep space navigation, among other applications.

With the ADELNE, Widrow and Hoff introduced a variation of the perceptron training algorithm able to process continuous inputs and outputs; the simple, but powerful, least mean square (LMS) or delta rule. The ADELNE uses a least means square (LMS) regression procedure to continuously modify the connection weight matrix to minimize the difference (delta) between the network output and the actual output variable from the training data. The delta rule minimizes overall mean squared error by multiplying the difference between the actual and desired output times the values of the inputs, times the learning rate:

$$\Delta w_{ij} = \eta (T_i(t) - a_i(t)) o_j(t)$$

where: $\Delta w_{ij}$ is the change in the weight of the connection from neuron $j$ to neuron $i$, $T_i$ is the training input or correct answer, $t$ is the specific time, $a_i$ is the activation for neuron $i$, $o_j$ is the output of neuron $j$, and $\eta$ is the learning rate.

Figure 10. Gradient descent of the connection weight matrix under the Delta rule (Caudill and Butler 1990).

The delta rule is a gradient descent learning rule geometrically interpreted in Figure 10. When plotted in
two dimensions \((x,y)\), the mean squared error versus the possible weight vectors show a parabola (a hyperparaboloid in N-dimensions) (Caudill 1990). The total mean squared error is a quadratic function of the weight vector. The delta rule modifies the weight vector to minimize its mean squared error, iteratively moving the connection weight matrix down the negative gradient toward the bottom of the parabola to the ideal weight matrix, or point of LMS error.

Convergence to the global minima (weight matrix configuration showing lowest LMS error) is governed by the learning term, \(\eta\). If \(\eta\) is too small, the LMS algorithm crawls needlessly down each estimated squared error surface resulting in lengthy training cycles. If too large, the descent may skip over the global minima, and fluctuate between points corresponding to values larger than the minimum error surface. The learning rate should vary inversely with system uncertainty (Kosko 1992) and typically falls in the range of 0 to .6. Small values of \(\eta\) are recommended for high levels of system uncertainty and high dimensionality. Larger values of \(\eta\) can speed convergence in simpler sampling environments.

Because the delta rule requires the training term \(T_i\), representing a known correct output for each input, it cannot be applied to hidden layer neurons where the correct output value is unknown (Nelson and Illingworth 1991). Hence, the delta rule applied only to single layer neural networks or the output layer of multi-layered nets. The problem of linear separability in pattern representation also applied to the ADELINE. The backpropagation learning rule overcame this barrier.

Backpropagation Neural Networks

The backpropagation training algorithm, also called the generalized delta rule, is a nonlinear extension of the LMS algorithm. Overcoming the limitations of the perceptron and adeline/madeline technology, backpropagation was hailed as a computationally efficient way to train multi-layered networks to represent nonlinearly separable pattern functions. Backpropagation reawakened research interest in the capabilities and behavior of neural networks after the hiatus following the publication of Perceptrons.

The origin of backpropagation mathematics has been traced to the stochastic approximation learning theory

Backpropagation networks are hierarchical, feed forward designs with summative activation, a nonlinear transfer function and a supervised, gradient descent training algorithm. A typical backpropagation network consists of an input layer, one or more hidden layers, and an output layer as shown in Figure 2-11.

![Figure 2-11. A simple backpropagation network](image)

Training the Backpropagation Network

The term backpropagation refers to how the network is trained. Like the adeline and the perceptron learning procedures, the generalized delta rule also contains an error term used to teach the network if its output is correct or not. The training process consists of a forward pass of the data, in which the network processes a single input vector, updates the connection weights between neurons and produces an output. This is followed by a backward pass of the data beginning at the output layer. An error term, representing the difference between the actual and the desired output, is passed back (backpropagated) through the network as a partial derivative of the transfer function. A vector of transformed error values becomes the error term for the previous layer successively until the first layer is
reached. The effect of the backpropagated error adjustment is to recursively attenuate the proportional error contribution of the connection weight matrix layer by layer. Rumelhart, et al., described the backpropagation procedure in the following steps. The rule for changing the weights between input/output pair $P$ is given by

$$\Delta pW_{ji} = \eta (T_{pj} - O_{pj})X_{pi} = \eta \varepsilon_{pj}X_{pi}'$$

(1)

where; $\eta$ is a scalar constant called a learning coefficient which determines the rate at which the connection weights are modified, $T_{pj}$ is the desired output for the $j$th component of the output pattern for pattern $p$, $O_{pj}$ is the $j$th element of the actual output pattern produced by the neural network for the input pattern $p$, $X_{pi}$ is the value of the $i$th element of the input pattern, the error term $\varepsilon_{pj} = T_{pj} - O_{pj}$, and $\Delta pW_{ji}$ is the change to be made to the weight from the $i$th to the $j$th element following presentation of pattern $P$.

As a gradient descent algorithm, the goal of training using the generalized delta rule is to minimize total mean squared error $E$ by adjusting all $W$'s (connection weight matrices) for each input/output pair. The amount of the adjustment is determined by the derivative of the error function as follows. Let the measure of error for input pattern $P$ be

$$E_p = \text{constant} \sum (T_{pj} - O_{pj})^2$$

(2)

so the adjustment to the weight from the $i$th to the $j$th element of pattern $P$ is given by

$$\Delta pW_{ji} = -(\text{constant}) \times \left( \frac{\delta E_p}{\delta W_{ji}} \right).$$

(3)

A nonlinear transfer function is one in which the output of a neuron in the output layer is a continuous function of its input or

$$O_{pj} = F_j(NET_{pj})$$

(4)

and $F_j$ is differentiable and non-decreasing. The error term for an output neuron ($\varepsilon_{pjout}$) is given by

$$\varepsilon_{pjout} = (T_{pj} - O_{pj})F_j'(NET_{pj})$$

(5)

where $F_j'(NET_{pj})$ is the derivative of the nonlinear transfer function, which maps the total input to the unit to an output value.
If the neuron is hidden or in the input layer, its error signal is determined by
\[ \varepsilon_{pjin} = F_j'(\text{NET}_{pj}) \sum \varepsilon_{pk}W_{kj}. \] (6)
For the sigmoid transfer function in which
\[ \text{Op}_j = \frac{1}{1 + e^{-\text{net}_{pj}}}, \] (7)
the derivative is given by
\[ \delta \text{Op}_j / \delta \text{NET}_{pj} = \text{Op}_j(1-\text{Op}_j). \] (8)
For the hyperbolic tangent transfer function in which
\[ \text{Op}_j = \frac{(e^{\text{net}_{pj}} - e^{-\text{net}_{pj}})}{(e^{\text{net}_{pj}} + e^{-\text{net}_{pj}})}, \] (9)
the derivative is given by
\[ \delta \text{Op}_j / \delta \text{NET}_{pj} = \frac{4}{(e^{\text{net}_{pj}} + e^{-\text{net}_{pj}})^2} \] (10)
Thus,
\[ \varepsilon_{pjout} = (T_pj - \text{Op}_j)\text{Op}_j(1-\text{Op}_j) \] (11)
and,
\[ \varepsilon_{pjin} = \text{Op}_j(1-\text{Op}_j) \sum \varepsilon_{pk}W_{kj}. \] (12)
The connection weights are then updated using:
\[ W_{ji}(\text{new}) = W_{ji}(\text{old}) + \eta \times \varepsilon_{pj} \times \text{Opi}. \] (13)
A common modification to the generalized delta rule includes the use of a scalar constant known as a momentum term (\( \alpha \)), shown as:
\[ W_{ji}(\text{new}) = W_{ji}(\text{old}) + \eta \times \varepsilon_{pj} \times \text{Opi} + W_{ji}(\text{old}) \times \alpha \] (14)

The momentum term helps smooth the local curvature between successive squared error surfaces and in some cases will prevent convergence in a local minimum. Non-convex ridges in the energy surface are like gullies on the side of a hill. Local minima can trap the network in equilibrium at a point higher than the global minimum mean squared error. Further discussion of the backpropagation derivation can be found in (Rumelhart, et al. 1986; Kosko 1993).

To summarize, backpropagation training of a nonlinear neural network is an iterative procedure involving six steps:
1. Apply the input vector to the network input.
2. Compute the output of the network.
3. Compare the network output to the desired output.

4. Compute the error between the network output and the desired output.

5. Adjust the weights of the network proportionally to the error contribution of each weight, minimizing aggregate squared error.

6. Repeat steps 1 through 5 for each vector in the training set until the error for the entire set is acceptably low.

The effect of backpropagation is to minimize the aggregate mean squared error between the network’s output and the known sampled independent variable. The adjustment to the connection weight matrix is determined by the derivatives of the error function proportional to the error contribution of each weight.

Testing the Trained Network

When the network has been trained to a point of convergence on the training data, it is tested using a second set of input/output pairs that the network has not been exposed to previously. The testing data is normally a partitioned subset of the total sample from which the training data also originates. Both training and testing samples should be representative, non-overlapping samples of the universe of potential input/output pairs that the network will process in the intended application. The use of separate, but similar training and testing data is comparable to using a development sample and a hold out sample in regression-based modeling.

During testing, learning is disabled. The connection weight matrix, presumably has mapped the underlying function and is held static as it processes the new inputs. The network’s predictions can then be compared to the actual or desired output of the second data set to assess the network’s performance. Unlike backpropagation training, however, no modifications to the network are made with the testing data set.

Testing the network’s ability to generalize what it has learned on the training set to the new information in the testing set is the primary way to evaluate the network’s performance. The following statistics are typically used to assess how well the network is modeling the underlying function:
1. The product moment correlation between the network’s output and the known independent variable(s).
2. The summed absolute error.
3. The sum of the absolute error squared.
4. The root mean squared error.
5. The average absolute error
6. The standard deviation of the error.

Using these measures allows the analyst to track the performance of individual networks during training and families of networks during network development and optimization.

Backpropagation training of nonlinear neural networks has been reduced by White (1989) to a special case of stochastic approximation. Kosko (1992) has also pointed out that backpropagation is but one of many possible gradient descent algorithms and speculates that future gradient descent networks may “burrow through, hop over, contract, vibrate or flatten the unknown mean error surface”. For more information about supervised learning algorithms, stochastic approximation and backpropagation see Barto and Anandan (1985); Pineda (1989); Aparicio and Levine (1993) and Hassoun (1993). Backpropagation remains a computationally practical model free estimator, but it is not without its drawbacks.

Problems with Backpropagation

Backpropagation networks are slow to train, requiring hundreds, more commonly thousands, of exposures to the training data set before convergence. This slows down the model development process and precludes real-time simultaneous learning and processing of new data. For the connection weight matrix to be modified, the system must be taken off-line and retrained, tested, optimized, etc., before returning to application service. In time sensitive applications, backpropagation may be time/cost prohibitive. Various heuristics for improving training times have been described (Jacobs 1988; Caudill 1991; Tveter 1991; Garavaglia 1993). Most involve modification of learning rates, the network architecture, and adjustments to how often the connection weights are updated after processing each input (also called the epoch size).

Because backprop networks are trained with non-local data, i.e. sampled as opposed to actual current input, it
is essential that the sampled variance be representative of the population and function being modeled. Sampling error can contaminate the neural model just as it can foul a regression or any multivariate modeling procedure.

As described earlier, backpropagation and gradient descent algorithms in general, are at constant risk of convergence in a local minima. Trapped in a local minima, the network stops learning and fails to find the connection weight matrix with the least mean squared error. Increasing the momentum term, lowering the learning rate, retraining the network from a different set of initial connection weights, increasing the number of hidden neurons, and adding a bias term (random noise factor) to the input vector are commonly cited procedures for avoiding local minima (Caudill 1991; Guiver and Klimasauskas 1991; Lawrence 1993).

A final, and substantial, problem with neural network development is the lack of quantitative guidelines concerning network design. As mentioned previously, network architecture, learning and momentum rates, transfer functions, data scaling, and other problem-specific technical parameters directly effect the success of neural model development and depend entirely on the expertise of the analyst. Assuming appropriate design decisions are made, the process of optimization will lead to a successful neural network application.

Network Optimization

Another structured approach to network optimization has been described that offers some guidance in design and optimization. Genetic algorithms, also called evolutionary neural networks, use a structured procedure for network design optimization based on the theory of evolutionary survival of the fittest (Caudill 1991; Hedberg 1994; Murray 1994).

The genetic selection design approach involves the development of a “population” of neural networks with different technical parameters designed to model the same pattern function. Network parameters that can be numerically compared (number of hidden neurons, learning rate, momentum term, etc.) are assigned values that maximize heterogeneity within the population. Using the genetic concepts of mutation, recombination, fitness and diversity, successive generations of networks are developed and subjected to fitness (survival) testing. Eventually, certain “families” of networks begin to outperform all
others on the fitness criterion and from this population subset, one or more optimized networks emerge.

The Monte Carlo optimization scheme, also facetiously called the “wild guess” approach (Murray 1994), consists of randomly selecting network parameters and initial connection weights until a satisfactory network converges. In applications where speed is more important than accuracy, the Monte Carlo approach might be appropriate. This research employed an optimization scheme that falls somewhere between gambling with the Monte Carlo approach and neural Darwinism.

Unlike the genetic approach, which comprehensively adjusts and tests many networks in generational succession, “hill climbing” optimization begins with a smaller set of networks designed using heuristics or rules of thumb gleaned from experience with network design and published in the technical literature. Hill climbing is an iterative optimization procedure that tests incremental changes in network parameters, testing the adjusted network and retaining those changes that result in improved network performance. The process continues until additional parameter adjustments result in no measurable performance gain.

The problem with hill climbing optimization is that it does not involve a systematic search of the total error surface for the absolute minimum error matrix and hence, the tuned network may “climb the wrong hill” and converge short of the global minima. Even so, the hill climbing optimization scheme recognizes development time constraints without an extreme sacrifice of technical rigor.
Updated Reference List


Why use neural networks in organizational research?

Behavioral scientists working in organizations today have access to unprecedented amounts of data. Networked computing and software tools are changing the landscape of organizational research in fundamental ways. Information technology facilitates creation of vast amounts of data. In organizational research, on-line surveys, interactive interviews, computer-based assessment and other digital tools have become a preferred medium for collecting self-report and opinion data. Political polling, marketing surveys, employee selection and placement, educational assessment and other kinds of research can be completed faster than ever at a lower cost with targeted access to specific populations. Because source data is entered directly into the medium of analysis, transaction costs of electronic data collection have declined while data quality and yield have increased as user-interface design has improved (Howell, 1991).

Other obtrusive, non-traditional sources of behavioral observation data are coming into use. Measures of on-line behavior and databases maintained by corporations and government agencies for other purposes can be a useful source of research data. Small sample size, a primary source of error in social research, is less of a problem for researchers working with on-line data sources.

Concurrent with expanding data availability, our analytic capability and processing capacity has improved dramatically. New and better statistical software has evolved to accommodate the needs of researchers challenged by vast data resources. One
permutation of this evolution is the recent appearance of computationally intensive methods only recently enabled by spectacular gains in processing speed. These “brute force” computational techniques were often developed to solve highly complex problems in the physical sciences and are now migrating into the tool kit of organizational research. Artificial neural networks comprise one class of these powerful new tools.

An artificial neural network is a statistical model comprised of simple, interconnected processing elements that are configured through iterative exposure to sample data. Artificial neural networks or ANNs were originally developed as mathematical theories of the information processing activity of biological nerve cells. As a result of this history, the structural elements and vocabulary used to describe ANNs have conceptual analogs from neuroscience despite their general acceptance as a class of statistical procedures. A summary of this history is presented in Chapter 3.

Continuing briefly with the biology metaphor; artificial neural networks form internal representations (mathematical models) of the external world (a sampled function) in response to exposure to stimuli (sample data). ANN’s “learn” in the same sense that a fitted regression equation has “learned” a sampled function. Through multiple exposures to sample data, structural elements within the network are reconfigured to approximate distributions, associations and other features of the data.

Like a fitted regression function, a trained neural network can generalize pattern information (apply learning) to new data. For example, a neural network trained with assessment responses and job performance measures from an employee sample can be used to estimate the job performance of applicants based on their responses to the same
assessment. In that application, neural network output is interpreted as the test score just as with a regression scoring model.

Perhaps the most significant difference between neural and statistical modeling is the method used to derive the functional model. The statistician pre-defines, iteratively tests and selects the best of the hypothesized objective functions to derive a final model. Developing a neural model involves preparing data for presentation to the network, selecting a training regime (the learning rule), configuring the initial layout of neurons (the network architecture) and then monitoring training progress until a satisfactory model converges. This is always an iterative process in which results from successive training cycles inform modifications to the network or the training regime while repeating the process. Heuristics for these procedures are described in Chapter 4. Experienced statisticians may wonder why one would go to such trouble.

**Why use neural networks for organizational research?**

To answer this question, the following discussion will draw from the experience of other disciplines that have adopted neural network modeling procedures, as well as research by behavioral scientists working with ANNs in academia and organizations. ANNs have advantages for solving certain kinds of research problems. In addition, ANNs have other properties that support their use in applied research as discussed below.

The most significant departure of neural network analysis from conventional analysis is that neural model development is relatively unconstrained by researcher expectations compared to the defined parameters of anticipated functional relationships inherent to hypothesis testing. Neural network analysis does not require or yield individual hypothesis confirmation. A trained neural network’s output and structure is used to make inferences about associations, interactions, non-linearities and other

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1 Examples of biological nomenclature inherent to neural network analysis include labeling processing elements as “neurons” and describing the algorithms used to update connections between neurons as
characteristics of the data. If such inferences are accurate, they can be replicated across multiple networks and samples and confirmed using conventional procedures. The important point here is that ANNs can help us uncover structural elements in research data that we may not have known of or thought to look for. This includes surfacing meaningful relationships in addition to spurious ones. Discerning useful and theoretically meaningful network behavior from sample-specific noise is one of the challenges of neural analysis. Fortunately, conventional modeling procedures, sampling strategies and heuristics specific to neural modeling are available for interpreting neural network output and behavior.

Even though the neural modeling approach does not require theoretical specification, the use of any general function simulator\(^2\) for behavioral analysis and prediction increases the need for a coherent theoretical approach and rigorous methodology. Knowledge of likely predictive associations, reliable construct measurement and scaling, pre-analytic power analysis and other features of well-structured research are just as critical to neural model development as they are to conventional modeling.

**When should neural networks be used?**

Themes introduced below are discussed in more detail in later chapters. They are presented here to introduce a rationale for using ANNs and the conditions under which they are most likely to add value to a research project. Considerations for applying ANNs in theoretical research are followed by a discussion of factors related to

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\(^1\)“learning rules.”

\(^2\) ANNs are one of several different curve fitting procedures including polynomial regression, multiple regression splines, neuro-fuzzy inference systems, genetic algorithms and radial basis functions (Friedman, 1991; Hastie, Tibshirani, and Friedman, 2001; Westbury et al., 2003)
operational use of ANNs. In general, when one or more of the following conditions are present in a research project, neural network analysis may have value in concert with or even in lieu of conventional multivariate analysis.

*When sample data shows high dimensionality, multiple variable types, complex interaction effects or does not meet parametric assumptions*

ANNs are nonparametric function simulators. Unlike modeling procedures derived from the general linear model, ANNs can be used to model data sets that would otherwise violate statistical assumptions of normality and/or linearity. Assuming sufficient sampling and proper training, ANNs will fit a sampled distribution accurately and are thus useful for modeling data with unknown distributional characteristics (Walker and Milne, 2005). ANNs do not require independence among variables and will model significant interactions between variables. This characteristic of ANNs is discussed further in Chapter 4 introduces the mathematics of backpropagation training and explains how neural networks map relationships in sample data using gradient descent optimization.\(^3\)

*When evaluation of alternative models is required*

ANNs can provide a useful benchmark for evaluating other types of models, linear or non-linear. Most neural network software programs include utilities for scaling, data cleansing, feature selection and automated model creation and testing. These tools allow researchers to efficiently create families or ensembles of neural networks that vary by architecture, learning rule, convergence conditions, and other parameters. This type of

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\(^3\) Backpropagation is the process by which error values (the difference between predicted and actual outcomes) are used to modify the connections between neurons in trained neural networks. It is the most commonly used ANN gradient descent algorithm and one of many computational approaches to minimizing error between a function approximation and sample data (Kosko, 1992).
brute force computational attack can provide reasonable initial estimates of model fit that might be obtained using other modeling approaches on a given dataset. Other information on the extent of non-linearity, interactions and generalizability can be gleaned as well.

In addition to exploratory estimates of model fit, the performance of optimized neural models can be compared directly with that of conventional models. In many instances, a fully specified conventional model that maps the underlying function to a theory-based explanation is required. If neural model fit is significantly better than that of the specified model, this may indicate that the model is incomplete or that some functional relationships are not being represented accurately. The model fit of an optimized neural network that generalizes to independent data reliably can be viewed as a reasonable approximation of the explainable variance in a data set. When a specified formal model approximates the fit of an optimized neural network (or better, an ensemble of neural networks), this can be viewed as one form of corroboration of the specified model. Chapter 6 provides a review of the literature of research comparing ANNs to familiar multivariate procedures in organizational research.

*When relationships between independent and dependent variables are weak and unexplained variance is large.*

Behavioral scientists have access to a wide range of tools for measuring attitudes, beliefs, traits, abilities, preferences and other individual differences that have utility for theory development and testing, behavioral prediction, program evaluation, population segmentation and other research objectives. In Chapter 4, we discuss low effect size and poor model fit as possible symptoms of the limitations and unquestioned assumptions
inherent to commonly used multivariate methods. ANNs compliment existing methods by improving detection and description of nonlinearities, interaction effects and other complexities in sample data. As such, ANNs have a useful role to play in theory testing and refinement.

When the research application supports or requires the use of data mining procedures.

In applied settings, data mining is the growing practice of applying exploratory and confirmatory analysis to large-scale databases to uncover useful relationships embedded therein (Ye, 1998). In Chapter 6, the use of criterion valid employee selection models developed using data sources created for other purposes is described. Cost-efficient predictor content can be derived from employment applications and assessment records collected via computer networks. On the criterion side, payroll data containing length of service, termination records, promotion/demotion activity, compensation changes and other data can be scaled to reflect meaningful performance differences among workers. Other potentially useful sources of performance criteria include records of sales and commission data, unit production, service transactions, accidents and disciplinary records, performance appraisal ratings and other quantifiable measures of job performance that can linked to specific employees for whom matching predictor data is available.

In data mining, very large sample size and very low data acquisition costs are offset by variable data integrity and little experimental control over data collection. Opportunistic data mining is a scavenger’s game and numerous caveats apply. Careful examination and pre-processing of opportunistic validation data should precede any attempt at modeling. Feature selection, choosing the right set of predictor variables, is
challenging because such data was collected for purposes other than behavioral research. In this type of validation project, characterized by large sample size, noisy predictor and criterion data, minimal theoretical grounding, limited experimental control and exclusively electronic model processing, a neural network may be the only viable modeling choice.

*When the theoretical basis of prediction is ambiguous or poorly understood*

In employee selection research, some criterion valid predictors of job effectiveness are based on scientific theories that are still evolving. A good example of this is the use of standardized measures of biographic facts related to life history, work experience, etc. often referred to as biodata (Nickels, 1994). Well-designed biodata predictors can provide robust prediction when validated locally but often do not generalize across multiple work settings, even for similar jobs. Several competing theories have been advanced to explain biodata validity and utility however, the generalizability problem remains the subject of on-going debate and research (Mumford, Snell and Rieter-Palmon, 1994). Ambiguity or absence of a sound theoretical model explaining how and why a predictor set should relate to available criterion measures is, in our opinion, a reasonable methodological justification for applying a neural modeling procedure.

*When operational use of the predictive model requires high fault tolerance*

Electronic survey data collection is administered by software controls and user-interface design instead of human proctors. The loss of environmental control over unproctored completion of electronic questionnaires simultaneously increases sample size and response pattern variation. Internet applicant populations are in theory unlimited by
geographic constraints and show wider linguistic and cultural variation. Differences in education, motivation, reading ability, computing dexterity and many other factors contribute to response variability. Additional threats to data integrity are inherent to the computer medium. Software glitches, hardware failures, network traffic, and other factors can degrade digital data and further increase the variability of applicant data from on-line sources.

In Chapter 5 the findings of Collins and Clark (1993), Garson (1991) and Sederburg, Stanton and Smith (2000) are described in which data integrity was systematically degraded to compare performance decline between various neural networks and a variety of statistical models. The ability of neural networks to produce reasonable estimates using noisy and missing input variables is a significant advantage over more brittle modeling procedures\textsuperscript{4} for processing complex unrefined data of variable quality in real-time applications.

High fault tolerance and graceful degradation of model accuracy are two properties of neural network models that have speeded their deployment in various engineering applications with high noise input data. Nuclear energy production, refinery control systems, voice and image recognition and signal processing involving large dimension, non-linear complex streaming data sources were among the first neural network applications (Caudill & Butler, 1990; Glatzer, 1992; Schwartz, 1992). In our opinion, a similar technology transfer will occur in real-time processing of behavioral

\textsuperscript{4} Brittleness refers to the fault tolerance of a predictive model. Multivariate regression, discriminant and quadratic model accuracy degrades rapidly or fails when one or more independent variables presented to the model is noise (for example a missing value or a random value of unexpected magnitude or valence). Neural networks encode functional relationships across a dispersed connection weight matrix. The effects of missing or unexpected input variables are dispersed within the network causing degradation of model performance without catastrophic failure.
data. Criterion valid neural models in operational use for on-line employee selection systems are described in Chapter 7.

*When conventional modeling is unnecessary or cannot be completed under operational time constraints.*

We anticipate organizational research applications in which speed of model development will become a competitive or security advantage. In such applications, rapid deployment of generalized prediction or classification has priority over the need to specify and explain the objective function. ANN procedures developed to detect fraudulent credit card activity have been deployed in proprietary applications to detect transaction patterns associated with employee theft on point of sale systems. These and other potential applications of neural network techniques are discussed in Chapter 10.

**References**


Session 1
DTIC Overview
Tips to Start You Searching

Army Accessions Research Consortium
1-3 September 2009

Defense Technical Information Center
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Learning Objectives

- To become familiar with the mission of the Defense Technical Information Center (DTIC)
- To become familiar with DTIC’s online systems and information resources
- To learn search tips to retrieve information
- To create bibliographies and alerts/saved searches
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Session 1
• Defense Technical Information Center (DTIC)
  ➢ Mission
  ➢ Registration
  ➢ Overview of online systems and information resources
• Tips to Start You Searching (Private STINET)

Session 2
• What’s new at DTIC
  ➢ DTIC Online Access Controlled (DOAC)
  ➢ DoDTechipedia
• Create bibliographies and alerts/saved searches
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  - Overview of online systems and information resources

• Tips to Start You Searching (Private STINET)
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(1) Phage-Coupled Piezoelectric Biodetector for Salmonella Typhimurium

Title Classification:
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Descriptive Note:
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Abstract:
(1) Salmonella typhimurium is a leading cause of foodborne illness and a critical threat agent for potential bioterrorism. Current rapid detection initiatives include biosensors that routinely incorporate antibodies for biomolecule detection. However, antibodies are costly and may degrade under unfavorable environmental conditions. A stable, inexpensive substitute may be filamentous bacteriophage affinity selected from a phage display library for specificity to S. typhimurium. We immobilized affinity-selected phage to a quartz crystal microbalance for detection of S. typhimurium in solution. An ELISA protocol, precipitation assay, and flow cytometry were employed to confirm phage specificity and selectivity. The phage was up to 22,000 times more specific for S. typhimurium than controls and up to 1,000 times more selective in comparison to other bacteria. For recognition of the phage targeted bacterial outer membrane structure, biotinylated S. typhimurium surface proteins from lysate were reacted with phage cross-linked to water-soluble resin to prepare a protein eluate for Western blot, which revealed a single 60-70 KD band. Three immobilization methods (physical adsorption, biotin-streptavidin-phage self-assembly, and Langmuir-Blodgett) using two phage forms (filamentous and phage coat proteins) were evaluated for proof of concept sensor preparation. Specific binding between phage and target on the biosensor resulted in concentration dependent resonance frequency changes. Best results were obtained when 10 exp 1D - 10 exp 11 filamentous phage particles converted to spherical forms (spheroids) by chloroform denaturation were immobilized as phage and proteins using Langmuir-Blodgett technique. In summary, filamentous phage selected from a phage library can be used for the preparation of rapid, specific, and selective biosensors that may ultimately be suitable for continuous food and environmental monitoring devices, diagnostic assays, and biosensors.

Abstract Classification:
Unclassified

Distribution Limitation(s):
01 - APPROVED FOR PUBLIC RELEASE

Source Code:
046830

Document Location:
DTIC

Creation Date:
12 Oct 2005
Research Summaries (RS)

- 315,000 active and inactive full text summaries from 1965 to present.
- Summaries describe Department of Defense Research-in-Progress. Include what, where, when, how, at what cost, by whom, and under whose sponsorship research is being or has been performed.
- Enables managers to coordinate programs and eliminate duplication of effort.
- Collection is unclassified, limited.
- Availability: Private STINET https://dtic-stinet.dtic.mil
Find the RS Search Pages
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Independent Research & Development (IR&D)

- 173,980 full text descriptions of projects initiated and performed by DoD contractors.
- Records are from 1975 to present.
- Records are the full text in the same format as Research Summaries. Some records link to PDFs of the same data with illustrations.
- All records are proprietary. Only DoD employees can access the database.
- Availability: Private STINET https://dtic-stinet.dtic.mil
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Search for:

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Total Electronic Migration System (TEMS)

- Searches 1,000,000 citations and 100,000 full text documents from 9 Information Analysis Centers.
- Use your STINET User ID & Password to login.
What is an Information Analysis Center (IAC)?

- IACs are research and analysis organizations chartered by the DoD and operated by DTIC to help researchers, engineers, scientists and program managers.

- Each IAC offers a specialized research staff, knowledgeable about your topic, and using the latest information and techniques.

- For more details about the IACs, visit their respective Web sites.
# DTIC’s Information Analysis Centers (IACs)

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<td>Alion Science &amp; Technology</td>
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* Academic Institutions

http://iac.dtic.mil
IAC

http://iac.dtic.mil

DoD IACs

Information Analysis Centers

Products & Services

- Offerings
- IACs
- Ordering TATS

IACs

Below is a listing of the Information Analysis Centers (IACs). For technical information regarding your topic of interest, contact the relevant IAC directly.

For details about the IAC’s products and services – including contact information – click the acronym to view its home page. You can also download a pdf summary from our IAC directory.

You will need to register with DTIC before ordering products or services.

DTIC IACs sponsored by DoD

- AMMTIAC
- CBRNIAC
- CPIAC
- DACS
- IATAC
- MSIAC
- RIAC
- SENSIAC
- SURVIAC
- VISTIAC

IACs Sponsored by Military Organizations and Agencies

- APMIAC
- CEIAC
- CRSTIAC
- CTIAC
- DTRIAC
- EIAAC
- HEIAC
- OAVIAC
- SMIAC
Default is all IACs
Current number of citation and full text
TEMS: Simple Search

- TEMS does not use the Verity search language.
- Select Boolean under Search Type.
- Enter terms using AND, OR, NOT.
- Use quotes for phrases.
- Asterisk for truncation.

Select the IACs you want to search.
TEMS: Search Results

Search Parameters

"dominant battlespace awareness" and "stuart johnson" Search

Libraries: CPIAC, WSTIAC, SURVIAC, AMMTIAC, SENSIAAC, CBIAC, RIAC, HSIAC, IATAC, DACS
Search Type: Boolean Search
Result Type: Sort By Best Hits
Sort By: PUBLICATION_DATE, Descending

Search Results: 1 - 3 of 3

Result Page: 1

1. (U) IATAC - IW-00329 [Add to Bibliography]
   Title: Manipulating the OODA Loop
   Author: Schechtman, Gregory M.
   Date of Publication: 12/01/1996
   Distribution Code: A
   [View Document Text] [View Document PDF]

2. (U) IATAC - MISC-00020 [Add to Bibliography]
   Title: Dominant Battlespace Awareness
   Author:
   Date of Publication: 10/01/1996
   Distribution Code: A
   Document Size: 523.35 KB
   Relevancy Ranking: N/A

View Metadata - the citation
View Doc Text - plain OCR text, no images
Doc - document in pdf with images
Page - first page of the document in pdf
Your terms are searched in the citation and the full-text when it’s available. Because many records are missing data in basic fields, avoid field searches.
Search TEMS & DTIC TR together on DOAC

- Enter a search strategy.
- For Categories, to de-select All, click on ‘None’.
- Select Technical Reports to search both DTIC TR and TEMS.
Information Resources for Registered Users

Private STINET and TEMS

- Technical Reports (TR) – Private STINET
- Research Summaries (RS)
- Independent Research & Development (IR&D)
- Total Electronic Migration System (TEMS) – collections from the Information Analysis Centers (IACs)
- Journal Articles/Conference Proceedings
- Books

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Perform a simple search of DTIC's primary collections:

- Technical Reports
- Research Summaries
- IR&D

Search for:

Search [Clear Query] [Search Help]

Private STINET consists of the following:

- DTIC's Technical Reports (TR) collection - approximately 2 million bibliographic citations
- Full-text Technical Reports available for immediate download - over 225,000 reports including everything added since Dec 1999
- Active and inactive Research Summaries (RS) from 1965 to present
- Independent Research & Development (IR&D) data
- Gray literature information
- The British Library's inside web
- Canada Institute for Scientific and Technical Information's CISTI Source
- ProQuest Research Library Complete, ProQuest Information and Learning's periodical indexing service
Journals & Conference Proceedings

U.S. Sources

- **Knovel Reference Library** (description)
- **Air University Library’s Index to Military Periodicals** (description)
- **EBSCO Academic Search Complete** (description)
  
  *(License Agreement: Remote access to the Databases is permitted to authorized users of subscribing institutions accessing from remote locations for personal, non-commercial use. However, remote access to the Databases from non-subscribing institutions is not allowed if the purpose of the use is for commercial gain through cost reduction or avoidance for a non-subscribing institution.)*

- **ProQuest Research Library Complete** (description)
  
  *(User ID: U003N149K Password: WELCOME)*

- **Staff College Automated Military Periodicals Index** (description)
- **DOE OSTI Science Conference Proceedings Portal** (description)

International Sources

- **CLISTI Source** (User ID: fgh76499 Password: sw45br) (description)

- **inside web** (User ID: STINET Password: dtic2E) (description)
Multi-disciplinary full-text database, with more than 5,990 full text periodicals including 5,030 peer-reviewed journals.

Indexing and abstracts for more than 9,990 journals and a total of more than 10,400 publications including monographs, reports and conference proceedings.

Features PDF content back to 1887.

Searchable cited references for 1,000 journals.
- Full text database of articles from over 4,000 journals
- Bibliographic citations/abstracts to NY Times (East Coast Edition); USA Today; Wall Street Journal (Eastern Edition)
- Offers free full-text and alert services.
1,696 scientific and technical reference books.

Full-text with interactive tables, equation plotters, graph digitizers, unit converters, and more.
Private STINET
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Journals & Conference Proceedings

U.S. Sources

- Knovel Reference Library (description)
- Air University Library’s Index to Military Periodicals (description)
- EBSCO Academic Search Complete (description)

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- ProQuest Research Library Complete (description)
- Staff College Automated Military Periodicals Index (description)
- DOE OSTI Science Conference Proceedings Portal (description)

International Sources

- CISTI Source (User ID: fgh76499 Password: sw45brn) (description)
- inside web (User ID: STINET Password: dtic2E) (description)
Military Journals

**AULIMP**: Joint effort between DTIC and Air University Library. Articles are selected from military and aeronautical journals by librarians. Brief citations, no abstracts, 1988–present. Includes links to some journals’ websites.

**SCAMPI**: Joint effort between DTIC, Joint Forces Staff College Library (JFSC) and National Defense University Library (NDU). Same selection process and citation format as AULIMP. Focuses on joint operations and military history. Citations from 1996–present. Includes links to some journals’ websites.
Journals, Conference Proceedings, Books

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Journals & Conference Proceedings

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Knovel Reference Library (description)
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EBSCO Academic Search Complete (description)

ProQuest Research Library Complete (User ID: 003N7NG49K Password: WELCOME) (description)
Staff College Automated Military Periodicals Index (description)

DOE OSTI Science Conference Proceedings Portal (description)

International Sources
CLISTI Source (User ID: gfh76499 Password: sw45brn) (description)
inside web (User ID: STINET Password: dtic2E) (description)
Welcome to the DOE Office of Scientific and Technical Information's (OSTI) Science Conference Proceedings Portal. This distributed portal provides access to science and technology conference proceedings and conference papers from a number of authoritative sites (professional societies and national labs, largely) whose areas of interest in the physical sciences and engineering. Proceedings and papers from scientific meetings on topics such as nuclear physics, chemistry, petroleum, aeronautics, electric power, fossil fuels. From here you can search for relevant conferences, organizations and collections for scientific and technical papers. To search for a search term(s) in the "Search" box, check one or more boxes and click the "Search" button.

- American Association of Petroleum Geologists (AAPG)
- Association for Computing Machinery (ACM)
- American Chemical Society (ACS)
- American Institute of Aeronautics and Astronautics (AIAA)
- American Institute of Physics (AIP)
- American Meteorological Society (AMS)
- American Nuclear Society (ANS)
- American Oil Chemists Society (AOCS)
- American Society of Civil Engineers (ASCE)
- American Society of Mechanical Engineers (ASME)
- American Solar Energy Society (ASES)
- ASM International
- Energy Citations Database (ECD)
- National Energy Technology Laboratory (NETL)
- National Institute of Standards and Technology (NIST)
- National Nuclear Data Center (NNDAC)
- Society of Petroleum Engineers (SPE)
- Stanford Linear Accelerator Center (SLAC)
- U.S. Nuclear Regulatory Commission (NRC)
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- Total Electronic Migration System (TEMS) – collections from the Information Analysis Centers (IACs)
- Journal Articles/Conference Proceedings
- Books

R&E Portal:
- Budget and Finance
- People
All the information, sites and search options on the R&E Portal will be moved to the new DTIC Online Access Controlled (DOAC) when DOAC goes live.
- Budget and financial information
- Information on the R&E Portal will eventually be included on DTIC Online Access Controlled (DOAC).
- When DOAC is available, the R&E Portal will be discontinued.
The Defense Science & Technology Plan (DSTP) Web Site provides the latest planning documents describing key technology areas and programs funded by the DoD. These documents include the Basic Research Plan (BRP); Component Science and Technology (S&T) Strategic Plans; Defense S&T Success Stories Catalogue; DDR&E Strategic Plan; Joint Warfighting Science and Technology Plan (JWSTP); other S&T Reports and Briefings (i.e., Strategic Overview Briefings, S&T Collaborative Review (STCR) Briefings, etc.); and related S&T Information.

ASSIST
Acquisition Streamlining & Standardization Information System (ASSIST)
ASSIST Online provides access to current information associated with military and federal specifications and standards in the management of the Defense Standardization Program (DSP). Managed by the DOD Single Stock Point (DODSSP), Philadelphia, ASSIST-Online provides public access to standardization documents over the Internet. ASSIST-Online includes many powerful reporting features and an exhaustive collection of both digital and warehouse documents. ASSIST is the official source of DOD specifications and standards. (registration is required)
Congressional Budget

The R&E Portal has two sites that provide information on Congressional Budget changes to the President’s Budget Request.

The DoD Congressional Budget Data Web site provides PDF and Excel spreadsheet versions of the Congressional Budget reports shortly after they are posted on the Thomas (Library of Congress) website.

The Congressional Budget Queries Web site helps DDR&E resource managers respond to changes proposed by Congress to the RDT&E budget. Locate information concerning:

- Total Authorization/Appropriation by Service/Agency and Budget Activity
- HASC/SASC/HAC/SAC/Conference Report
- Authorization/Appropriation by Program Element.

CA/OT

The Cooperative Agreements and Other Transactions (CA/OT) Congressional Report is submitted annually to the Senate Committee on Armed Services and the House of Representatives Committee on Armed Services. It reports on all those transactions entered into under 10 U.S.C. 2371(a) which are not categorized as contracts, cooperative agreements or grants and all cooperative agreements entered into under 10 U.S.C. 2358 which include a section 2371 authorized clause requiring Recovery of Funds.

FY02 CA/OT Report
FY03 CA/OT Report
FY05 CA/OT Report
FY06 CA/OT Report
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- Total Electronic Migration System (TEMS) – collections from the Information Analysis Centers (IACs)
- Journal Articles/Conference Proceedings
- Books

R&E Portal:

- Budget and Finance
- People
Community of Scholars

DoD R&E Success Story

Researchers Improve Capability to Detect Cryogenic Tank Damage (Source: AFRL)

What's New


Notice to R&E Database Data Call Users: New clarifications have been added to the 2007 R&E Database Data Call Instructions. Please refer to the document, R&E Database Data Call 2007 Clarifications, posted on the Database tab.

The Knovel Reference Library is now available through the R&E Portal. Check out this useful new service.

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Aerospace  Energy  Surveillance  Other News

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September 14, 2007  

Security Agencies
Community of Scholars

- Over 22,000 records representing more than $33 billion in grants, fellowships, and prizes.
- Access to funding from the public and private sectors.

Over 1 million scholars/researchers working in over 200 disciplines and international in scope.
Name: Jangid, R. S.
Email: rsjangid@civil.iitb.ac.in
Address: Powai, Mumbai, Maharashtra 400076
Phone: (+91-22) 2572 2545
       2576 7346
       2572 0439
       (+91-22) 2576 8346
Affiliations: Associate Professor, Department of Civil Engineering, Indian Institute of Technology Bombay
Web Pages: http://www.civil.iitb.ac.in/~rsjangid
Degrees: BE, M.Tech., PhD
Research Interests: Research Areas of Interest:

- Base isolation for earthquake-resistant design
- Vibration control using tuned mass dampers
- Non-linear dynamic analysis
- Non-classically damped systems
- Stochastic earthquake analysis
- Active control of structures
1. **Optimum friction pendulum system for near-fault motions**
   Jangid, R S
   The analytical seismic response of multi-story buildings isolated by the friction pendulum system (FPS) is investigated under near-fault motions. The superstructure is idealized as a linear shear type flexible building. The governing equations of...
   View Record | References

2. **SEISMIC RESPONSE OF PIPING SYSTEMS WITH ISOLATION DEVICES**
   Bakre, S V, Jangid, R S, Reddy, G R
   13 WCEE: 13th World Conference on Earthquake Engineering Conference Proceedings. 2004
   In this paper, effectiveness of sliding friction damper is studied for reducing the seismic response of piping system. A 3D piping system with sliding friction damper as piping support is chosen for the present study. PiSAWL - a computer program is ...
Quick Look at the DTIC Online Sites & Content

- DTIC Online (Public)
- Private STINET and TEMS
- R&E Portal (This site will be removed when DOAC goes up but all information and sites will be available on DOAC)
- DTIC Online Access Controlled (DOAC) Coming soon
News Flash – Watch for Release

DTIC is ready to go LIVE with DTIC Online Access Controlled (DOAC) Release 1
Session 1

• Defense Technical Information Center (DTIC)
  ➢ Mission
  ➢ Registration
  ➢ Overview of online systems and information resources

• Tips to Start You Searching (Private STINET)
  ➢ Search features
  ➢ Authors
  ➢ Titles
Find the Quick Search Page

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(Scientific & Technical Information Network)

The Defense Technical Information Center (DTIC)'s Scientific and Technical Information Network (STINET) Service helps the DoD community access pertinent scientific and technical information to meet mission needs effectively.

Perform a simple search of DTIC’s primary collections:

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- Research Summaries  Quick Search  Guided Search  Advanced Search
- IR&D  Quick Search  Guided Search  Advanced Search

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Search for:

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**Technical Reports**  Quick Search | Guided Search | Advanced Search

Enter words or phrases in the fields you wish to search. If you enter terms in more than 1 field, they will be joined by the "AND" operator. The results set will contain citations that meet the criteria for all fields entered.

Limit search to only those technical reports that have **Full Text** links available: [

**All Fields:** Signal to Noise Ratio

**Accession Number (AD):**

**Title:**

**Personal Author:**

**Optional Search Parameters:**
Make a selection from the pull down boxes or accept the default value in the fields below to limit your search results.

**Report Date Range:** All Records

**Limit by User Profile or Distribution Limitation** Releasable to General Public

**Display Options:**
- **Sort by:** Report Date
- **Number of hits per page:** 30
- **Pre-defined Citation Display Format:** Full Citation (1F)

- Enter in All Fields: Signal to Noise Ratio
- Under Limit by User Profile select: Releasable to General Public
- Leave the Display Options at the default settings
### Results List

Your search for *(signal to noise ratio) <and> (01 <in> dc)* matched 6899 out of 2017387 documents from the collection(s).

#### Results list navigation:
- 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | [NEXT]

#### View TR Citation

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<tr>
<th>No.</th>
<th>Title</th>
<th>View Full Text pdf</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>New Transfer Theory Relationships for Signal and Noise Analyses of X-Ray Detectors</td>
<td>10.8 MB</td>
</tr>
<tr>
<td>2</td>
<td>Multifunctional Magnetic Nanoparticle Probes for Deep-Tissue Imaging</td>
<td>442.2 KB</td>
</tr>
<tr>
<td>3</td>
<td>Modeling and Simulation of the Physical Layer of the Single Channel Ground and Airborne Radio System (SINCgars)</td>
<td>475.9 KB</td>
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</tbody>
</table>
Records

Full Text Availability:
View Full Text (pdf)
File: /U2/a434280.pdf
Size: 477.7 KB
ProxyURL/Handle: http://handle.dtic.mil/100.2/ada434280

Accession Number:
ADA434280

Citation Format: Full Citation (1F)

Links to other records on the results page.
Short URL for full text.
Accession Number
Title
Author
Report date
Monitor Acronym: AFRL-SR-AR
Monitor Series: TR-05-0226
AFOSR
Report Classification: Unclassified
Distribution Statement: Approved for public release; distribution is unlimited.
Descriptors:
- (U) *PROBES, *MAGNETIC RESONANCE IMAGING, IMAGE PROCESSING, MAGNETIC PROPERTIES, TISSUES (BIOLOGY), PEPTIDES, TRANSDUCERS, MEDICAL SERVICES, CELLS (BIOLOGY), OLIGOMERS, IRON OXIDES, NUCLEOTIDES, NANOTECHNOLOGY
Identifiers:
- (U) NANOPARTICLES, PHASE 1
Identifier Classification: Unclassified
Abstract:
- (U) The goal of the DARPA-AFOSR project is to develop multifunctional magnetic nanoparticle probes for deep-tissue imaging using MRI. The specific objectives of the Phase I project include: (1) to functionalize iron-oxide magnetic nanoparticles for bioconjugation of oligonucleotides and peptides; (2) proof-of-concept demonstration of the signal transduction mechanism based on nanoprobe clustering on mRNA target; (3) to develop peptide-based delivery of magnetic nanoparticles into living cells with high delivery efficiency; (4) to perform preliminary MRI studies of detection sensitivity and signal-to-noise ratio in solution and in cells. This innovative molecular imaging approach integrates in vivo delivery, targeting/sensing and signal transduction, it has the potential to revolutionize medical imaging, diagnosis, and therapeutics with many DoD applications.

Abstract Classification: Unclassified
Distribution Limitation(s):
01 - APPROVED FOR PUBLIC RELEASE
Source Serial: F
Source Code: 129150
Document Location: DTIC
Creation Date: 29 Jun 2005
How Verity Searches

- No quotes for phrases
- No stop words
- Ignores case
- Replace all punctuation (except periods) with a space
- All terms four or more characters long are stemmed
- Quotes "    " turn stemming off
- Asterisk * for truncation
- Question mark ? for wild card
- <in> for field searching
- <and>, <or>, <not>, <near/x>
- <starts> to search the beginning of a field
- Relational operators to search date ranges
(U) The goal of the DARPA-AFOSR project is to develop multifunctional iron-oxide magnetic nanoparticles for bioconjugation of oligonucleotides and peptides; (2) proof-of-concept demonstration of the signal transduction mechanism based on nanoprobe clustering on mRNA target; (3) to develop peptide-based delivery of magnetic nanoparticles into living cells with high delivery efficiency; (4) to perform preliminary MRI studies of detection sensitivity and signal-to-noise ratio in solution and in cells. This innovative molecular imaging approach integrates in vivo delivery, targeting/sensing and signal transduction; it has the potential to revolutionize medical imaging, diagnosis, and therapeutics with many DoD applications.
Replace punctuation with a space

- Compliance Assessment Protocols (OCAP)
  Search as *compliance assessment protocols ocap*

- Budget Policy, Deficits, and Defense
  Search as *budget policy deficits and defense*

- Evaluate an Applicant’s Moral Values?
  Search as *evaluate an applicant's moral values*

- “Follow the Leader”: Formation Control
  Search as *follow the leader formation control*
Stemming: detect finds over 200,000 records, including the terms detects, detecting, detective, etc., but not detector or detectors.

Without Stemming: "detect" finds over 15,000 records, only the term detect

Truncation: detect* finds over 230,000 records, including the terms detect, detects, detector, detectors, detective, etc.

Wildcard: detect? finds over 1,200 records, only the term detects, not detect.
Accession Numbers

Your search for **(ada087894 <in> ad)** matched 1 out of 2,057,602 documents from the collection(s): tr.

- In the Accession Number field enter: ADA087894
- Note the ad mnemonic and <in> operator on the search results screen.
- You can use this language in All Fields.
Your search for \[((\text{signal to noise ratio}) \text{ <in> } \text{ti})\] matched \textbf{216} out of \textbf{2057602} documents from the collection(s): \textit{tr}. 

- In the Title field enter: \textit{Signal to Noise Ratio}
- Note the \textit{ti} mnemonic and \textit{<in>} operator on the search results screen
- You can use this language in All Fields
In the Author field enter: Smith Robert

Note the au mnemonic and <in> operator on the search results screen

You can use this language in All Fields
Invert the name, without the comma.
Example: *Smith Robert*

A search for a single name will look for the term as both a last and first name.
Example: *Kerry* will find *Roberts, Kerry* and *Kerry, Tom*

All searches are stemmed unless you use quotes.
Example: *robert* will find *robert* and *roberts*, but not *robertson* or *roberto*. 
Personal Authors:
The Broad Search

To find all versions of a name, use this search:

`smith robert <or> smith r`

It will find:

- Smith, Robert
- Smiths, R
- Smith, R Daniel
- Smith, R Q
- Smith, R S
- Smith, R Allen
- Smith, Robert Dale
- Smith, R D

Leave out the middle initial since the author may not have always used it.
Date searches use relational operators: >, <, =, <=, >=.

Dates must be in the format DD MMM YYYY.

rd is the mnemonic for Report Date.

Note the order is mnemonic-operator-date.
Report Dates

To search a range of dates use `<and>` to combine two search statements that define the beginning and end dates.

```
All Fields: (rd >= 1 Jan 1990) and (rd < 1 Jan 1992)
```

You can also use `<in>` and `<or>`.

```
All Fields: (1990 or 1991) in rd
```
Distribution Limitations

- Markings on the document that indicate to whom the document can be released.
- dc is the mnemonic for Distribution Code.
- Some options search additional codes with the same meaning.

Your search for (16 <in> dc) matched 38873 out of 2062592 documents from the collection(s): tr.
User Profiles

- Distribution Code searches for any documents accessible to a group of people.
- Releasable to the General Public is the same as 01-Approved for public release.
- None of the User Profiles include distribution codes 05 or 15.

Your search for ((01, 02, 09, 12, 16) <in> dc) matched 1563034 out of 2062592 documents from the collection(s): tr.
Regional Offices

DTIC Northeastern Regional Office at Boston
Hanscom Air Force Base
Bedford, MA 01731-3012
Phone: (781) 377-2413 / DSN 478-2413
Email: boston@dtic.mil
Office hours: Monday-Friday, 7:30 a.m. to 5:00 p.m. Eastern

DTIC Midwestern Regional Office at Dayton
Wright-Patterson AFB, OH 45433-7008
Phone: (937) 255-8141 / DSN: 785-8141
Email: dayton@dtic.mil
Office hours: Monday-Friday 7:30 a.m. to 4:00 p.m. Central
Regional Offices

DTIC Southwestern Regional Office at Albuquerque
Kirtland AFB, NM 87117-5776
Phone: (505) 846-6797 / DSN 246-6797
Email: albuq@dtic.mil
Office hours: Monday-Friday, 7:30 a.m. to 4:30 p.m., Mountain

DTIC Western Regional Office at Los Angeles
El Segundo, CA 90245
Phone: (310) 653-2483/ DSN 633-2483
Email: losangel@dtic.mil
Office hours: Monday-Friday, 6:30 a.m. to 5:30 p.m. Pacific
Logging Off

- There is no log off command.
- Just close your browser.
- You are responsible for any limited information you printed or saved.
Contact Information

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703-767-7039
DSN: 427-7039
cparker@dtic.mil

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703-767-9072
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Disclaimer of Endorsement

Reference herein to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government, and shall not be used for advertising or product endorsement purposes.
Session 2
What’s New at DTIC
Alerts & Bibliographies

Army Accessions Research Consortium
1-3 September 2009

Defense Technical Information Center
User Services Directorate
Ft. Belvoir, Virginia

Candy Parker  Karen Nimerick
cparker@dtic.mil  knimeric@dtic.mil
703.767.7039  703.767.9072

Approved for Public Release
U.S. Government Work (17 USC §105) Not copyrighted in the U.S.
Learning Objectives

- To become familiar with the mission of the Defense Technical Information Center (DTIC)
- To become familiar with DTIC’s online systems and information resources
- To learn search tips to retrieve information
- To create bibliographies and alerts/saved searches
Outline for Sessions 1 & 2

Session 1
• Defense Technical Information Center (DTIC)
  ➢ Mission
  ➢ Registration
  ➢ Overview of online systems and information resources
• Tips to Start You Searching (Private STINET)

Session 2
• What’s new at DTIC
  ➢ DTIC Online Access Controlled (DOAC)
  ➢ DoDTechipedia
• Create bibliographies and alerts/saved searches
Session 2

• What’s new at DTIC
  ➢ DTIC Online Access Controlled (DOAC)
  ➢ DoDTechipedia

• Create bibliographies and alerts/saved searches
  ➢ Save a search strategy
  ➢ Schedule a saved search to create an alert
  ➢ Submit a search and create a bibliography
More than 2 million documents in the technical reports collection
More than 300,000 ongoing and completed DoD research summaries
More than 170,000 descriptions of Independent Research & Development projects
Many Resources

- Private STINET Technical Reports
- Private STINET Research Summaries
- Private STINET IR&D
- Research & Development Descriptive Summaries 2000-present
- Total Electronic Migration System (TEMS)
- Air University Library's Index to Military Periodicals (AULIMP)
- Staff College Automated Military Periodicals Index (SCAMPI)
- Knovel Reference Library
- EBSCO Academic Search Complete
- ProQuest Research Library Complete
- Canada Institute for Scientific and Technical Information (CISTI) Source
- Inside Web
- MultiSearch
- Military Critical Technologies List
- DoD Index of Security Classification Guides
- DoD Dissemination Authority List (DAL)
- STINFO Documentation
- DoD Directives and Instructions
- R&E Database
- DTIC Search
- R&E Portal
- Defense Technology Search
- Global Technology Knowledge Base (GTKB)
- Egov
- Biomedical Research Database (BRD)
- Congressional Budget Queries
- DoD Congressional Budget Data
- CSA Community of Scholars
- Research Development Test & Evaluation Budget Data
- Rapid Reaction Technology Office (RRTO)
- Lab Demographics
- Defense Energy Security
- In house S&T activities report
- Defense Science & Technology Plan (DSTP)
- Reliance 21 Document Preparation Tool
- Cooperative Agreements and Other Transactions (CA/OT) Congressional Report
- Acquisition Streamlining & Standardization Information System (ASSIST)
- R&E Community Members
Defense Online Access Controlled (DOAC)

DoDTechipedia
DTIC is ready to go LIVE with

**DTIC Online Access Controlled (DOAC)**

*Release 1*
DTIC Online Access Controlled

Coming Soon – Release 1

Look and feel similar for both systems – Access Controlled and Public
DTIC Online Access Controlled (DOAC)

- Will combine the resources of Private STINET, TEMS and the R&E Portal
- Once in production, the R&E Portal (https://rdte.osd.mil) will be shut down.
- Private STINET and TEMS will continue to operate until all search functionality is present in the new system.
Purpose of DTIC Online

- Offer a unified interface for all resources
- Allow users to search across all resources
- Allow users to customize the site
Who Can Access DOAC?

- Anyone who currently accesses:
  - R&E Portal
  - Private STINET
  - TEMS

- DoDTechipedia customers who are DoD employees

- Customers who sign up for temporary DTIC access at a conference

Caveat:
You may need to renew your account or complete your registration
NAVIGATION
https://www.dtic.mil/
Customize Your Page
Using the Portlets

These portlets cannot be removed.

- Quick Links
- Announcements
- Customize Home Page
Remove Portlets With X’s

- Move Portlet
- Minimize Portlet
- Remove Portlet
Optional Portlets Removed


More Announcements ...

Start here to customize your interface. Choose one of these content categories.

- Acquisition
- General Interest
- Resource Management
- Science and Technology

For more information about customizing your home page, see DTIC Online Help.
Edit portlets by clicking on the “E” or selecting one of the categories.
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition</td>
<td></td>
</tr>
<tr>
<td>ASSIST</td>
<td>Acquisition Streamlining &amp; Standardization Information System (ASSIST) provides access to current information associated with military and federal specifications and manages the Defense Standardization Program (DSP).</td>
</tr>
<tr>
<td>AULIMP</td>
<td>The Air University Library's Index to Military Periodicals (AULIMP) is a subject index to significant articles, news items, and editorials from English language military and technical journals and periodicals. The Index contains citations since 1988.</td>
</tr>
<tr>
<td>British Library</td>
<td>The British Library's journal and conference proceedings collection provides access to articles on a wide range of subjects.</td>
</tr>
<tr>
<td>DoD Strategic Documents</td>
<td>DoD Tech Medical is DoD's first enterprise-wide, social-networking tool focused on advancing health care.</td>
</tr>
<tr>
<td>DTIC Review</td>
<td>The DTIC Review brings its readers the full-text of selected technical reports and documents from a DTIC collection on a specific topic of current interest.</td>
</tr>
<tr>
<td>DTIC SBIR/STTR</td>
<td>The DTIC Small Business Innovation Research/Small Business Technology Research Web Site provides access to articles and research in these two subject areas from FY04 to Present.</td>
</tr>
<tr>
<td>EBSCO Academic Search</td>
<td>EBSCO Academic Search Complete is a database of articles and articles cited in all sciences and social sciences.</td>
</tr>
<tr>
<td>IACs</td>
<td>Information Analysis Centers (IACs) are research and analysis organizations that provide support for researchers, scientists, and program managers in military and related fields.</td>
</tr>
<tr>
<td>JDEIS</td>
<td>The Joint Doctrine, Education and Training Electronic Information System.</td>
</tr>
<tr>
<td>Knovel Library</td>
<td>The Knovel Library combines authoritative reference content from major Sci-tech publishers including John Wiley &amp; Sons, McGraw-Hill and Elsevier. This data is enhanced by saving analytical tools to help analyze and manipulate the data.</td>
</tr>
</tbody>
</table>

**General Interest**

- **SCAMPI**
  - Staff College Automated Military Periodicals Index
  - Science, operational warfare, and operations other than war

- **STCR Activities Calendar**
  - The Reliance 21 Science & Technology Collaborative

- **TopicLINKS**
  - TopicLINKS is a gateway to scientific and technical information.

- **Wisconsin Project Risk Report**
  - The Wisconsin Project on Nuclear Arms Control can be found at [link](#).

**Resource Management**

- **Science and Technology**

---

**Add Selected**  **Cancel**
Organize by dragging portals by arrows
Another Arrangement
### DTIC A-Z

**Acronyms**
- Advanced Concepts Technology Demonstrations (ACTDs)
- Advanced Materials, Manufacturing, and Testing Information Analysis Center (AMMTIAC)
- Air Force Link (U.S. Air Force Homepage)
- Air Force Research Laboratory (AFRL)
- Air University Library Index to Military Periodicals (AULIMP)
- Albuquerque Regional Office (See also Southwestern Regional Office)

**Announcements**
- ANSI/NISO Standard Z39.18, "Scientific and Technical Reports - Preparation, Presentation, and Distribution" (STP3)
- Army Biometrics Task Force (BTF)
- Army MPTR Behavioral Sciences Collection
- Army Research Lab (ARL)
- Ask a Librarian
- ASSIST - (See - Specifications and Standards, Defense and Federal)
- AULIMP (Air University Library Index to Military Periodicals)

**Automatic Document Distribution (ADD) See** [Scheduled Searches](#)

**Back to top**

### Ballistic Missile Defense Organization - BMDO (currently known as the Missile Defense Agency)**

- Basic Research Plan (BRP)
- Biomedical Research Database (DoD)
- Boston Regional Office
- Briefings and Tours (of DTIC)
- Biosystems
- British Library's inside web
- Budget Data (DoD Congressional)
R&E Portal – Where Did It Go?

R&E Portal - Where Did It Go?

- Home page
- S&T Planning page
- Financial Info page
- SciTech Info page
- R&E Database page
- R&E People page
- Info Resources page

R&E Portal - Where Did It Go?

- Search Tools
  * Defense Technology Search (DTS)
  * R&E Database Search
  * STINET MultiSearch
  * Scientific and Technical Information Network (STINET)
  * Total Electronic Migration System (TEMS)
  * DoD Wide Search
- All Tools
  * Biomedical Research Database (BRD)
  * CSACOS Scholars & Funding Database
  * Congressional Budget Queries
  * Defense Energy Security
  * Defense Science & Technology Plan (DSTP)
  * In-House S&T Activities Report
  * Reliance 21 Document Preparation Tool
  * Scientific and Technical Information Network - Private Site (Private STINET)
- Info Resources Page

DoD Techipedia is DoD's first enterprise-wide, social-networking tool focused on the science and technology community. Using a wiki format, DoD Techipedia's goal is to foster...
Follow the Breadcrumbs

You are here: home \ reporting portal
:: Bookmark this page!

R&E Portal - Where Did It Go?

- Home page
- S&T Planning page
- Financial Info page
- SciTech Info page
- R&E Database page
- R&E People page
- Info Resources page

R&E Portal - Where Did It Go?

Info Resources Page

- Search Tools
  - Defense Technology Search (DTS)
  - R&E Database Search
  - STINET MultiSearch
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  - Biomedical Research Database (BRD)
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  - Congressional Budget Queries
  - Defense Energy Security
  - Defense Science & Technology Plan (DSTP)
  - In-House S&T Activities Report
  - Reliance 21 Document Preparation Tool
  - Scientific and Technical Information Network - Private Site
  - Total Electronic Migration System (TEMS)
  - Information Analysis Centers (IAC)
- Current Files
  - Knovel Reference Library
  - Lab Graphics
  - Militarily Critical Technologies List (MCTL) (Restricted)
  - RDT&E Budget Resource Queries
  - Rapid Reaction Technology Office (RROTO)
  - Official Correspondence
  - Congressional Testimony
  - Executive Information and Briefings
  - Newsletters
  - DoD Technical Reports
  - For Sale by the Government Printing Office
  - Patent Index
  - Proceedings of the National Academy of Science
  - Library of Congress Catalogs

Access to Data Controlled by Distributors

DoesTechipedia is DoD's first enterprise-wide, social-networking tool focused on the science and technology community. Using a wiki format, DoesTechipedia's goal is to foster...
Bookmarks only work for Home page and banner headings.
DTIC’s Scientific and Technical Resources

The scope of DTIC’s scientific and technical (S&T) collection covers all phases of defense research and development, from basic research and development to environmental pollution and control, and behavioral and social science. The collection includes a wide range of materials such as reports, contracts, journal articles, conference proceedings, patents and standards, and books. The DTIC offers three sites for access to its resources and services: DTIC Online (Public), DTIC Online Access Controlled, and DTIC Online (Intelligence Community).

DTIC Online (Public) does not require registration and offers easy access to resources and services. Access to each site is based on an individual’s registration level and provides different levels of control, security, and access to resources.

DTIC Online Access Controlled requires registration and is a focal point for information on research and engineering activities within the Department of Defense. It is sponsored by the Director, Defense Research and Engineering (DDR&E) and maintained by DTIC. DTIC Online Access Controlled includes:

- DoD Sites and Collections
- DoD Wide Science & Technology Search
- Technical Reports
- MultiSearch
- Budget Information
- Journals/Conferences/E-Book Collections
- Research in Progress
- Standards, Directives, Guidance
- S&T Links
- Topic Links
DTIC's Scientific and Technical Resources

The scope of DTIC's scientific and technical (S&T) collection covers all areas of defense research, including biological and medical science, environmental pollution and control, and behavioral and social science. The collection also contains Department of Defense (DoD) directives and instructions, budget information, conference and symposia proceedings, patents and patent applications, and other topics of interest to the defense community.

DTIC offers three Web sites for access to its resources and services: DTIC Online; DTIC Online Access Controlled; and DTIC Online Classified. Entrance to each site is based on an individual's registration level and provides the respective access and information coverage.

DTIC Online (Public) does not require registration and offers easy access to publicly accessible information on defense and federal Web sites.

DTIC Online Access Controlled requires registration and is available to DoD personnel at academic institutions and research facilities within DoD. It is sponsored by Director, Defense Research and Engineering. DTIC Online Access Controlled includes:

- DoD Sites and Collections
- DoD-Wide Science & Technology Search
- Technical Reports
- MultiSearch
- Budget and Planning Information
- Journals
- Research in Progress
- Standards, Directives, Guidance
- International Research
- Software
- Geospatial
- Lab Demographics
- RDT&E Budget Data
- RDDS
- Reliance 21 Calendar
- Reliance 21 Tool
- DoD Sites and Collections
- DoD Wide S&T Search

Click on folder to view related resources
You are here: home » stresources :: Bookmark this page!

DTIC’s Scientific and Technical Resources

The scope of DTIC’s scientific and technical (S&T) collection covers all areas of defense research, including but not limited to, biomedical science, environmental pollution and control, nuclear weapons effects, energy, the Department of Defense (DoD) directives and instructions, budget management applications, and other topics of interest to the defense community.

DTIC offers three Web sites for access to its resources: DTIC Online Public, DTIC Online Classified. Entrance to each site is based on the type of information coverage.

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- Technical Reports
- MultiSearch
- Budget and Planning Information
- Journals
- Research in Progress
- Standards, Directives, Guidance
- S&T Links
- Topic Links
Clicking on Folder Expands single navigation menu
Clicking on Link

Expands single navigation menu and displays description page for entire group of pages

Journals/Conferences/E-Books/Other Reports

- Air University Library's Index to Military Periodicals (AULMP)
- British Library's INSPIRE
- Canada Institute for Scientific and Technical Information
- Defense Energy Security
- DOE Office of Scientific and Technical Information
- EBSCO Academic Search Engine
- Energy Citations Database
- Information Bridge: DOE Scientific and Technical Information
- Knovel Reference Library
- National Defense Industrial Association (NDIA) Conference Proceedings
- ProQuest Research Library Complete
- Staff College Automated Military Periodicals Index (SCAMI)
- Stay Current with Your World

Last modified: 01/28/09
SEARCHING
DTIC Online Access Controlled
Search Options in the Banner

The Defense Technical Information Center (DTIC) is the PREMIER provider of DoD technical information. DTIC is a DoD Field Activity under the Under Secretary of Defense for Acquisition, Technology and Logistics, reporting to the Director, Defense Research and Engineering (DDR&E).

Quick Links
- DoDTechipedia
- DoD Techipedia is DoD's first enterprise-wide, social-networking tool

Quick Navigation Guide
- R&E Portal - Where Did It Go?

What's included in this search?
- DoD Sites & Collections - searches DoD Web sites and all DTIC collections
- Technical Reports - searches DTIC's TR collection and IAC documents
- Research in Progress - searches databases; e.g., Egov and Research Summaries, describing current DoD research
- DTIC Web Site - searches DTIC Online for products and services
- MultiSearch - searches more than 50 DoD, federal, commercial and international S&T sources

You logged in as Candy Parker.

DTICSearch-ACCESS_CONTROLLED
2.2.RC2
Fri 2009-May-22 15:40:31.481 -0400
Built by: MPandian
The Defense Technical Information Center (DTIC) is the PREMIER provider of DoD technical information. DTIC is a DoD Field Activity under the Under Secretary of Defense for Acquisition, Technology and Logistics, reporting to the Director, Defense Research and Engineering (DDR&E).

Welcome to DTIC


More Announcements ...

A160 Hummingbird UAV

The A150 program will exploit a hingeless, rigid-rotor concept operating at the optimum rotational speed to produce a vertical take-off and landing (VTOL) unmanned air vehicle (UAV) with low risk loading and low rotor tip...Full Story

Access restricted to DTIC Registered users.
Search engine is the same as DTIC Online Public.

- Looks for both singulars and plurals.
- Assumes AND between words.
- Use AND, OR, NOT, parentheses.
- Use quotes for phrases.
- Use an asterisk for truncation.

Collection includes everything on DTIC Online Public, plus all resources from R&E Portal, TEMS, and Private STINET.
Searches citation and/or the full text depending on the collection.

- Results sorted by relevance.
- Links to citations, Word documents, PDFs, PowerPoint, Excel files, or Web pages.
Use navigation within the portal, not your browser’s Back Button.

Abstracts will be hidden based on distribution limitations and your level of access.

Abstract:
The emergent technology of high power radio frequency in a directed energy role has huge potential for military use, in both offensive and defensive roles. There are many applications for this type of technology, from minesweeping to anti-aircraft artillery to unmanned combat aerial vehicles. Given the current U.S. dominance in precision attack and air combat capability, new technologies might serve to challenge this advantage if an enemy can exploit them. This paper examines the question of whether U.S. tactics or strategy will have to change with these systems in the hands of an adversary, assuming they were used in an integrated air defense role to counter U.S. high-tech deep-strike capability. Specifically, could high power microwave systems become an effective defense against our standoff cruise missile and stealth technology and if so, could an adversary develop and deploy them without our knowledge in order to catch us unaware? Based on the findings, the conclusion recommends several avenues that the Air Force should pursue to prepare for these future weapons.
Some citations or summaries will be entirely suppressed based on your access rights.
Searches the same content as in the banner search.

- DoD Sites & Collections
- Technical Reports
- Research in Progress
- DTIC Web Site
- MultiSearch
Click check boxes to select/deselect collections.

Some collections might not be available to you.
- Full Record - same as the banner search. It searches citations and/or full text depending on the collection.

- Title – not all collections have decent titles (e.g. Web sites, PDF collections).

- Author – not all collections have an author field.
Search results look and function the same as from the banner search.
Resource name links to either a content site or a search page.

links to a description of the resource.
Collections

- **DoD Sites and Collections** – all resources

- **Services & Agencies** – all DoD Web sites including the DTIC site

- **Technical Reports**
  - **Technical Reports** – the Private STINET Technical Report database
  - **TEMS** – the database of technical reports collected by Information Analysis Centers

- **Search Tools** – the Corporate Source and DTIC Thesaurus from Private STINET/DTIC Online Public
Collections

Journal Articles & Conference Proceedings

- The Air University Library's Index to Military Periodicals (AULIMP) – citations of journal articles collected by Air University Library
- **Defense Energy Security** – full-text journal articles and slides accessible to a small community
- National Defense Industrial Association (NDIA) Conference Proceedings – PDFs of presentations
- **Staff College Automated Military Periodicals Index (SCAMPI)** - citations of journal articles collected by Air University Library
Collections

Research in Progress

- **Biomedical Research Database (BRD)** – extracts from the Research Summaries collection
- **Egov/R&E Database** - annual summaries of all DoD research
- **Global Technology Knowledge Base (GTKB)** – summaries of foreign research
- **Independent Research & Development (IR&D)** – summaries of contractor-funded research (from Private STINET)
- **Rapid Reaction Technology Office (RRTO)** – SOWs and Quad charts of technology developed by RRTO
- **Research Summaries** – summaries of DoD research (from Private STINET)
- **S&T Success Stories** - summaries of successful technologies developed by DoD
Collections

Budget and Planning Information

- Research & Development Descriptive Summaries (RDDS) 1996-1999 – PDFs of R2 documents
- Research & Development Descriptive Summaries (RDDS) 2000-present – PDFs of R2 documents
- Defense Science & Technology Plan (DSTP) – PDFs of plans from the DSTP site
- DoD Congressional Budget Data – PDFs and spreadsheets of congressional authorizations & appropriations, FY07-present
- In-house S&T Activities – DoD In-house S&T Activities Management Reports, FY02-07
Collections

Standards, Directives, Guidance

- **DoD Index of Security Classification Guides** – PDFs of sections of the index (from Private STINET)
- **DoD Issuances (Directives and Instructions)** – the WHS site and search engine
- **Military Critical Technologies List (MCTL) Public** – collection of PDFs
- **Military Critical Technologies List (MCTL) Limited** – database of PDFs

People

- **R&E Community Members** – database of DoD S&T POCs
Other S&T Resources

- Federated Searches
- Free Resources
- Commercial Databases purchased by DTIC
Goes to DTIC Online Public
Searches 53 resources
Includes DTIC Online Public Technical Reports
DOCUMENT ORDERING
Only documents from the Technical Reports (STINET) collection can be ordered.

Not all Technical Reports can be ordered.

You must fully register with DTIC and obtain a User Code to order documents.
Searched for: "Automated Ontology Alignment"  
Results 1 - 1 of 1

1 View Citation | View Full Text PDF - 0.7 MB | Add to Shopping Cart
Title: Automated Ontology Alignment with Fuselets for Community of Interest (COI) Integration  
Author: Starz, James Roberts, Joe  
Corporate Author: LOCKHEED MARTIN ADVANCED TECHNOLOGY LABS CHERRY HILL NJ  
Report Date:  
Pages: 33 page(s)  
Accession Number: ADA487022  
Distribution Code: 01 - APPROVED FOR PUBLIC RELEASE  
Report Classification: U - Unclassified  
Collection: Technical Reports (tr)
Below are the items in your Shopping Cart:

Title: Automated Ontology Alignment with Fuselets for Community of Interest (COI) Integ
AD: ADA487022
Report Date: September 01, 2008
Media: Hardcopy  33 page(s)

$9.60  1  $9.60

Delete this Item
Save for Later

Grand Total: $9.60

Recalculate Totals
Submit Order

Items will stay in the Shopping Cart until you order them or remove them.
You must have a User Code to order documents.

Usercode: * 052364

Contract Number: (Last 6 digits required field for contractors ordering Classified material)
First Name: Andrew
Last Name: Pedrick
E-Mail Address: apedrick@dtic.mil
Daytime Phone: Extension: __________________
Attention Line: * Andrew Pedrick
Pay by: * Deposit Account
Account Number: * 123456
Expiration Date: Month: -- Pick one -- Year: -- Pick one --
Shipment Options: No Special Shipping Charges

Submit Order

Cancel
FUTURE FEATURES
Future Features

- Search the full text of Technical Reports and TEMS
- Advanced search language
- Advanced search screens
- Field searching
- Hierarchy searching
- Index browsing
- Taxonomy browsing
- Highlight search terms in citations
- Build bibliographies
- Bibliographies in XML and tab-delimited formats
- Save and schedule searches
- Fully integrated shopping cart
Defense Online Access Controlled (DOAC)

DoDTechipedia
DTIC Launches DoDTechipedia

The Under Secretary of Defense for Acquisition, Technology and Logistics (AT&L) announces the launch of DoDTechipedia, an initiative of the Defense Technical Information Center (DTIC®), at the direction of the Director of Defense Research and Engineering (DDR&E). A DoD scientific and technical wiki, DoDTechipedia is designed to increase communication and collaboration among DoD scientists, engineers, program managers and operational warfighters. This tool will enable DoD personnel to collaborate on technological solutions, reduce costs, add capability and avoid duplication. DoDTechipedia will aid in the rapid development of technology and the discovery of innovative solutions to meet critical capability needs and gaps.

Creating a valuable source of information requires input. Share your knowledge, assist a colleague, ask a question, post an event, start a blog to and be part of the development of the DoD's first knowledge network. To ensure that the most advanced technologies reach the warfighter tomorrow, collaborate on DoDTechipedia today.

For additional information about DoDTechipedia, call 1-800-225-3842 or email: dodtechipedia@dtic.mil. For registration assistance, email: reghelp@dtic.mil.
DoDTechipedia is a living knowledge base, created to provide users a place to collaborate on DoD scientific and technical issues.

- It is a wiki, edited by people like you.

- Please help increase the value of DoDTechipedia by editing pages and sharing your knowledge.
Welcome to DoDTechipedia

DoD wiki to encourage collaboration and information sharing among the S&T community.

This is the unclassified, limited site.

There is a also DoDTechipedia SIPRNET where SIPRNET users can collaborate in the SIPRNET environment.

To read more, Click here

Call for Gardeners

FEATURE ARTICLE: Naval Surface Warfare Center, Dahlgren

NSWC Dahlgren provides analysis, evaluation, analysis, system certification of complex naval warfare, strategic systems, associated with surface warfare, certification for weapons, and execute other responsibilities at the Naval Surface Warfare Center.
Welcome to DoDTechipedia

DoDTechipedia is open to DoD, Federal agencies and contractors for broad collaboration. Do not post: DoD Only, company proprietary, acquisition sensitive, Privacy Act, or other information not appropriate for this audience. DoD does not warrant the accuracy or effectiveness of information posted. Opinions expressed are not official. See Guidelines.

Feature Article: Naval Surface Warfare Center, Dahlgren (NSWCDD)

NSWC Dahlgren provides research, development, evaluation, analysis, systems engineering, integration, certification of complex naval warfare systems related to surface warfare, strategic systems, combat and weapons systems associated with surface warfare. Provide system integration and certification for weapons, combat systems and warfare systems. Execute other responsibilities as assigned by the Commander, Naval Surface Warfare Center.

To read more, Click here

Call for Gardeners

- First time users can practice adding and editing content using the Sandbox
- Adding an Acronym is an easy way to share your knowledge
- Get your organization known using the Organizations area
- Use the Interest Area to post technological interests, challenges or needs.
- Not ready to add a new technology page? Share your knowledge by updating an existing page.
Use Links to Get Started

Welcome to DoDTechipedia

Article Edit this page Attachments (2) History

Added by paluzsayn1234, last edited by Ashley Gohl on Aug 26, 2009 (view change)
TinyLink (useful for email): https://www dodtechipedia mil/dodwiki/x/AwAN
Labels EDIT LABELS
(Non)ce

Feature Article: Unmanned Vehicles

Classified as any device that doesn't require direct human interaction, unmanned vehicles have been employed by the DoD since the 1940's and 1950's. Some of the earliest unmanned vehicles were weather balloons that employed sensors to measure and record climatic conditions for later analysis. Unmanned vehicles are classified in one of these three categories: Unmanned Aerial Vehicles (UAV's), Unmanned Ground Vehicles (UGV's), and Unmanned Undersea Vehicles (UUV's). Operation of UAV's, UGV's and UUV's is performed either remotely or autonomously (independent of human influence).

To read more, Click here

Call for Gardeners

The DoDTechipedia administrators are looking for wiki users willing to assist in maintaining the accuracy and appropriateness of material posted on the wiki. If interested, contact the site administrators at dodtechipedia@dtic.mil.

Getting Started

- First time users can practice adding and editing content using the Sandbox
- Adding an Acronym is an easy way to share your knowledge
- Get your organization known using the Organizations area
- Use the Interest Area to post technological interests, challenges or needs.
- If not ready to add a new technology page? Share your knowledge by updating an existing page.
- For help with text formatting, view Tool Tips or for a full user guide, see User Guide (PDF) or User Guide (Word).
- For further assistance, please contact the site administrators at dodtechipedia@dtic.mil

What Is DoDTechipedia?

DoDTechipedia is a living knowledge base, created to provide users a place to collaborate on DoD scientific and technical issues. It is a wiki, edited by people like you. Please help increase the value of DoDTechipedia by editing pages and sharing your knowledge.
Welcome to DoDTechipedia

Feature Article: Unmanned Vehicles

were weather balloons that employed high altitude, low power, record climatic conditions for later analysis. Aircraft are classified in one of these three categories: Unmanned Aerial Vehicles (UAV’s), Unmanned Ground Vehicles (UGV’s), and Unmanned Undersea Vehicles (UUV’s). Operation of UAV’s, UGV’s and UUV’s is performed either remotely or autonomously (independent of human influence). To read more, Click here

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To learn more about gardening DoDTechipedia, please visit our Gardeners page.

Upcoming Events
Interest Areas represent technical challenges that DoD faces in maintaining military readiness and effective mission capabilities. Any user, whether a program manager or a soldier overseas, with specific immediate or emerging technological interests or needs, can contribute, posting questions for the DoD Science and Technology (S&T) community.

To view information on existing S&T initiatives, see Technology Areas, which represent the collaborated solutions across the DoD Science and Technology (S&T) community.

- Advanced Clothing
- Advanced Materials
- Cloud Computing in the Tactical Environment
- DDR&E Prize - Wearable Power
- DDR&E Strategic Foresight & Agility Initiative (SFA-I)
- DDR&E Strategic Science and Technology Priorities
- Electronics Stewardship
- Energetic Material Sensitivity Data
- Experimentation Community of Practice
- FY11 JDDE (TRANSCOM) RDT&E New Proposals Announcement
- HEAT-TK Aerodynamic Tool
- Joint Capability Areas
  - Battlespace Awareness
  - Building Partnerships
  - Command and Control
  - Force Application
  - Force Support
  - Logistics
How to Contribute

You can contribute to DoDTechipedia by editing pages that you feel you can improve, or by creating new pages that you feel are missing.

**Beginner**
- How to Add an Acronym or Term
- How to Edit Pages
- How to Create a New Page
- How to Report a Problem
- How to Insert Footnotes
- Tips for Formatting Text

**Intermediate**
- How to Create a Personal Space
- How to Create Personal Pages
- How to Create a Personal Blog
- How to Adopt a Blog
- How to Move a Page

**Advanced**
- AutoLinks
- How to Use and View Labels
- Wiki Markup

**Wiki Administrators**
- How to Create a Blog
Practice in the Sandbox

This is the Wiki Sandbox

This is the DoDTechipedia Sandbox. This page allows you to carry out experiments. To edit, click the "Edit" link above, make your changes, then click the Save page button when finished. Content will not stay permanently; this page is cleaned up periodically, although it may be overwritten by other users sooner than that.

Please do not place copyrighted, offensive, or libelous content in the Sandbox(es). Thanks!

For a sandbox of your own, create a personal page.

"Science is organized knowledge. Wisdom is organized life." - Immanuel Kant

"If we knew what it was we were doing, it would not be called research, would it?" - Albert Einstein

Sub-Topic Areas
- CG-LIMS Project Tailoring Plan (test)
- Electromagnetic Railgun
- Kore
- test page
Tutorials

DoDTechpedia is a wiki. This means that the web pages here are created and edited by people just like you. The below tutorials take you through many of the processes you will use when contributing to the wiki, so you can see how easy it is.

Note: If you want to practice editing a wiki page, please use the Sandbox.

For a full user guide on performing the functions outlined below, see User Guide PDF Document or User Guide Word Document.
Collaborate and Share
https://www.dodtechipedia.mil

Welcome to DoDTechipedia

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TinyLink (useful for email): https://www.dodtechipedia.mil/dodwiki/x/AwAN
Labels: EDIT LABELS
(No labels)

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Not ready to add a new technology page? Share your interests, challenges or needs.
Points of Contact

For technical support, contact the DoD Techipedia administrators at dodtechipedia@dtic.mil

• Ashley Gohl, System Administrator
  agohl.ctr@dtic.mil,
  703-767-8239

• Melissa Hollinger, Project Manager
  mholling@dtic.mil
  703-767-9115

• Paul Simon, PM Support,
  psimon.ctr@dtic.mil
  703-767-9930
Session 2

• What’s new at DTIC
  ➢ DTIC Online Access Controlled (DOAC)
  ➢ DoDTechipedia

• Create bibliographies and alerts/saved searches
  ➢ Save a search strategy
  ➢ Schedule a saved search to create an alert
  ➢ Submit a search and create a bibliography
Create Scheduled Searches/Alerts and Bibliographies
Submit a search

On the search results screen, click on **Save This Search**. This saves the strategy, not the results.

Enter notes to describe the search.
Receipt displays Search Control Number, Date Saved, Search Statement, and Display Format.

- You can Schedule a Search to set up an alert.
- You can Delete, Modify, or Execute the Search.
Click on **View Saved Searches** from any search screen to retrieve a search.

Use the ‘My Account’ link on the homepage.
Schedule a Saved Search to Create an Alert

- Scheduled searches emails you a notice when the search runs.
- Select Biweekly, Monthly, or Quarterly for free email.
- Microfiche is no longer available.
- Remove From Schedule to cancel
Click on **View Saved Searches** from any search screen to retrieve a search.

Use the ‘My Account’ link on the homepage.
The email from a scheduled search indicates how many records were found and shows the first 25 records.

Click on the link in the email to view the full records.

You will receive only hits from the latest update.
Order a Bibliography

Create and save a list of search results by clicking on **Order Bib** on the results screen.

- **IMPORTANT**: set the number of items in the bib.
- There is a 500 item limit.
- Bibs are available in about 20 minutes.
- Search strategies are automatically added to Saved Searches.
Order a Bibliography

* = a required field

- Bib Output Type: Electronic Bib
- Contract Number: (Last 6 digits required field for contractors ordering Classified material)
- First Name:
- Last Name:
- E-Mail Address:
- Daytime Phone: Extension:
- Attention Line: * Airships and Military Operations

Submit Order

The only required field on this page is the Attention Line.

Bibs are free
## Bibliography Receipt

**Receipt for Order Number: 73725**

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**Search Information:**

**Bib Title:** Airships and Military Operations

**Search:**

((airship or IIA or lighter than air or balloons or unmanned air vehicles or unmanned aerial vehicles or drones) <in> key and (military operations or warfare or battlefield)) and 01 <in> dc

**Collection:** tr

**Format:** IF

**Notes:** Airships and Military Operations

**Sort Field:** RD

- Displays SCN (Search Control Number), search statement and display format.
- Displays a list of AD numbers included in the bib.
- Click on View Electronic Bib.
Select a font size.

- If the bib is not yet ready, you will receive this message.

- Depending on server traffic, the bib should be ready in 20-30 minutes.

Your electronic bibliography is not yet available.

Bibliographies are processed as they are received by the system. Your bibliography should be available 10 to 20 minutes after you submitted the request, depending on server traffic.

If you are experiencing difficulties viewing your electronic bibliography, please call DTIC Search Assistance 703-767-8265 or send a message to private-stinet@dtic.mil.
If the bib is ready, it will display, beginning with the receipt.

Click on the link to display in PDF.
Retrieve Bibliographies

- Click on **View Orders**
- Click on **View Receipt** to see the search statement and find the right bib.
- Click on **View Electronic Bib** to see the bibliography.
- Cannot delete Bibs.
Logging Off

- There is no log off command.
- Just close your browser.
- You are responsible for any limited information you printed or saved.
Candy Parker
703-767-7039
DSN: 427-7039
cparker@dtic.mil

Karen Nimerick
703-767-9072
DSN: 427-9072
knimeric@dtic.mil
Disclaimer of Endorsement

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Variable Exploration with PASW Modeler

Richard A. Bauer
richard-bauer@us.army.mil
U.S. Army Accessions Command

2 September 2009

USAAC Accessions Research Consortium
Hampton, Virginia
Purpose

• To explain a technique for variable exploration with PASW Modeler 13
  – Auto Classifier
  – Voting on variable importance with all models
  – Stepwise removal of “worst variable”
Setup

• Under sources select Statistics File

• Under Field Ops select Type

• Under Output select Data Audit

• Under Field Ops select Partition
  – Training 80%
  – Testing 20%
## Type Node

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THERE'S STRONG, AND THEN THERE'S ARMY STRONG!

1-800-USA-ARMY • goarmy.com
## Data Audit

### Data Audit of [10 fields]

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# THERE’S STRONG, AND THEN THERE’S ARMY STRONG!

1-800-USA-ARMY • goarmy.com
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**THERE’S STRONG, AND THEN THERE’S ARMY STRONG!**

1-800-USA-ARMY • goarmy.com
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There’s strong, and then there’s Army Strong!
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### THERE’S STRONG, AND THEN THERE’S ARMY STRONG!

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3/4/2010 2:02 PM
## Remove the Highest Scoring Variable

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Conclusion

- PASW Modeler 13 saves considerable time in data exploration to determine the predictive importance of variables
- Data Mining for knowledge discovery allows accessions research to proceed in the absence of theory related to what variables are important predictors of a desired goal
- Questions, Richard Bauer, 502-626-0404, richard-bauer@us.army.mil
Cross-Industry Standard Process for Data Mining

- Business understanding
- Data understanding
- Data preparation
- Modeling
- Evaluation
- Deployment

Data