

Army Accessions Research Consortium

"Shaping the Future Force and Predicting Its Success"

31 August – 3 September 2009

Hampton, Virginia

U.S.ARMY

ARMY STRONG.℠



Report Documentation Page

Form Approved
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
01 APR 2010	**N/A**	**01 Sep 2009 - 03 Sep 2009**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Accessions Research Consortium Proceedings 2009, Shaping the Future Force and Predicting It's Success, 1 Sep 2009, Afternoon Session.	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
Clark, Melanie Stephenson, Judy	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)	8. PERFORMING ORGANIZATION REPORT NUMBER
U.S. Army Accessions Command, G2/9, Center for Accessions Research, Fort Knox, KY 40121-5163	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT

Approved for public release, distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

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.

15. SUBJECT TERMS

Military accessions, recruiting, childhood obesity, JROTC, Whole Soldier, Accessions Research Award, Human Dimension, Army Experience Center, MEPCOM, Mental health screening, Pinnacle

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**UU**	**980**	

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std Z39-18

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

USAAC ACCESSIONS RESEARCH CONSORTIUM (ARC) PRESENTATION

Army Accessions Research: Lessons Learned

"A look back on three years in Accessions Command"

Hampton, VA
1 September 2009

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Agenda

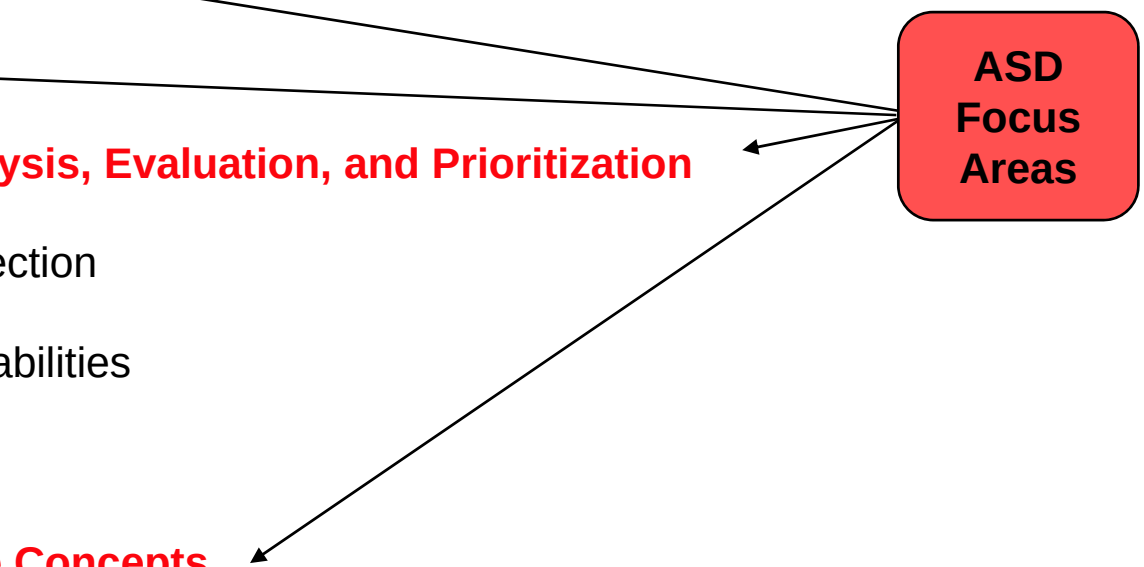
- Background
- What Did We Do?
- How Well Did We Do It?
- What Were Our Biggest Challenges?

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

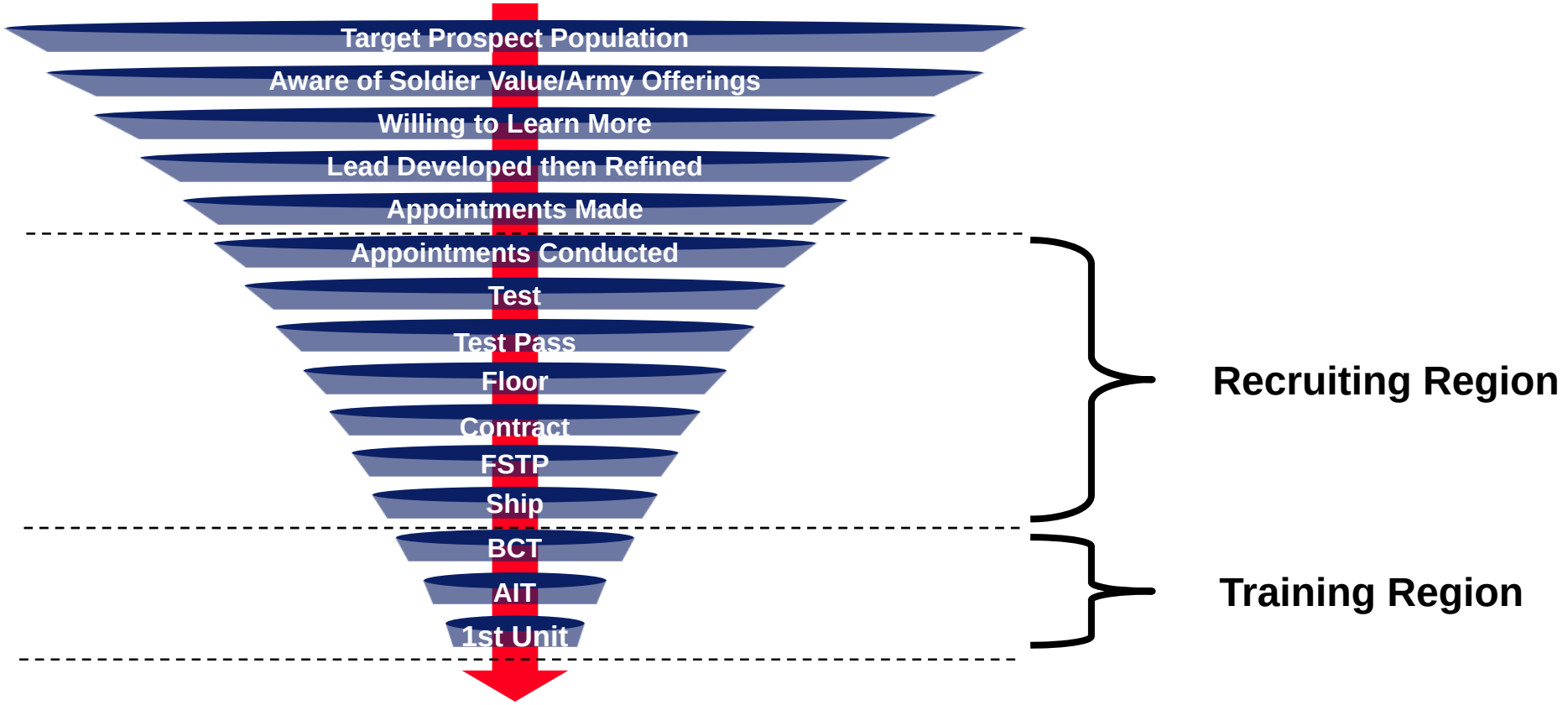
USAAC G2/9 Major Focus Areas

- 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



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Representative ASD Projects

Plus many other non-project related requirements!

- 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

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- Background
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- How Well Did We Do It?
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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

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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

Possible Solution

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







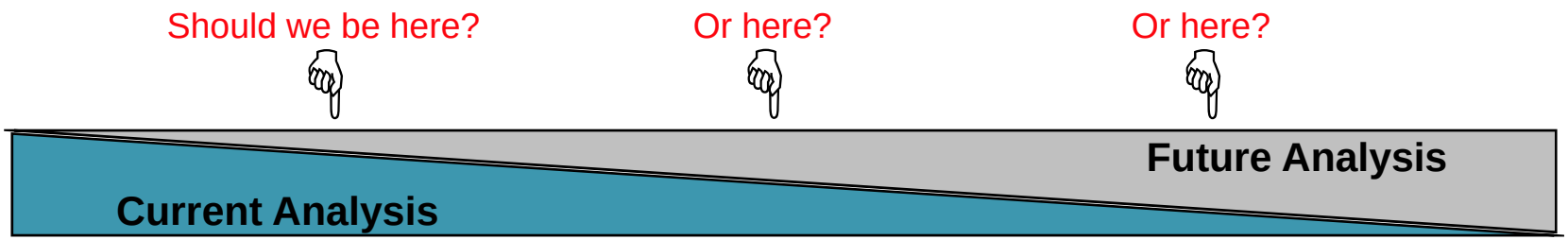
Find some help or pare down requirements

- 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"

Possible Solution

Hard to find the right balance between Current and Future Analysis

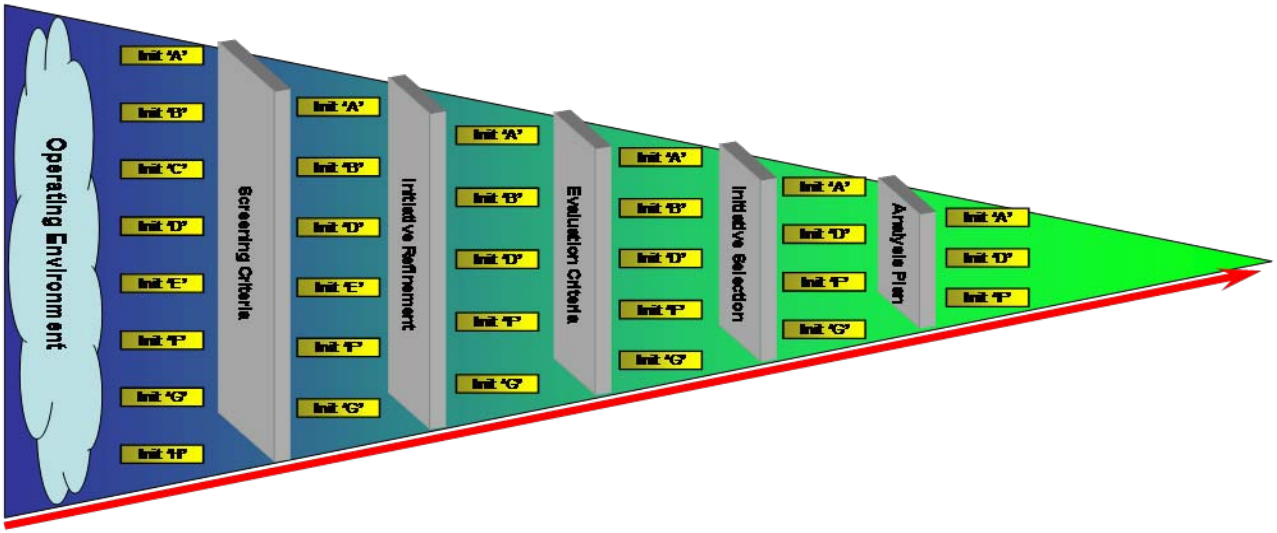
- Current Analysis: *Required for daily survival*
  - Backward-looking, with more immediate impact
  - Necessary to track pilot/program ROI
  - Answers “How DID we do?” and “How ARE we doing?”
- Future Analysis: *Required for long-term success*
  - Forward-looking, with less immediate impact
  - Necessary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

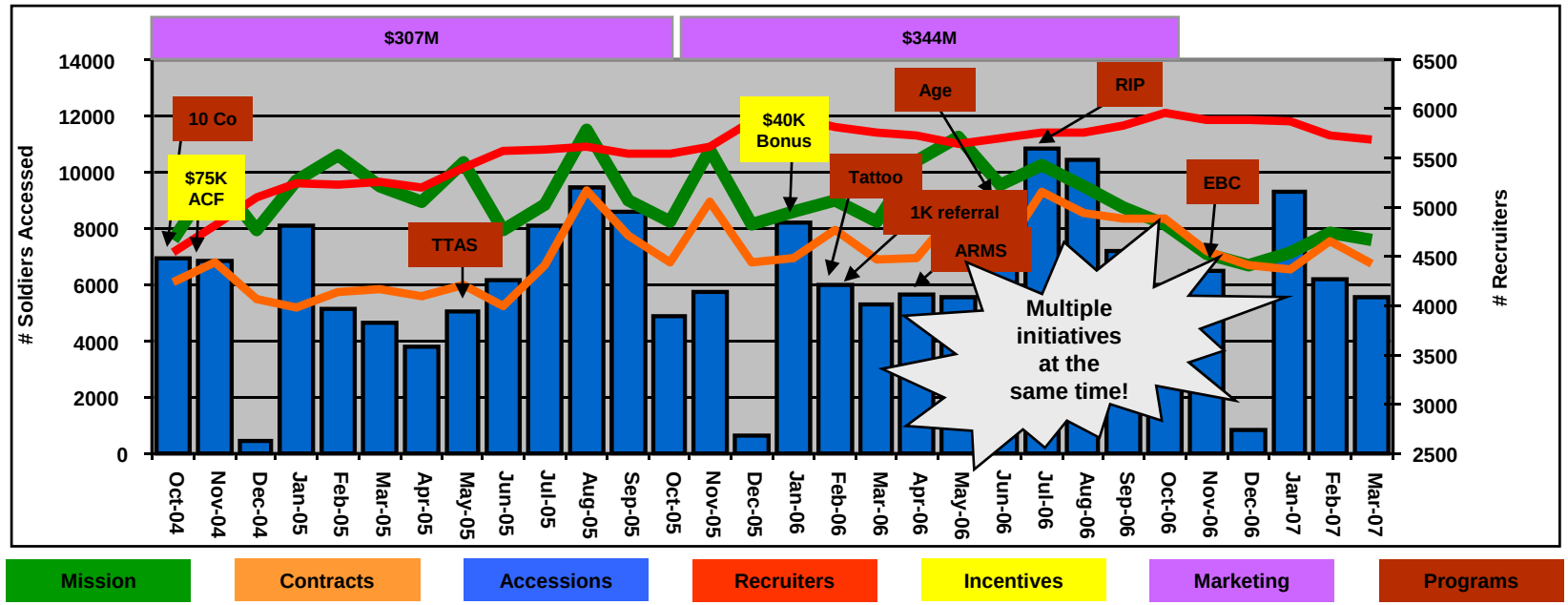
- Would also help integrate initiatives with strategic planners, resource managers, and executors



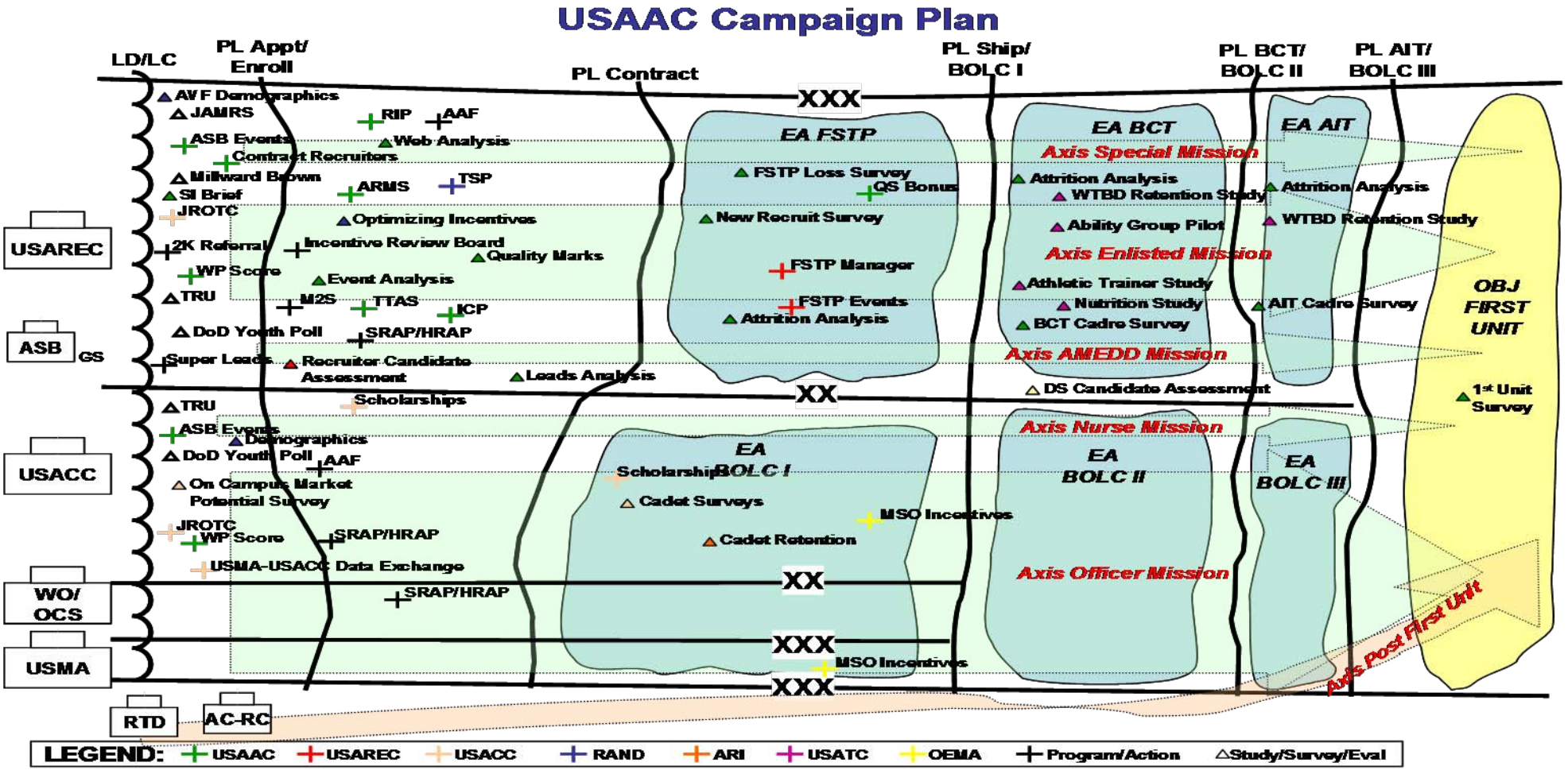
Possible Solution

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



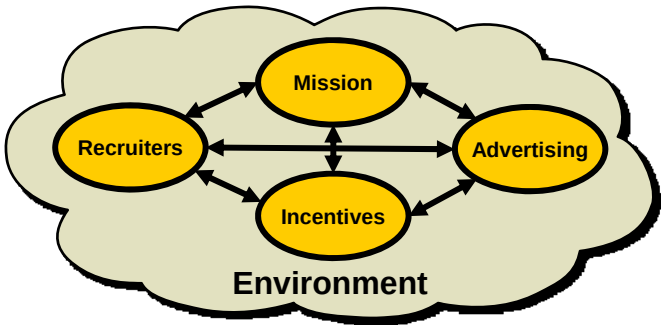
Need a Campaign Plan to synchronize analysis with operations



Possible Solution

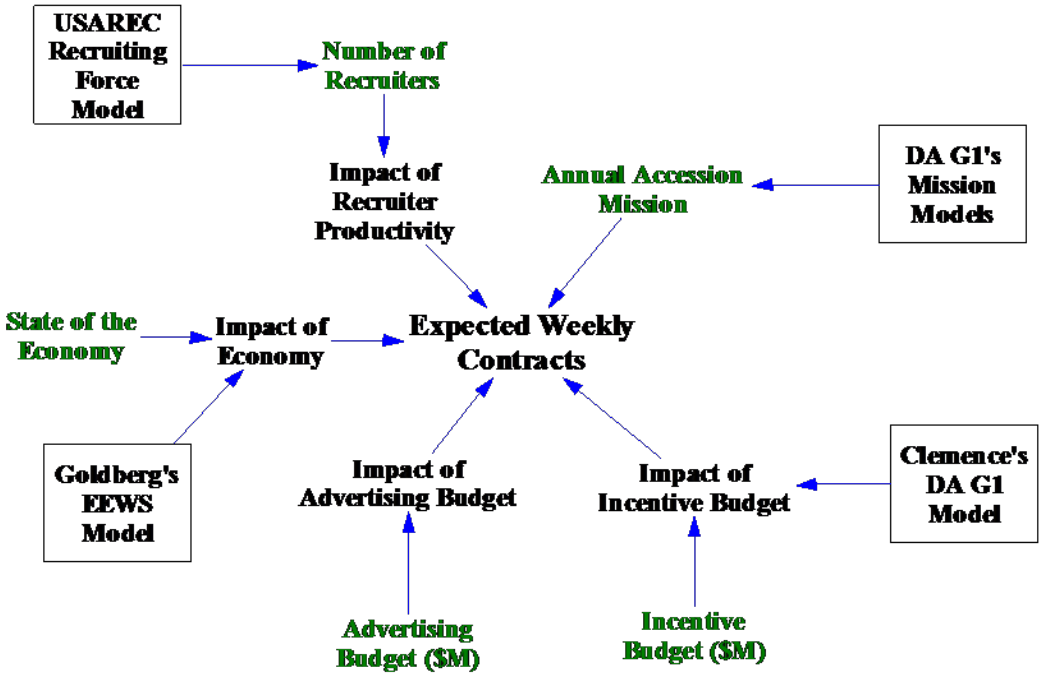
Using stand-alone resource models

- 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.*

Project Background *Client: USAREC/USAAC*

- **Background**

  In June 2008, MG Bostick commissioned a study by the USMA Department of Systems Engineering's Operations Research Center of Exellence (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

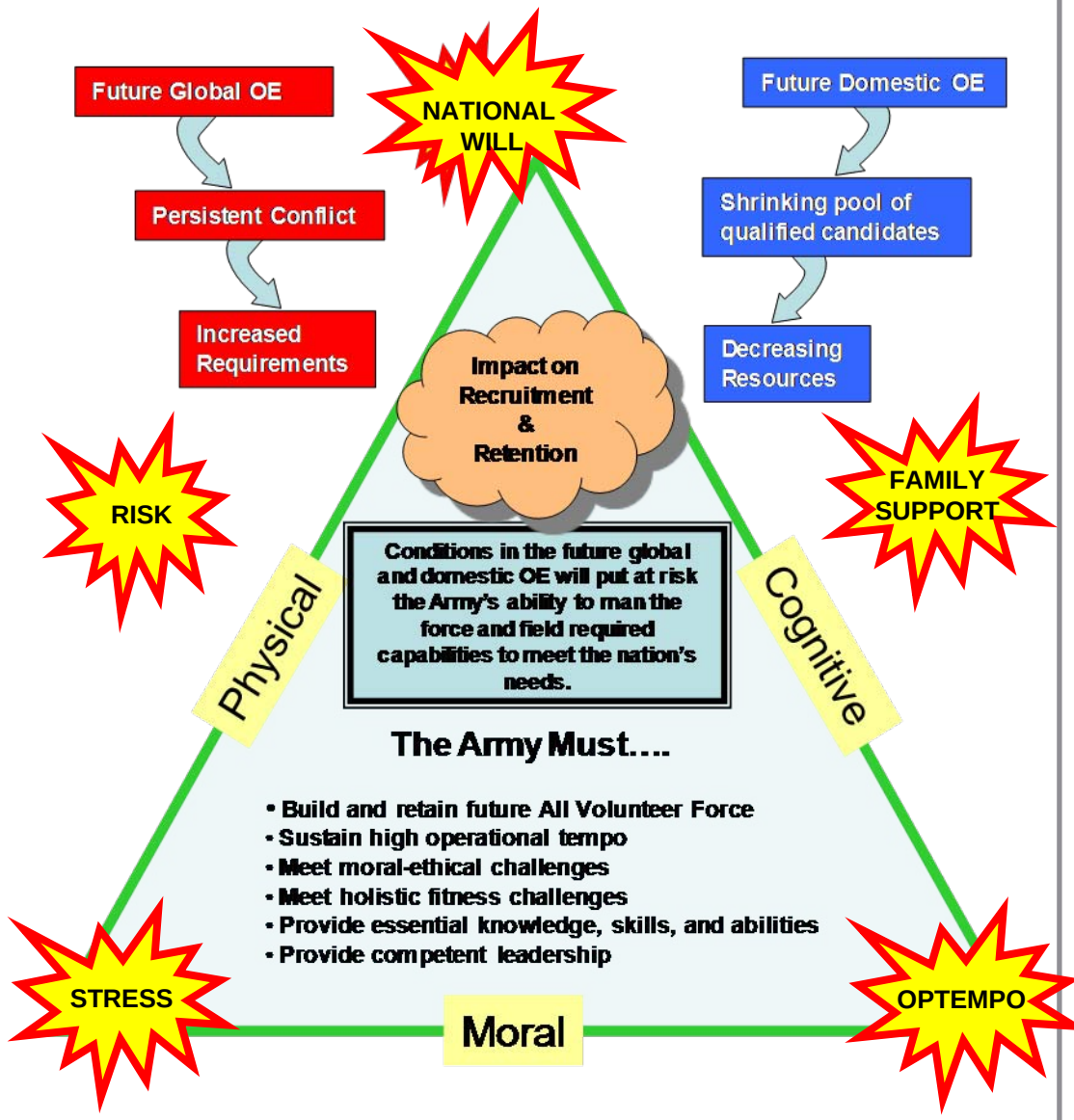
What is a "Quality Soldier?"

Problem Synergy (1 of 2)

Operational Problem (HD Study, Para 1-2):

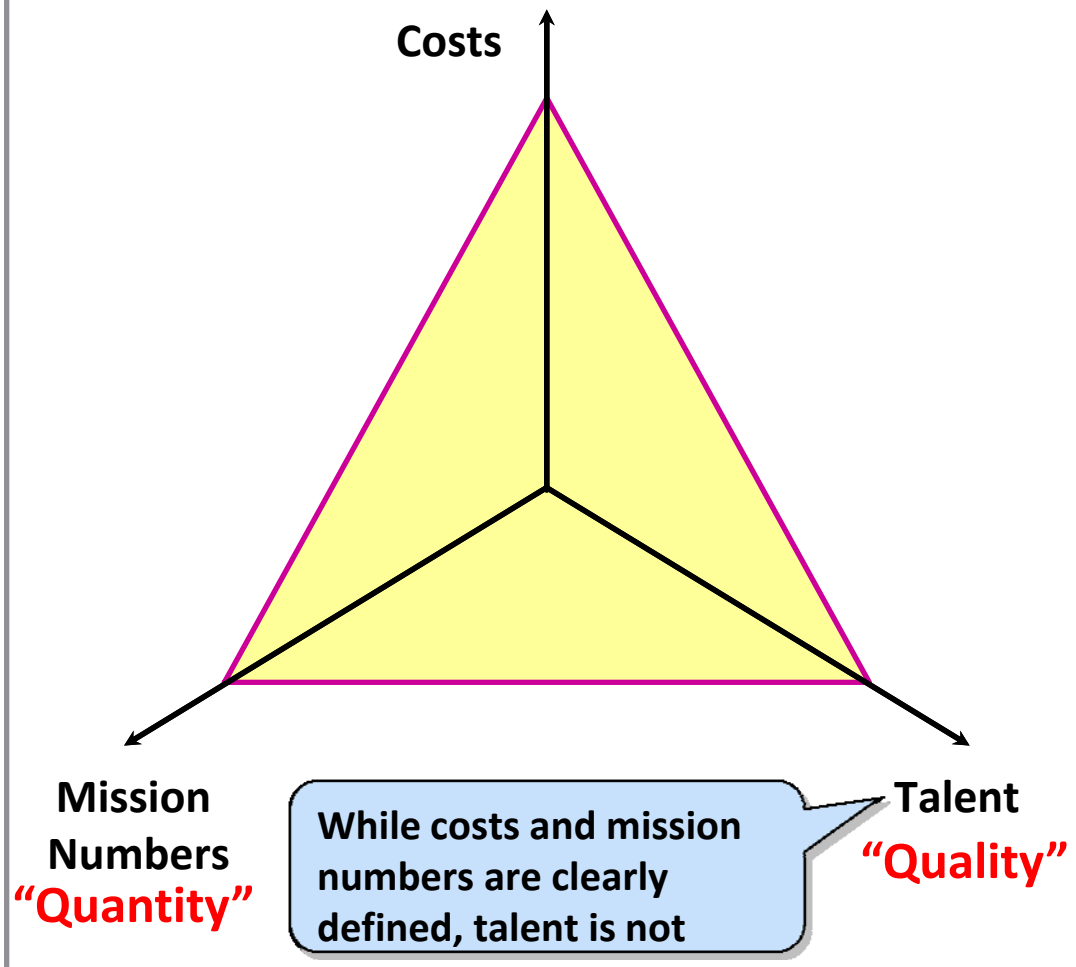
- Faced with continuous employment across the full range of military operations, **the Army will require extraordinary strength in the moral, physical, and cognitive components of the human dimension.**

- **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*

Problem Synergy (2 of 2)



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[1]
- 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



○ Markers not sufficient to predict outcome ● Sufficient to predict outcome

□ Currently used

▭ Recommended additions

Analyzed successful Soldier outcomes

	Potential marker	First-term success: IET/AIT Completion	First-term success: 6-month attrition	First-term success: First-term attrition	First-term success: Retention	First-term success: Promotion to E3/E4	Performance ratings: NCOER ratings	Performance ratings: MOS skill test	Performance ratings: Soldier of year/qtr	Performance ratings: Career milestones
Administrative	Level of education	◕	◑	◕	◕	◑		◔		
	Age	◔	◔	◔	◑	◕				
	Dependency status	◑	◔	◔	◕					
	Height and weight	◔	◔	◔	◔					
Tests	ASVAB/AFQT test	◔	◔	◔	◔	◕	○	◔		
	Fitness test results		◕							
	Assessment of Individual Motivation (AIM)			○	"Quantity" Focus		◔	"Quality" Focus		
	Work Values Information (WVI)			○	◑			○		
	Work Suitability Inventory (WSI)			○	◔			○		
	Predictor Situational Judgment Test (PSJT)			○	◔			○		
	Work Preferences Survey (WPS)			○	◑			○		
Other	Rational Biodata Inventory (RBI)			○	◕	○		○		
	Employment status at entry	◔	◔	○	◔					
	Overall assessment (association with markers)	◕	◕	◕	◕	◕	◔	○	○	○

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

Comments: *ORCEN*

Source: *McKinsey (ARI and RAND reports)*

Re-Framing the Problem

qual·i·ty *n.* –

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

po·ten·tial –

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.

per·for·mance *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:

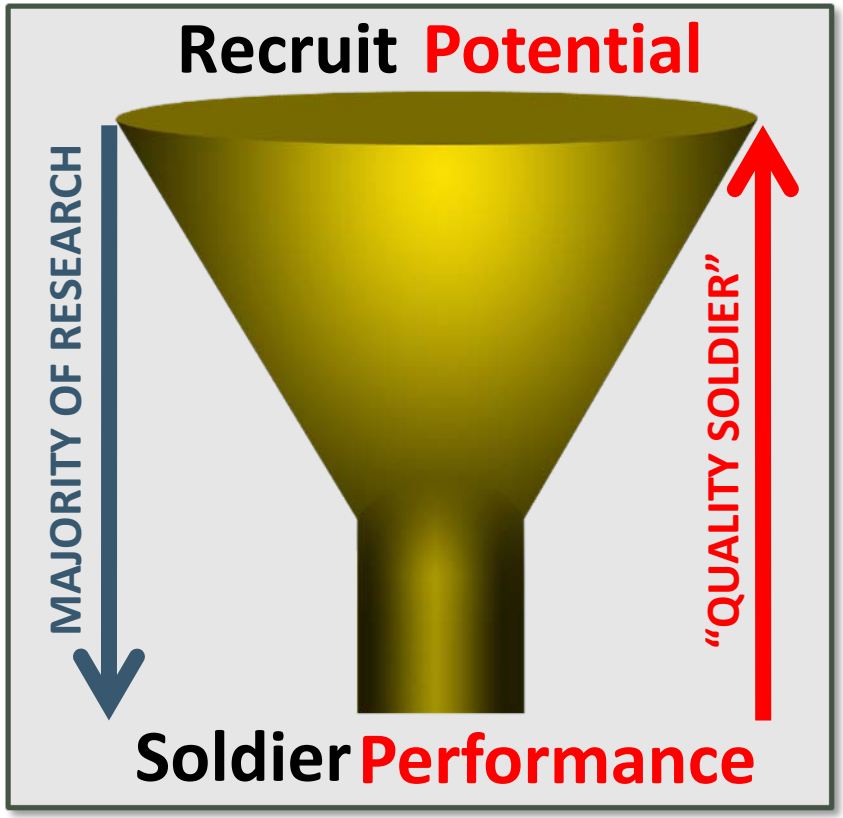
- We currently evaluate Soldiers by talking about performance / potential.
- Quality is certainly possessed and implies what you are. Potential recognizes uncertainty and implies what you can be…message to our nation?
- We maximize potential through catalysts such as individual effort, leadership, and 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*

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

- Hiring and Keeping the Best People, Harvard Business Essentials, p. 6.

"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

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

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

"WholeSoldier" Performance Attributes

Purpose:
Selfless Service
Sacrifice
Commitment
Loyalty
Duty

Interaction:
Respect
Empathy
Compassion
Humor

Knowledge:
Job Tasks/Skills
Education
Trainability
Learning

Judgment:
Common Sense
Logical Decisions
Understanding
Anticipation
Insight/Filtering
Adaptive/Flexible

Motivation:
Will to Win
Endurance
Resilience
Stick-to-it-iveness
Heart / Drive
Determination
Work Ethic

Moral Domain



Cognitive Domain

Application:
Planning
Communicating
Executing

Character:
Honor
Integrity
Justice
Candor
Personal Courage

Physical Domain

Medical Health:
Illness Resistance
Nutrition
Body Composition

" The moral is to the physical as three is to one."
- Napoleon

Athletic Skills:
Coordination
Agility
Balance
Power
Speed
Accuracy
Flexibility
Reaction Time

Conduct:
Maturity
Discipline
Bearing
Coolness

Self-Esteem:
Confidence
Self-Worth
Self-Efficacy

General Fitness:
Cardio Endurance
Cardio Strength
Muscular Endurance
Muscular Strength

"WholeSoldier" Performance Measurement

Moral Domain

KEY	1	2	3	4	5	6	7
	"Always" "Unacceptable" "Separate from Army"	"Most of the time" "Very Bad" "Problem Soldier"	"Sometimes" "Bad" "Needs a bit of work"	"Neutral" "Only what is required" "Just Enough"	"Sometimes" "Good" "Bit more than standard"	"Most of the time" "Very Good" "Solid Performer"	"Always" "Example for others" "One of the very best"
Moral Domain	**Purpose**: Selfless Service, Commitment, Loyalty, Duty, Competitive, Action-Seeking						
	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.	The 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 inconsiderate 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 naïve 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 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.			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.		

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

	1	2	3	4	5	6	7
KEY	"Always" "Unacceptable" "Separate from Army"	"Most of the time" "Very Bad" "Problem Soldier"	"Sometimes" "Bad" "Needs a bit of work"	"Neutral" "Only what is required" "Just Enough"	"Sometimes" "Good" "Bit more than standard"	"Most of the time" "Very Good" "Solid Performer"	"Always" "Example for others" "One of the very best"
Cognitive Domain	**Thought**: Adaptability, Assertiveness, Decisiveness, Initiative, Flexibility, Common Sense						
	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.			Soldier provides input only when asked.	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.		
	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 Domain	**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.*

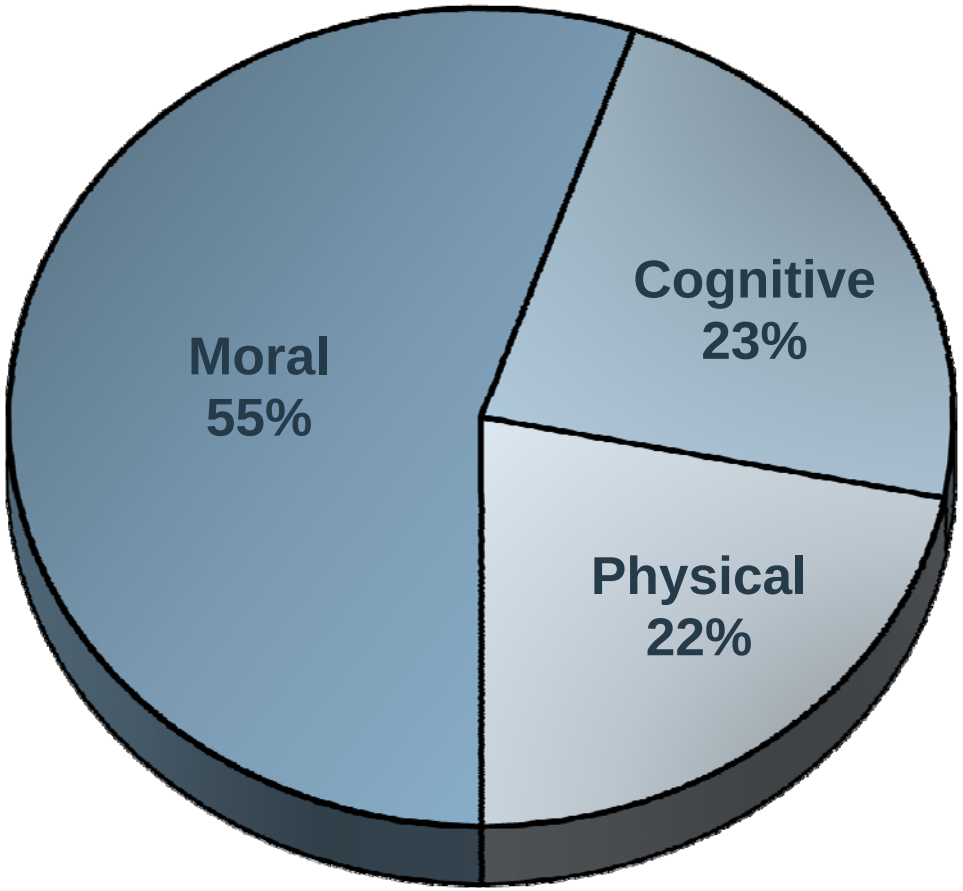
Note: *The domain attributes have been updated slightly since data was collected based on continued conversations with the Department of Physical Education and Department of Behavioral Science and Leadership.*

"WholeSoldier" Domain Weights

Elicitation Technique:

- Top Down (direct)
- Bottom Up (inferred)

SL/PSG/PL teams were consistent using both!!!



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.

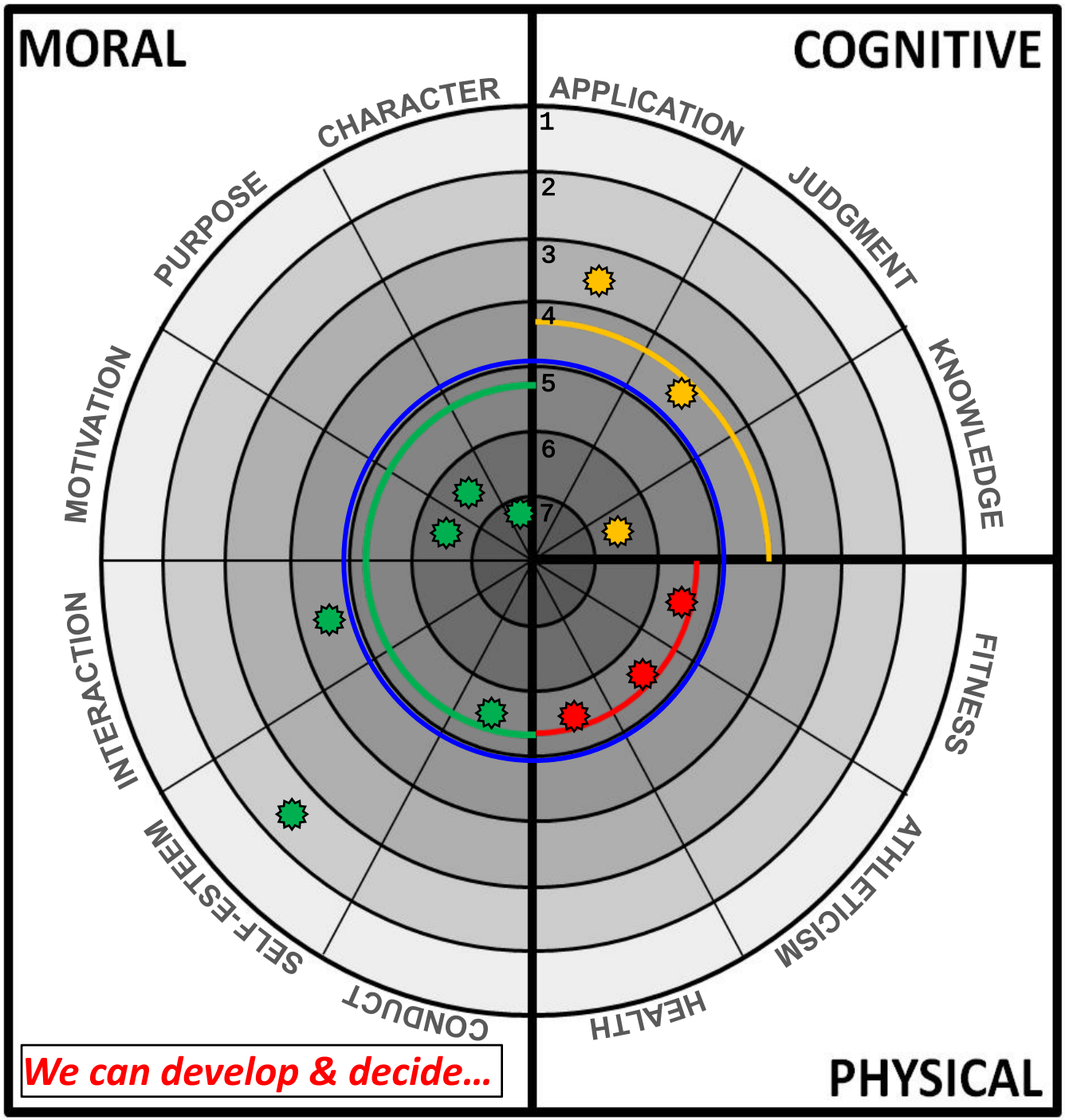
Conclusion:

- 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**

"WholeSoldier"

Sample Population Data

4 Infantry Platoons

NAME	Purpose:	Motivation:	Social:	Conduct:	Character:	Self-Esteem:	Thought:	Capability:	Knowledge:	Physical:	Medical:	Elicited Total	Moral	Cognitive	Physical	Total	Rank
	7	7	7	7	7	7	7	7	7	6	7	100	59	25	15	98.6926	1
	5	6	7	6	7	7	7	7	7	7	7	95	53	25	16	93.8472	2
	6	6	5	6	7	6	6	6	6	7	6	95	51	21	15	87.5789	3
	6	6	5	6	7	5	6	6	7	7	5	95	50	22	14	86.6244	4
	6	6	6	6	7	5	6	5	5	7	6	100	51	19	15	85.2336	5
	7	6	5	7	7	5	6	5	5	5	6	100	53	19	13	84.6554	6
	7	6	6	3	6	7	6	6	6	7	5	95	49	21	14	84.0396	7
	5	4	6	6	7	6	7	6	6	4	4	90	48	22	9	79.4016	8
	5	6	5	5	6	5	6	5	6	6	6	85	45	20	14	79.2734	9
	6	6	4	6	6	6	5	4	4	6	6	95	48	15	14	77.7282	10
	5	6	5	5	6	6	4	5	5	6	5	80	46	16	13	75.7640	11
	5	6	5	5	6	4	5	5	5	6	6	75	44	18	14	75.7378	12
	5	6	5	5	6	5	4	5	4	6	6	70	45	15	14	74.4603	13
	6	6	3	7	7	3	3	5	4	5	6	80	47	14	13	73.8387	14
	5	6	6	6	4	6	4	4	5	5	6	85	46	15	13	73.7372	15
	6	5	6	6	7	5	4	4	6	3	3	75	50	16	7	73.1613	16
	3	3	6	6	6	6	7	7	7	2	4	45	42	25	7	72.8442	17
	6	6	4	5	6	3	4	5	5	5	6	70	44	16	13	72.5855	18
	5	5	5	5	5	5	5	5	5	5	6	70	42	18	13	72.4594	19
	5	5	5	3	6	7	4	5	6	5	5	75	43	18	12	72.2340	20
	6	5	6	4	6	5	4	4	5	5	5	70	45	15	12	71.8844	21
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	5	6	4	4	5	5	6	5	4	6	5	70	41	18	13	71.5468	23
	6	6	4	5	7	2	3	4	6	5	5	75	44	15	12	70.9765	24
	5	6	4	5	5	5	4	5	4	5	6	65	43	15	13	70.4193	25
	5	5	4	5	6	4	5	6	4	5	4	60	42	17	11	69.7193	26
	5	5	5	4	5	2	4	5	3	7	7	60	37	14	16	67.5545	27
	5	6	4	4	4	3	4	4	5	6	6	55	37	15	14	66.3784	28
	5	3	7	2	6	6	6	5	3	4	5	50	40	16	10	66.2992	29
	4	5	5	4	5	5	5	4	6	4	4	65	39	18	9	66.0722	30
	5	6	5	4	3	5	4	3	3	6	5	60	39	12	13	63.5387	31
	4	4	4	4	4	4	4	5	5	5	6	60	34	16	13	62.8163	32
	5	4	4	4	5	4	4	5	4	5	4	65	37	15	11	62.7680	33
	5	4	2	2	3	6	5	4	4	7	7	40	31	15	16	62.2660	34
	3	3	5	4	4	7	5	5	6	5	1	60	35	19	8	61.5160	35
	4	5	5	4	5	4	3	4	4	3	5	50	38	13	9	59.8534	36
	4	4	3	4	5	3	3	2	3	7	7	70	33	9	16	58.9814	37
	5	5	2	6	5	3	1	3	4	4	6	40	38	9	11	58.9730	38
	4	4	4	4	4	4	4	4	4	4	4	50	34	14	9	57.1429	39
	3	3	5	4	5	5	5	4	4	2	4	45	35	15	7	56.5637	40
	4	4	4	4	4	4	4	4	4	3	4	30	34	14	8	55.8355	41
	4	5	3	4	4	3	3	4	3	4	5	40	33	12	10	55.0045	42
	4	5	3	2	3	4	5	5	2	5	5	30	29	14	12	54.9887	43
	4	4	3	4	4	4	4	4	5	2	4	25	33	15	7	54.6454	44
	1	2	5	3	4	4	5	7	7	2	3	25	26	22	6	53.5186	45
	4	5	5	3	3	4	2	2	4	4	5	30	33	9	10	52.9199	46
	4	3	3	4	4	3	5	5	5	2	2	50	30	18	5	52.2999	47
	4	3	3	2	4	2	3	4	3	6	6	25	26	12	14	51.5093	48
	3	4	5	3	3	4	3	4	4	3	4	40	30	13	8	50.9524	49
	4	4	4	2	2	4	4	4	4	4	4	35	27	14	9	50.7495	50
	5	4	2	2	2	2	3	4	3	5	7	20	25	12	14	49.8818	51
	3	5	5	2	3	4	3	4	3	4	1	30	30	12	6	47.8652	52
	3	5	4	2	2	5	2	1	3	4	6	10	28	7	11	46.9172	53
	2	2	2	1	2	4	5	5	5	4	4	2	18	18	9	44.4711	54
	2	3	3	3	2	2	2	3	5	3	6	50	21	12	10	42.8115	55
	3	4	3	4	4	2	1	2	3	2	1	20	29	7	4	39.5092	56
	1	1	5	1	1	4	4	4	4	2	2	10	16	14	5	34.8802	57
	2	3	3	2	1	3	2	3	2	3	1	5	19	8	5	31.9733	58
	1	1	1	1	1	1	2	2	2	2	2	5	8	7	5	20.1294	59
	1	1	5	1	1	2	1	1	1	1	1	1	14	4	2	19.7675	60
	1	1	1	1	1	1	1	2	1	1	1	1	8	5	2	15.3846	61

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.
4. Calculate Moral, Cognitive, Physical, and *WholeSoldier* total.

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 Concept

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.

Strategic Possibilities (1 of 3)

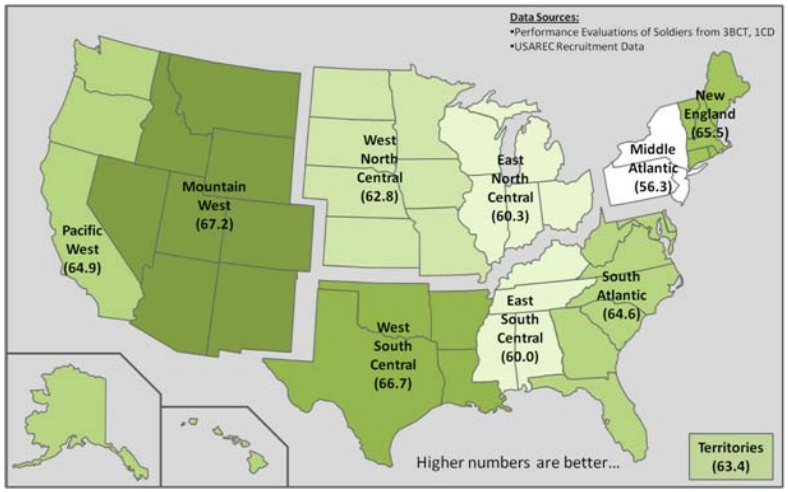
Given "WholeSoldier" Performance implementation, we can better:

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.



= High Performance based on Potential
= Expected Performance
= Low Performance based on Potential



NOTE: Only for discussion of possibilities; not intended as a conclusive result for use in current decisions.

Strategic Possibilities (2 of 3)

Given "WholeSoldier" Performance implementation, we can better:

Train:

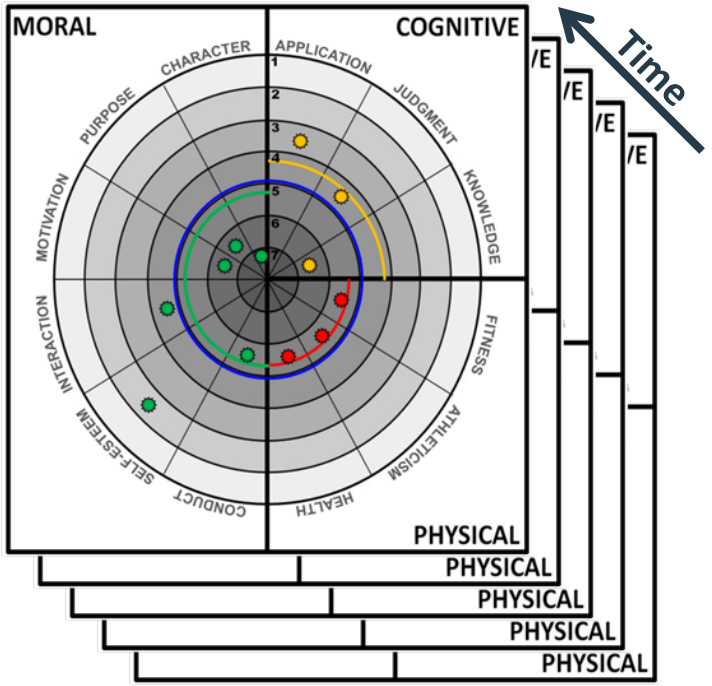
- » **Offer individual training/education** to those that are "best qualified" or "most needy."
- » **Measure performance ROI** of training/ education programs.
- » **Design unit training/education** to address performance trends.

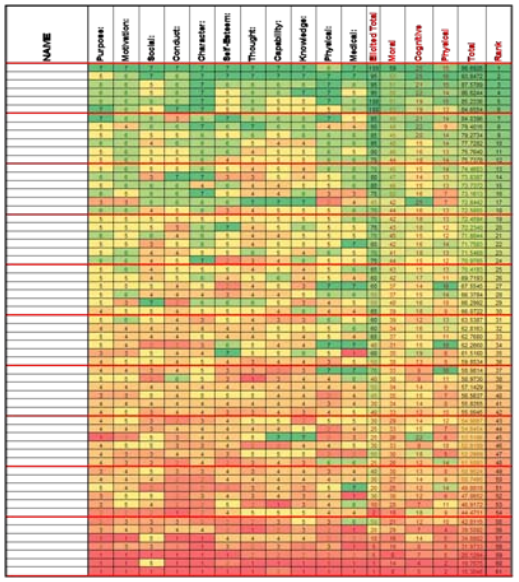
Retain:

- » **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.





Strategic Possibilities (3 of 3)

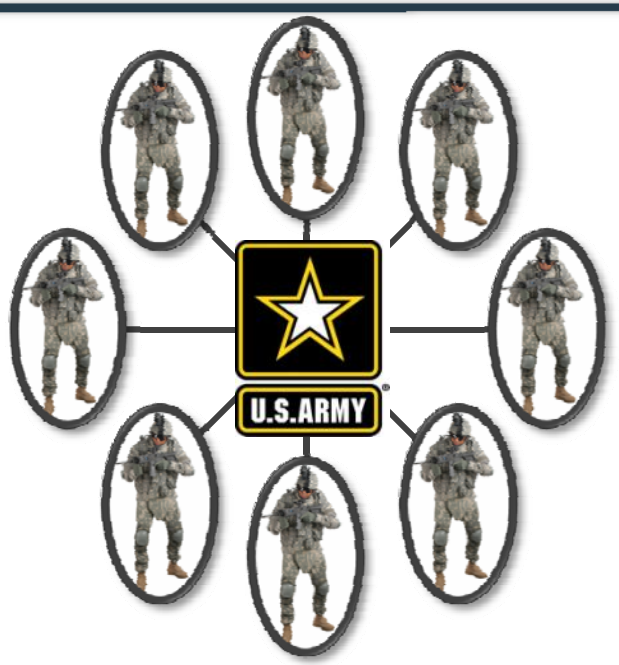
Given "WholeSoldier" Performance implementation, we can better:

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:

$$W = (D+O+M+F) * (LP)^{TEE}$$

W = Warfighting Power

	L = Leadership
D = Doctrine	P = Personnel
O = Organization	T = Training
M = Materiel	E = Experience
F = Facilities	E = Education

- Modified from GEN Schoomaker/GEN Boykin discussion

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

- ***Questions***
- ***Insights***
- ***Decisions***

Contact:

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Insight

Recurring Anecdote

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."

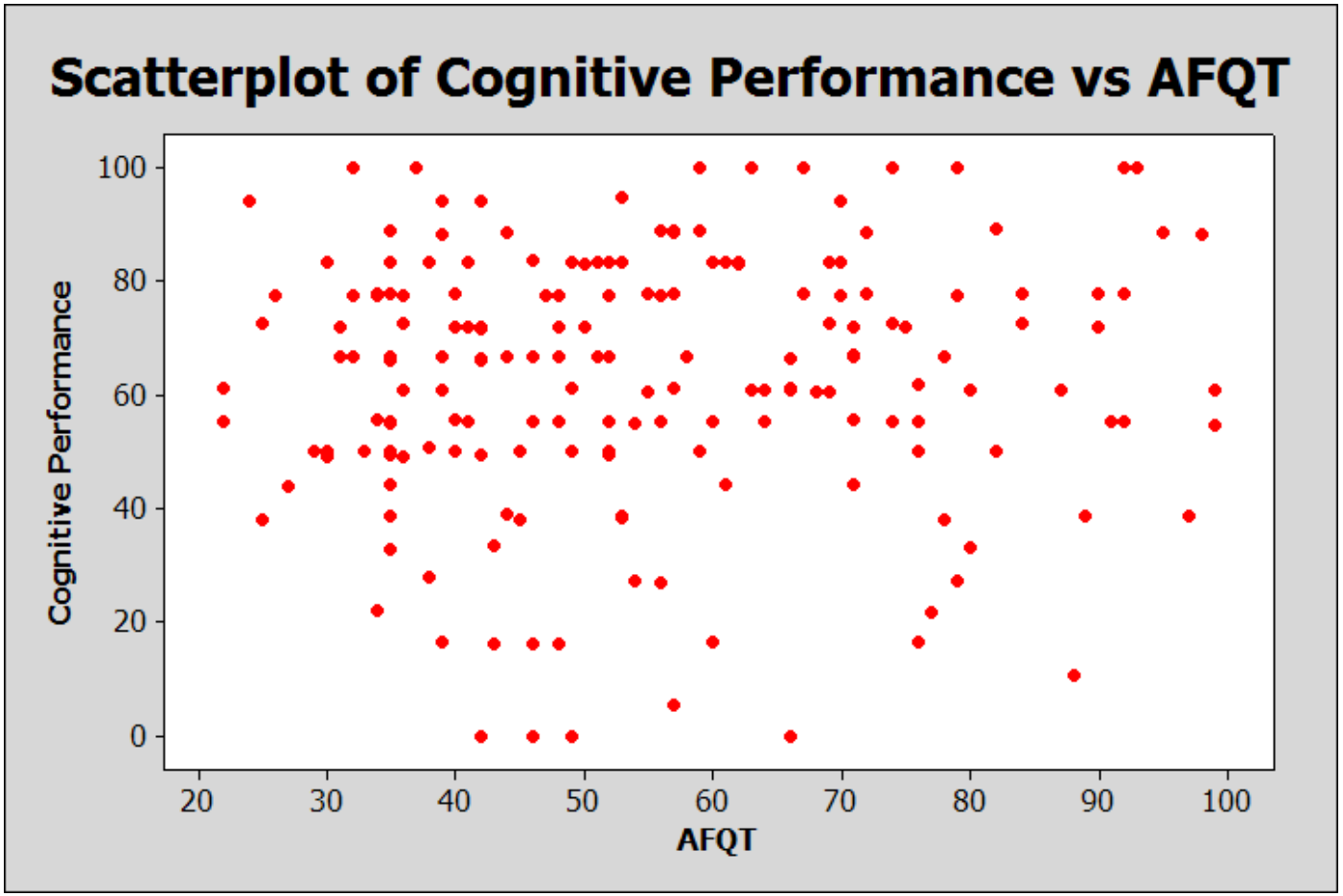
Platoon Sergeants:

"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.

Insight

AFQT



Finding: There is no apparent relationship between "Cognitive Performance" as evaluated in units (different from academic definition) with AFQT score.

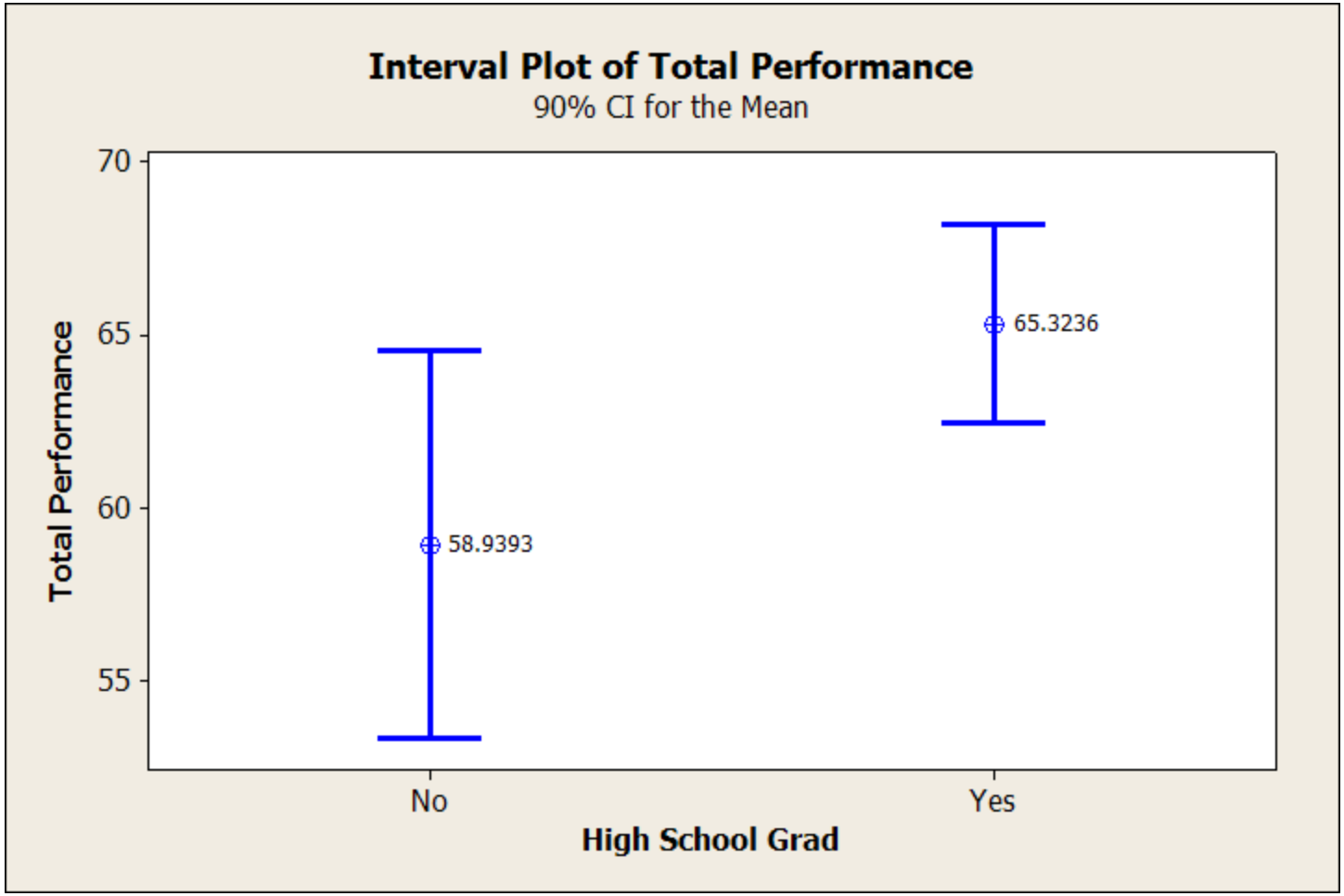
Insight: "Sir, I care a lot more about common sense than I do about book smarts."

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*

Insight

HS Graduation



Finding: High school graduation appears to be an indicator, but not statistically significant in our data.

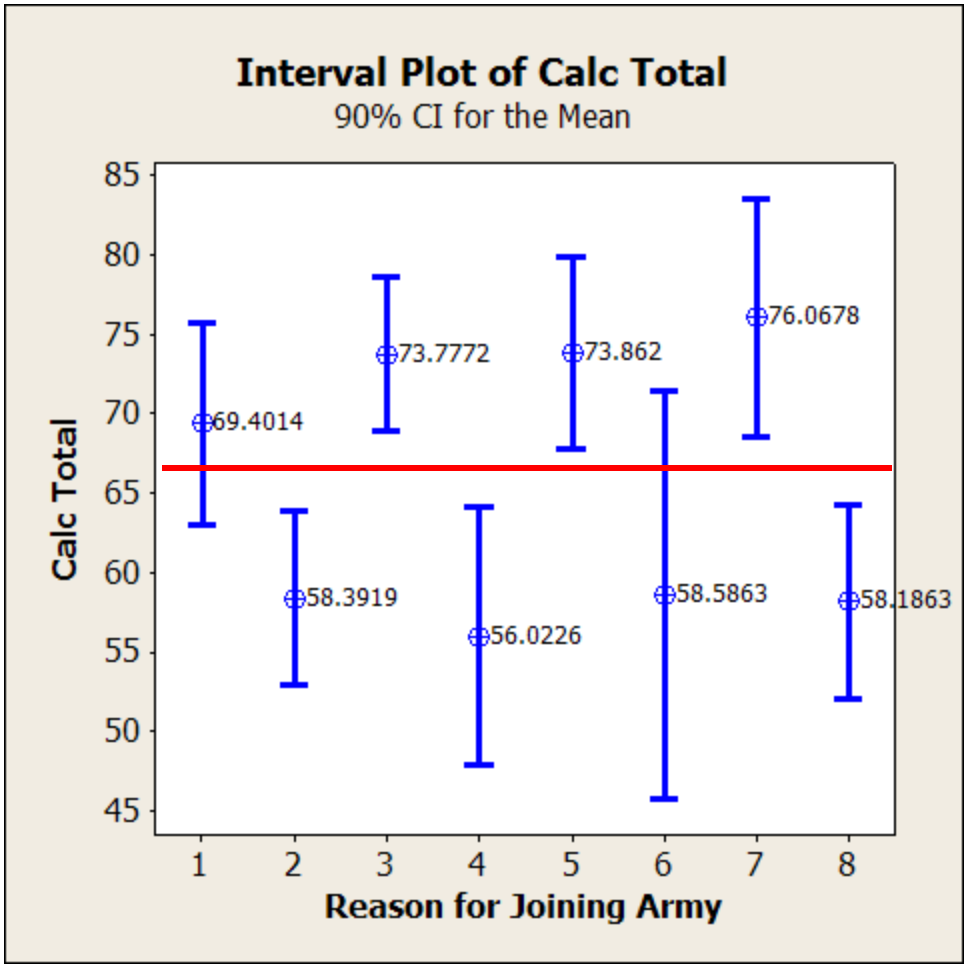
Insight: High school graduation may indicate some degree of "stick-to-it-iveness."

Conclusion: With more data, confidence intervals on HS Grad may shrink.

Data Source: *Performance Data, USAREC Data, & Questionnaire Results as analyzed by ORCEN & CDAS*

Insight

Reason for Joining



2) Which of the following is <u>second most important</u> to you about joining the Army?

1) action & adventure
2) steady paycheck
3) service to Nation
4) college benefits
5) tough challenges
6) health benefits
7) good people/friends
8) a fresh start in life

<u>Finding:</u> Reasons for joining the service are statistically significant .

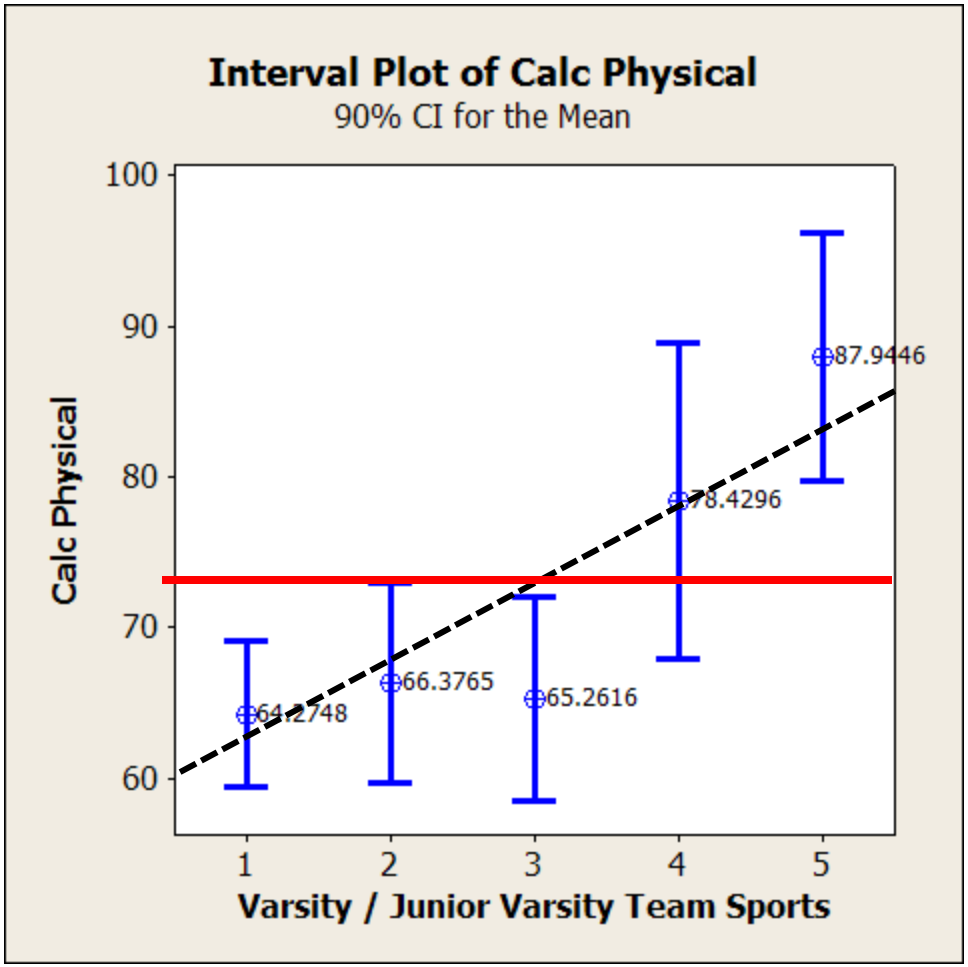
<u>Insight:</u> "Marines 'issue a challenge' / 'sell it on service.'" *–Dozens of interviewees*

<u>Conclusion:</u> Pay and benefits may do a good job of impacting <u>quantity</u> 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 <u>quality</u>…

Data Source: *Performance Data, USAREC Data, & Questionnaire Results as analyzed by ORCEN & CDAS*

Insight

Athletic Participation



61) How many seasons of Varsity/Junior Varsity TEAM sports did you play?

1) 0
2) 1-3
3) 4-6
4) 7-9
5) More than 9

Finding: "Participation" in team sports displays statistically significant differences in physical performance evaluations…trend is useful in general linear model.

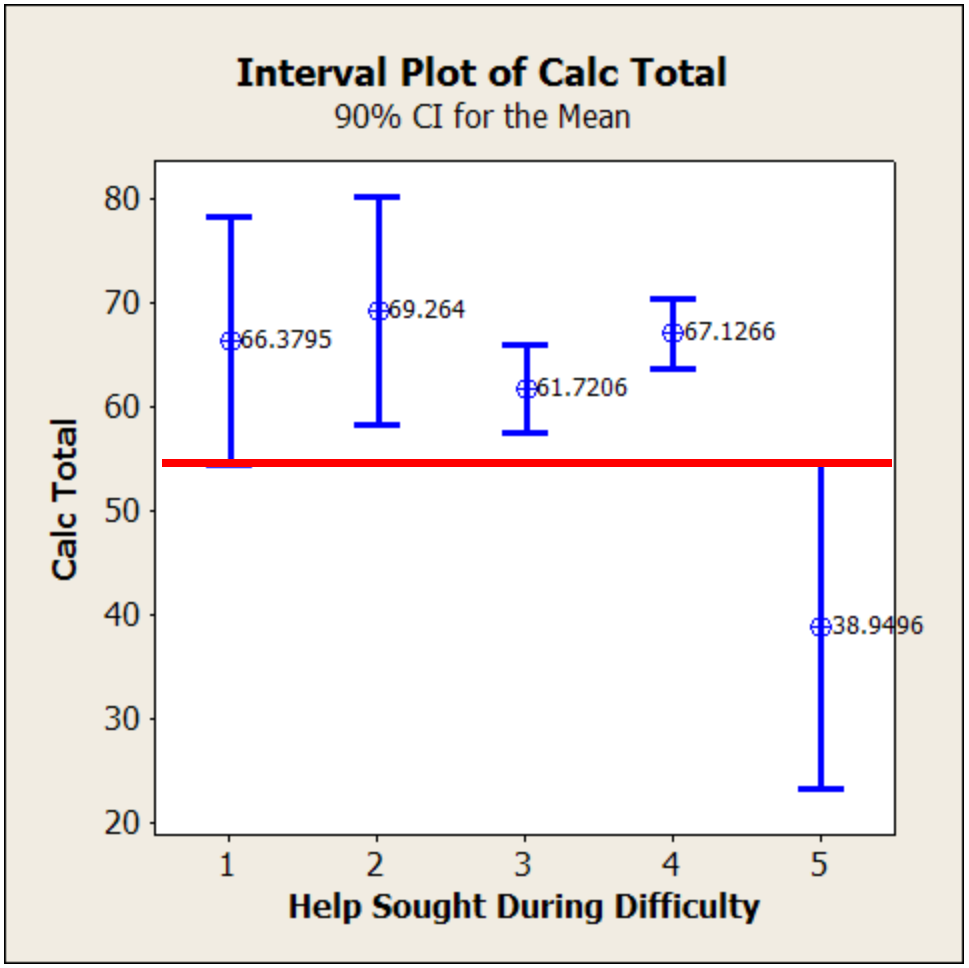
Insight: "We want athletes." - *Many along with CSM Pippin/COL Volesky, 3BCT, 1CD*

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*

Insight

Seeking Help



17) Which of the following is most like you when you encounter difficulties?

1) **I avoid difficulties.**
2) **I seek help immediately when I have a problem.**
3) **I try on my own for awhile before I seek help.**
4) **I work really hard before seeking help.**
5) **I don't seek help; I will die trying.**

Finding: Attitude toward help is statistically significant.

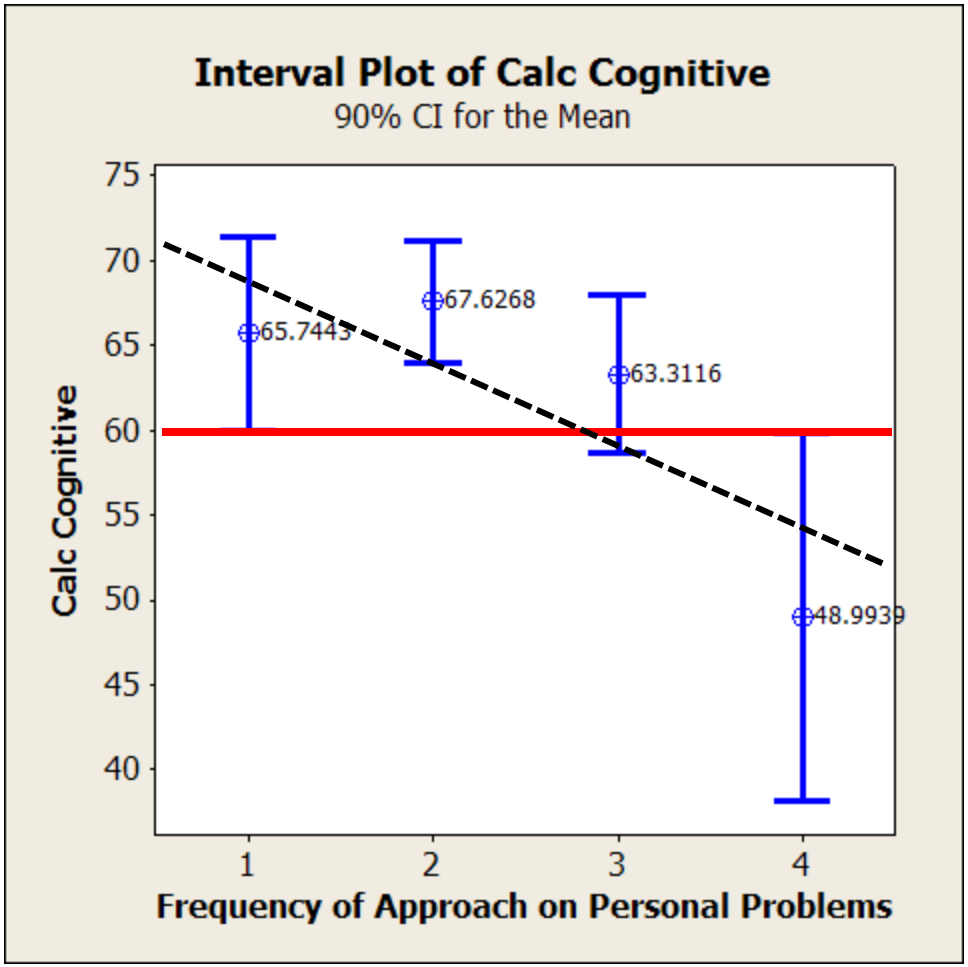
Insight: Those that report total self-reliance do not perform well…teamwork is a must.

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*

Insight

Sought for Help



28) How often do people approach you to discuss their personal problems?

1) **Very often**
2) **Often**
3) Sometimes
4) **Seldom**
5) Never

Finding: Being sought for help shows statistical significance…trend is useful in general linear model.

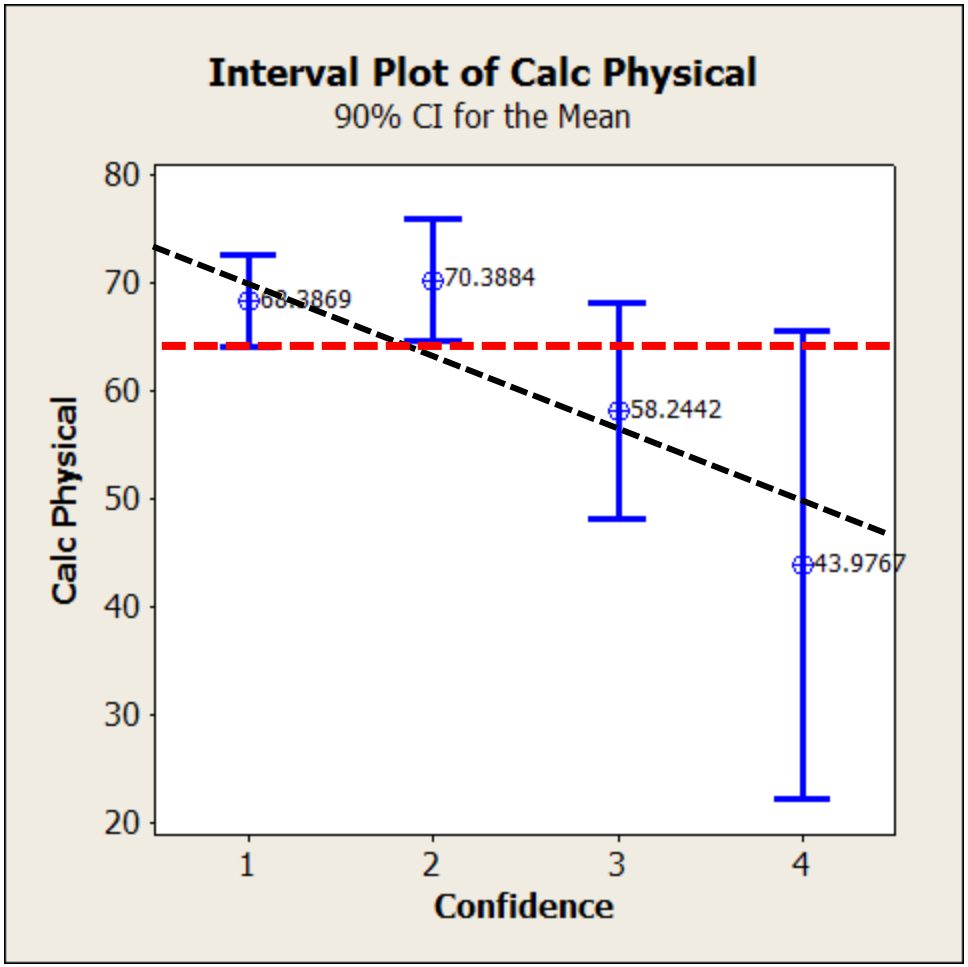
Insight: Soldiers seek out others that show strong cognitive performance…not the same as "academic performance."

Conclusion: Cognitive performance, broadly defined, helps the team…

Data Source: *Performance Data, USAREC Data, & Questionnaire Results as analyzed by ORCEN & CDAS*

Insight

Confidence



49) I can accomplish anything that I want to.

1) Strongly agree
2) Agree
3) Neither agree nor disagree
4) Disagree
5) Strongly disagree

Finding: Confidence displays nearly statistically significant differences in physical performance evaluations…trend is useful in general linear model.

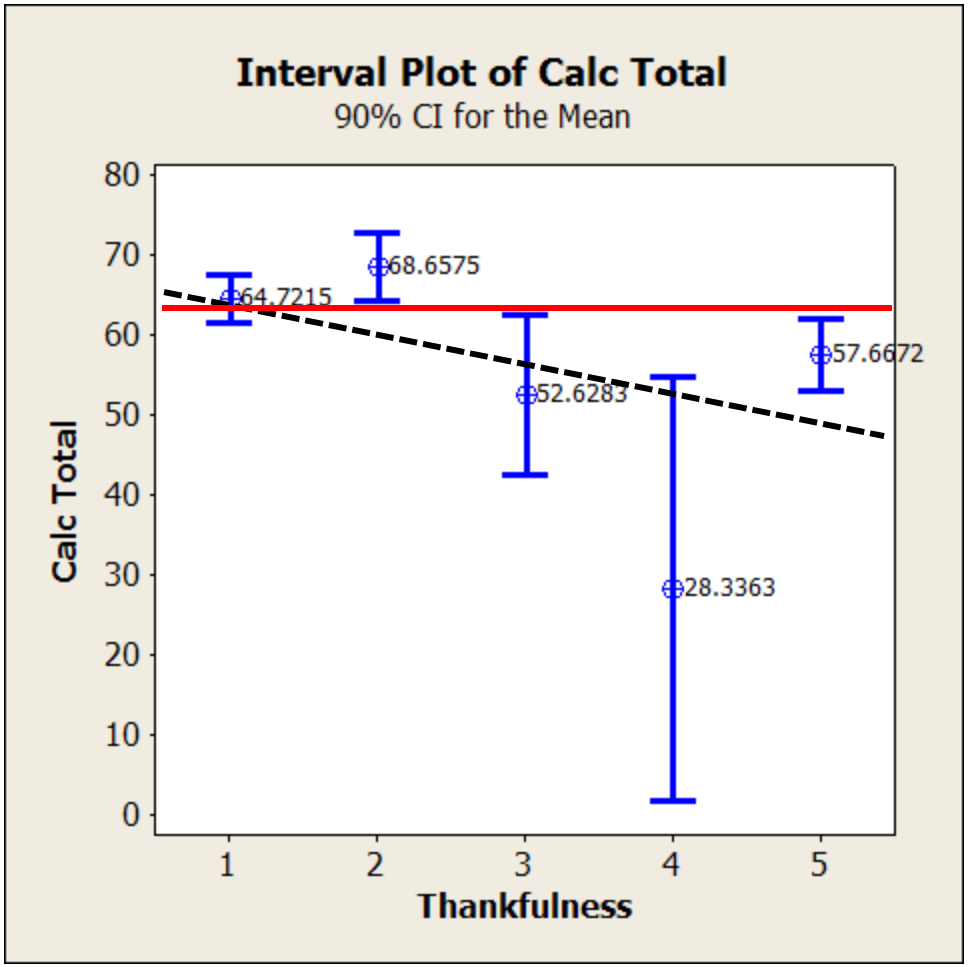
Insight: Confidence may relate to the mental strength needed for physical fitness.

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*

Insight

Thankfulness



44) I feel pretty thankful for the people and things in my life.

1) Very often
2) **Often**
3) **Sometimes**
4) **Seldom**
5) **Never**

Finding: Thankfulness displays statistically significant differences in performance evaluations…trend is useful in general linear model.

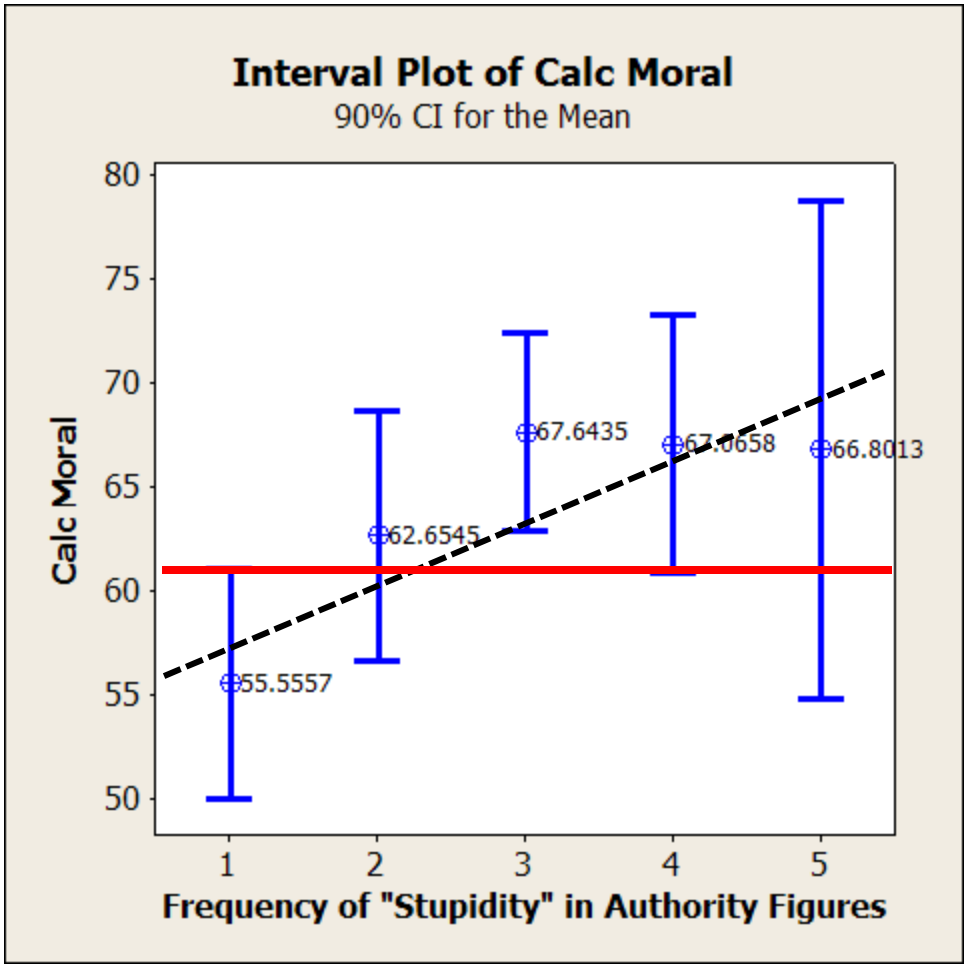
Insight: Thankfulness may be linked to generally positive attitude towards others.

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*

Insight

Attitude towards Authority



46) How often do your teachers/bosses tell you to do something stupid?

1) **Very often**
2) Often
3) **Sometimes**
4) **Seldom**
5) Never

Finding: Respect for Authority displays statistically significant differences in moral performance evaluations…trend is useful in general linear model.

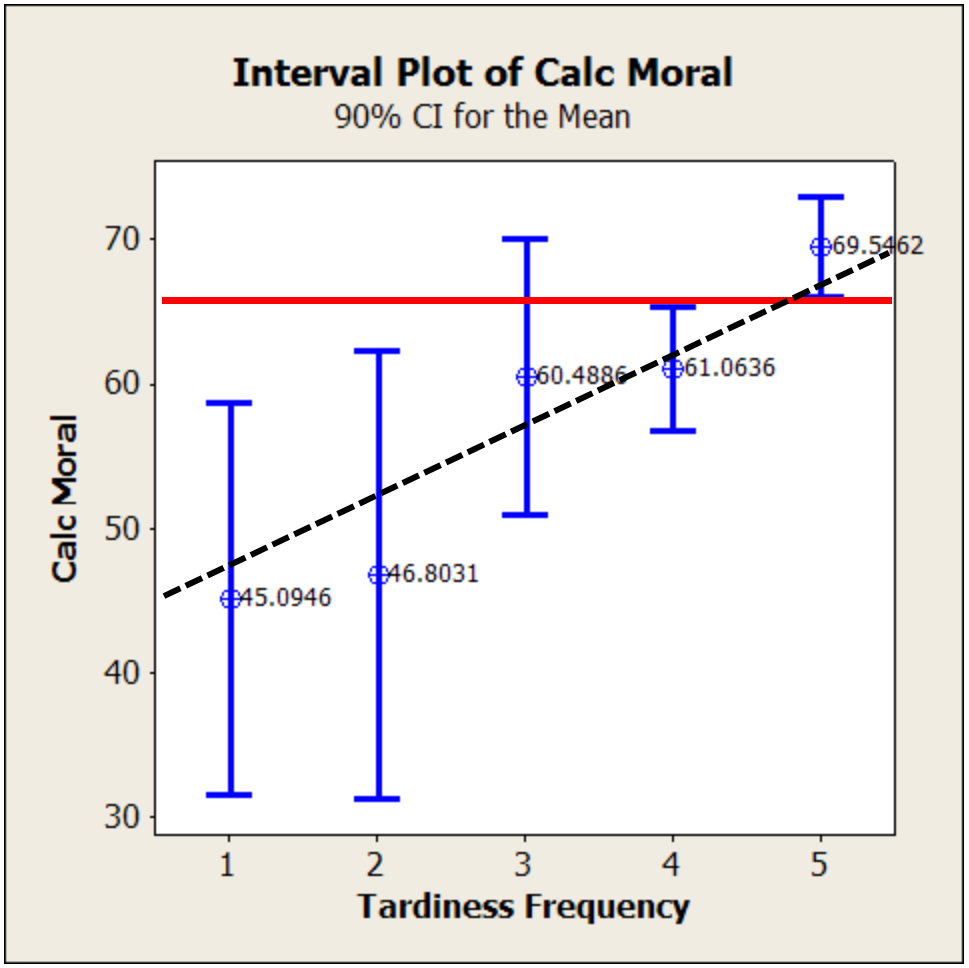
Insight: Respect for Authority is captured in moral performance evaluations.

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*

Insight

Tardiness



42) How often do you show up late to parties, work, etc.?

1) **Very often**
2) **Often**
3) Sometimes
4) **Seldom**
5) **Never**

Finding: Frequency of tardiness is displays statistically significant differences in moral performance evaluations…trend is useful in general linear model.

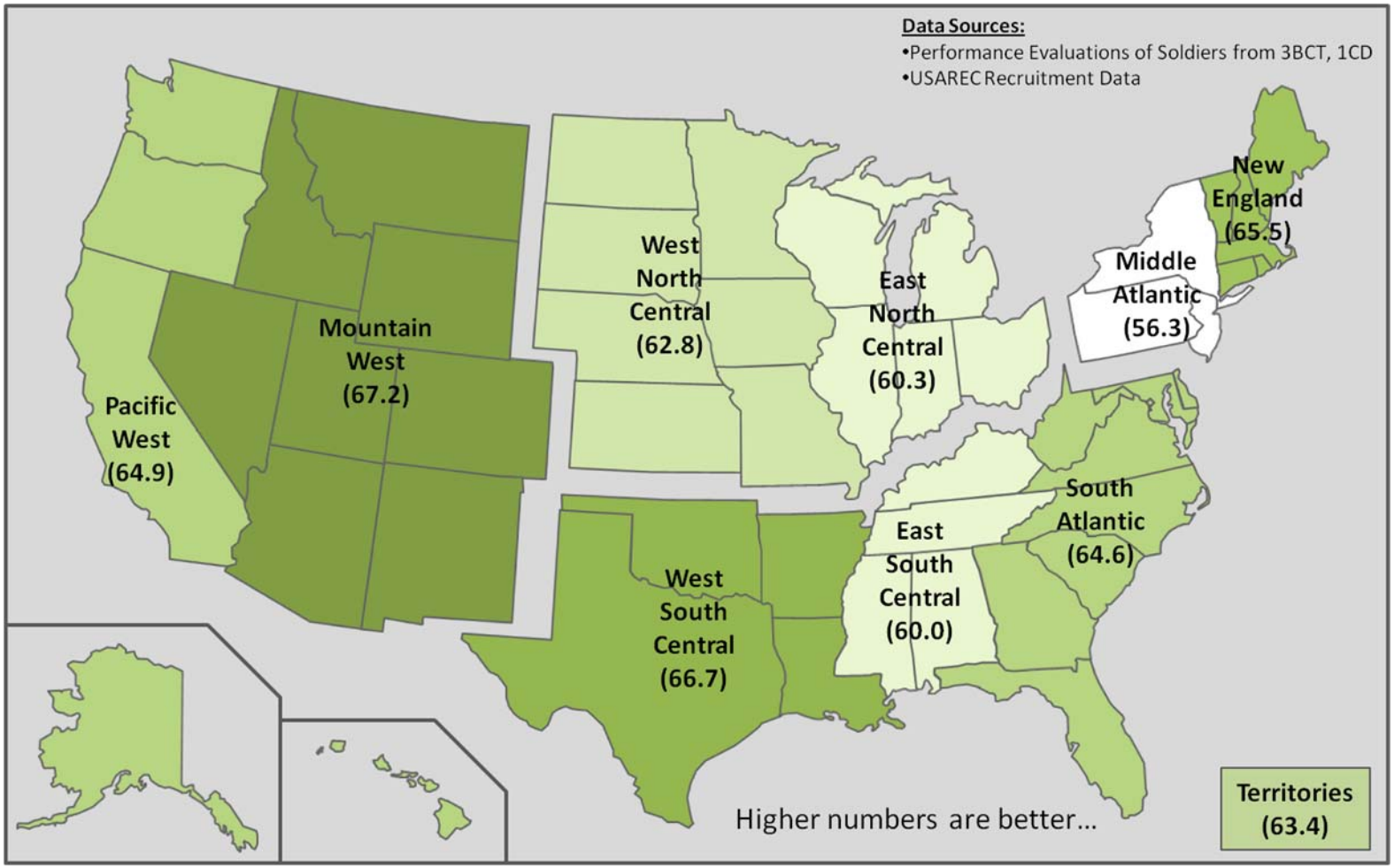
Insight: Tardiness may be able to be measured easily/directly.

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*

Insight

Geographic



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
ANALYSIS & SOLUTIONS

CNA's Study on Millenniels

- 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.***

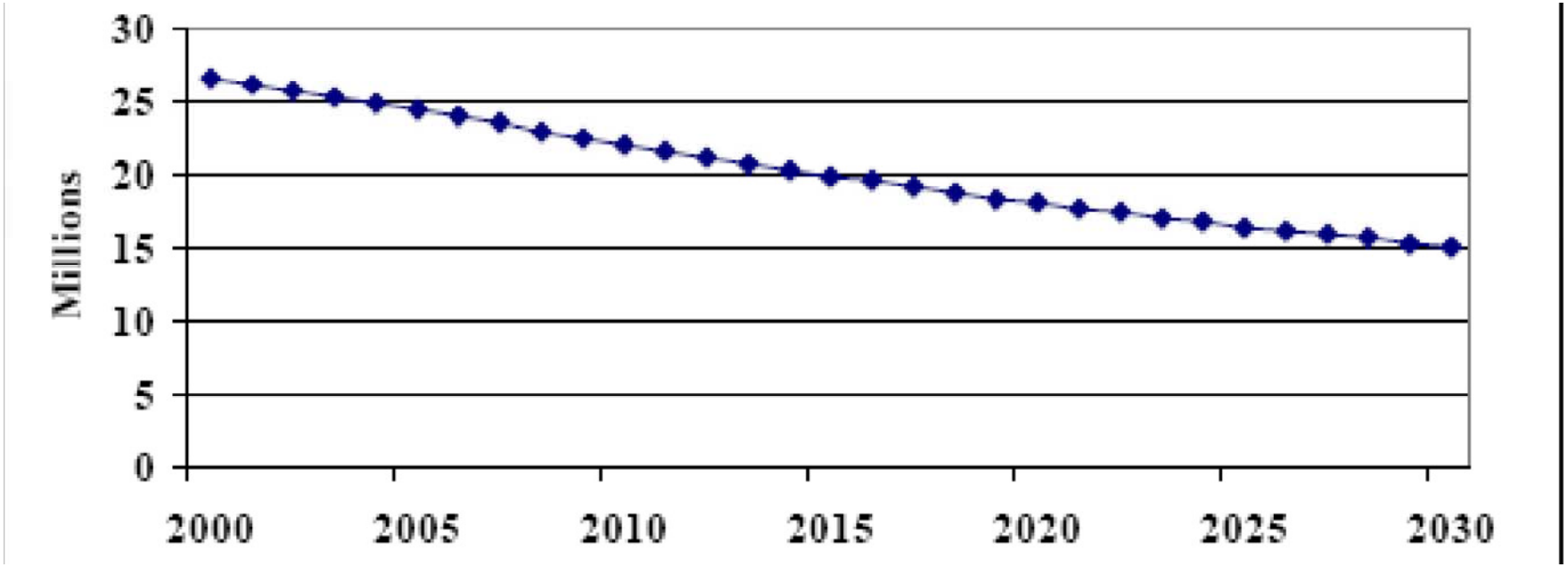
Examination of Millennial characteristics through empirical data sources

- **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

In the past 24 hours did you... Send/receive email	--------Age -------- 18-25 %	 26-40 %	 41-60 %	 61+ %
Yes	50	61	52	32
No	38	30	22	18
Not an internet user	12	9	26	50
Don't know	0	0	*	0
	100	100	100	100
Send/receive a text message on a cell phone Yes	51	26	10	4
No	49	73	90	96
Don't know	*	1	0	*
	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
	100	100	100	100

(Pew Research Poll; 2006)

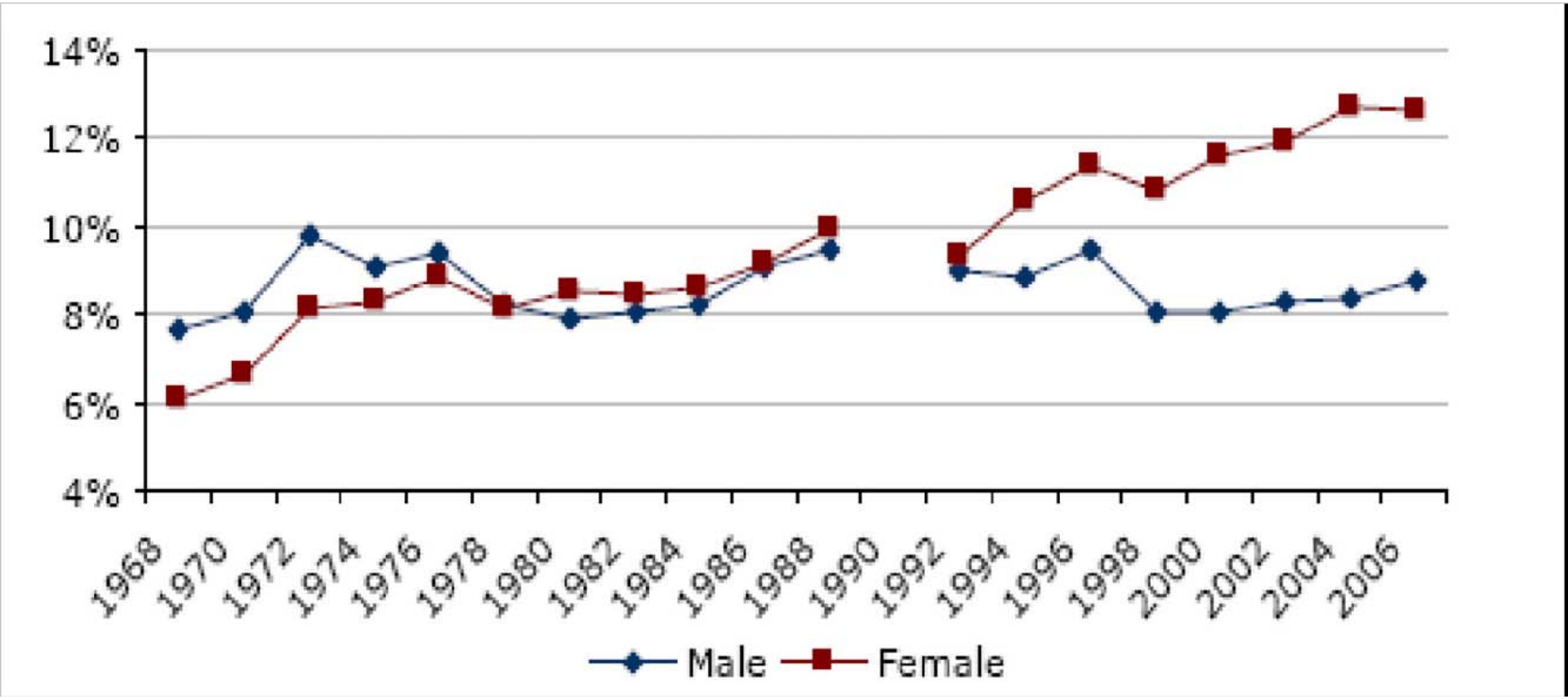
Examination of Millennial characteristics through empirical data sources

- **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



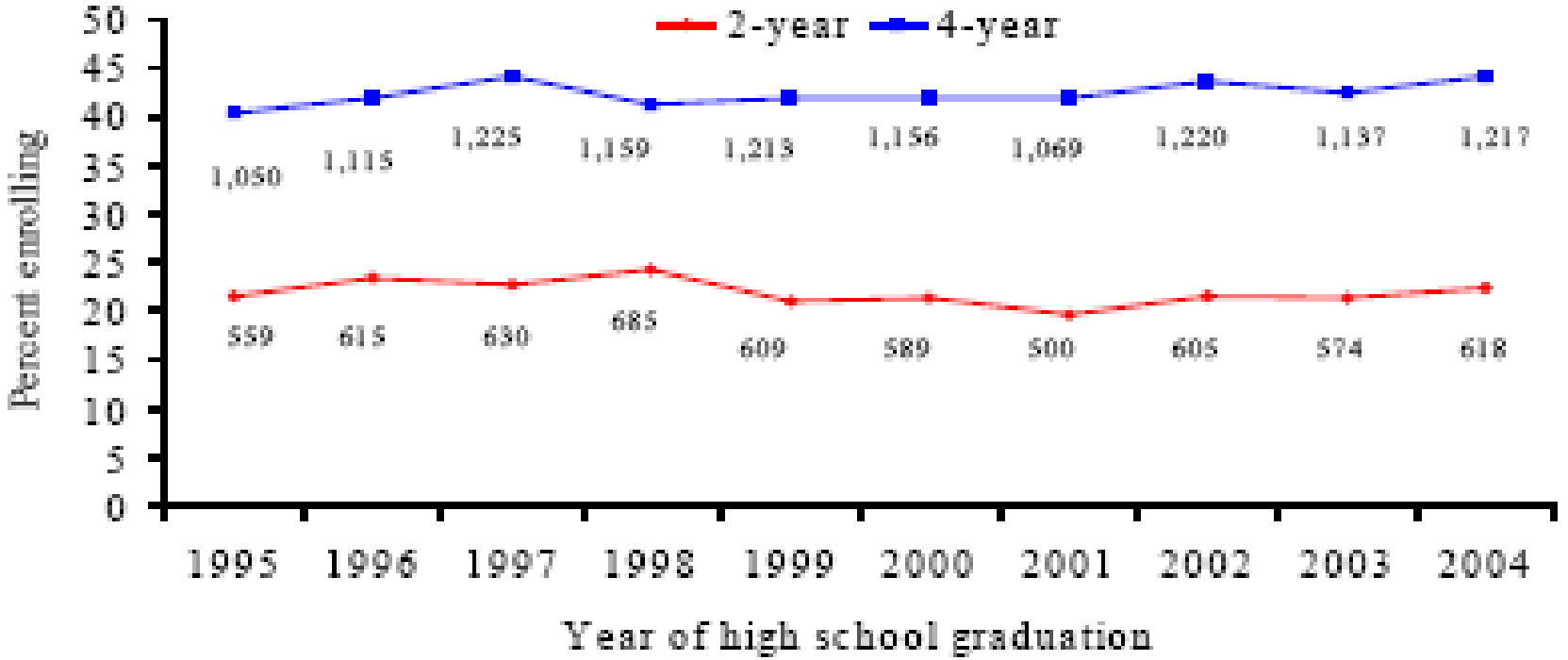
CIRCLE; 2006

CNA ANALYSIS & SOLUTIONS

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

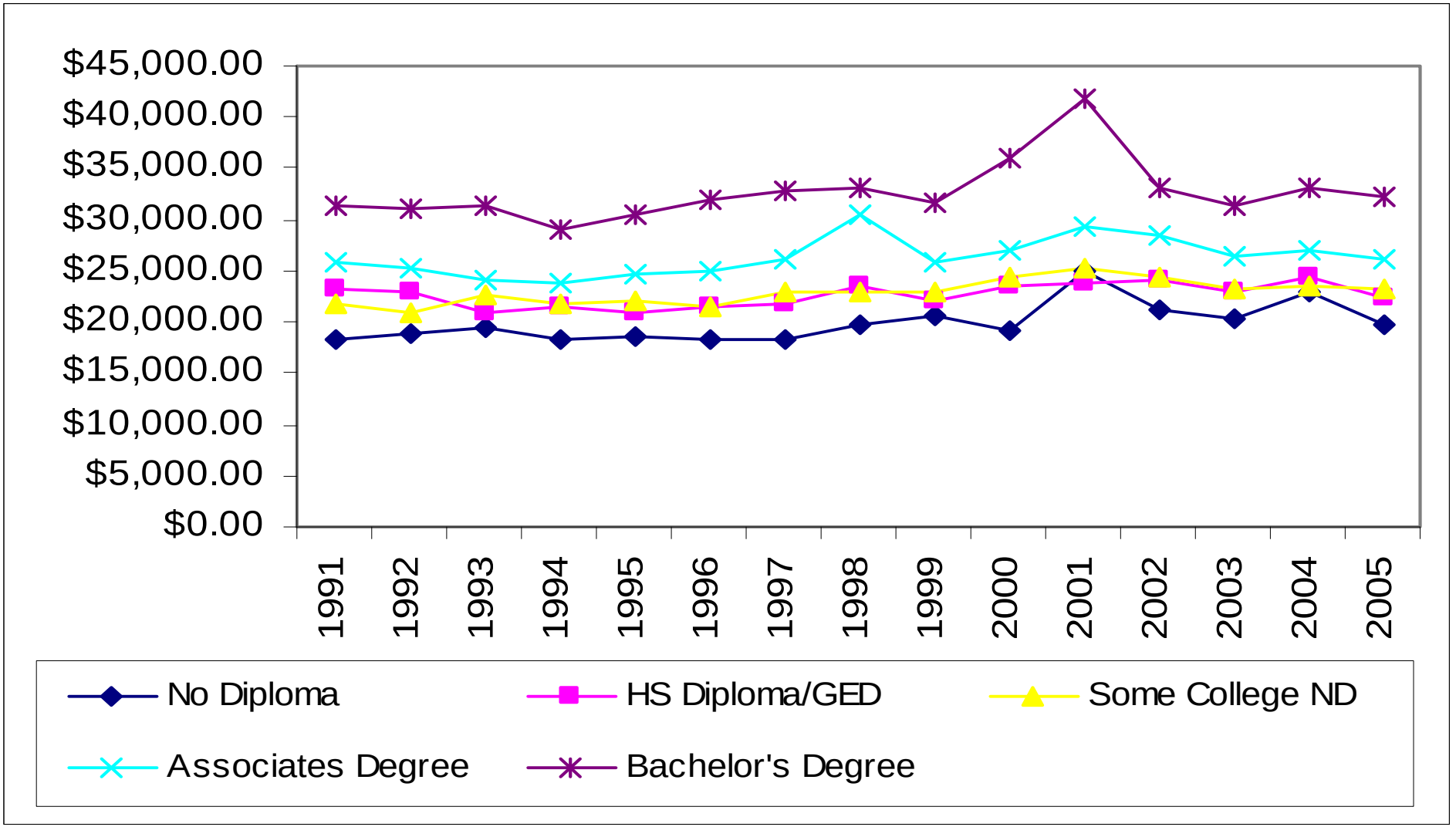
CNA ANALYSIS & SOLUTIONS

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.***

CNA ANALYSIS & SOLUTIONS

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.***

CNA ANALYSIS & SOLUTIONS

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
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- Some Millennial tendencies (on average):
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  - Growth in educational attainment has been increasing, but is flat for young men

NEW SAILOR SURVEY

Results from FY 2009 Waves 1-4

Prepared for Accessions Research Consortium

Matthew Waits
Navy Recruiting Command
Strategic Plans, Research and Analysis Department (N5)
September 1, 2009

Unclassified

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%

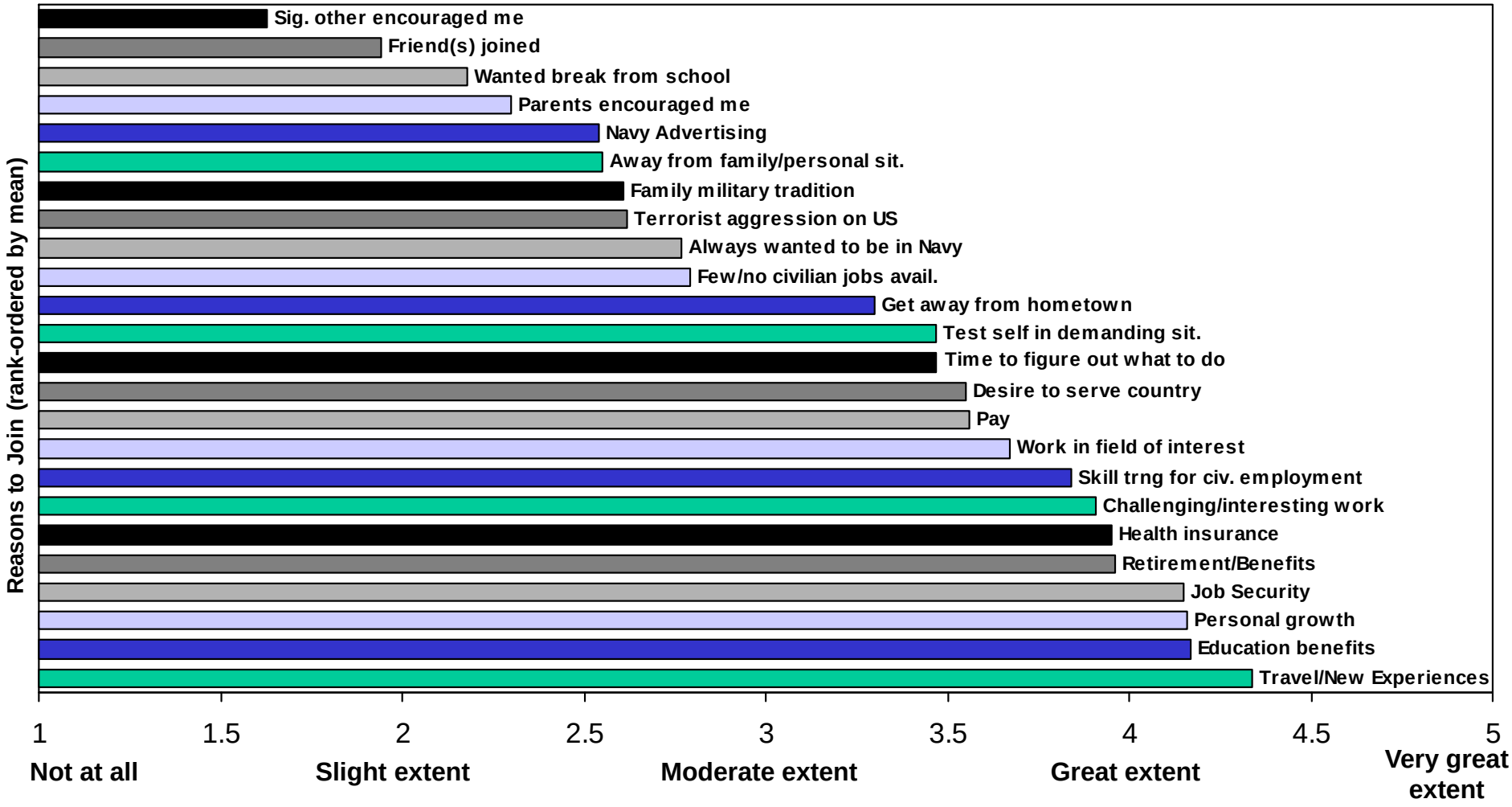
Race/Ethnicity

- 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

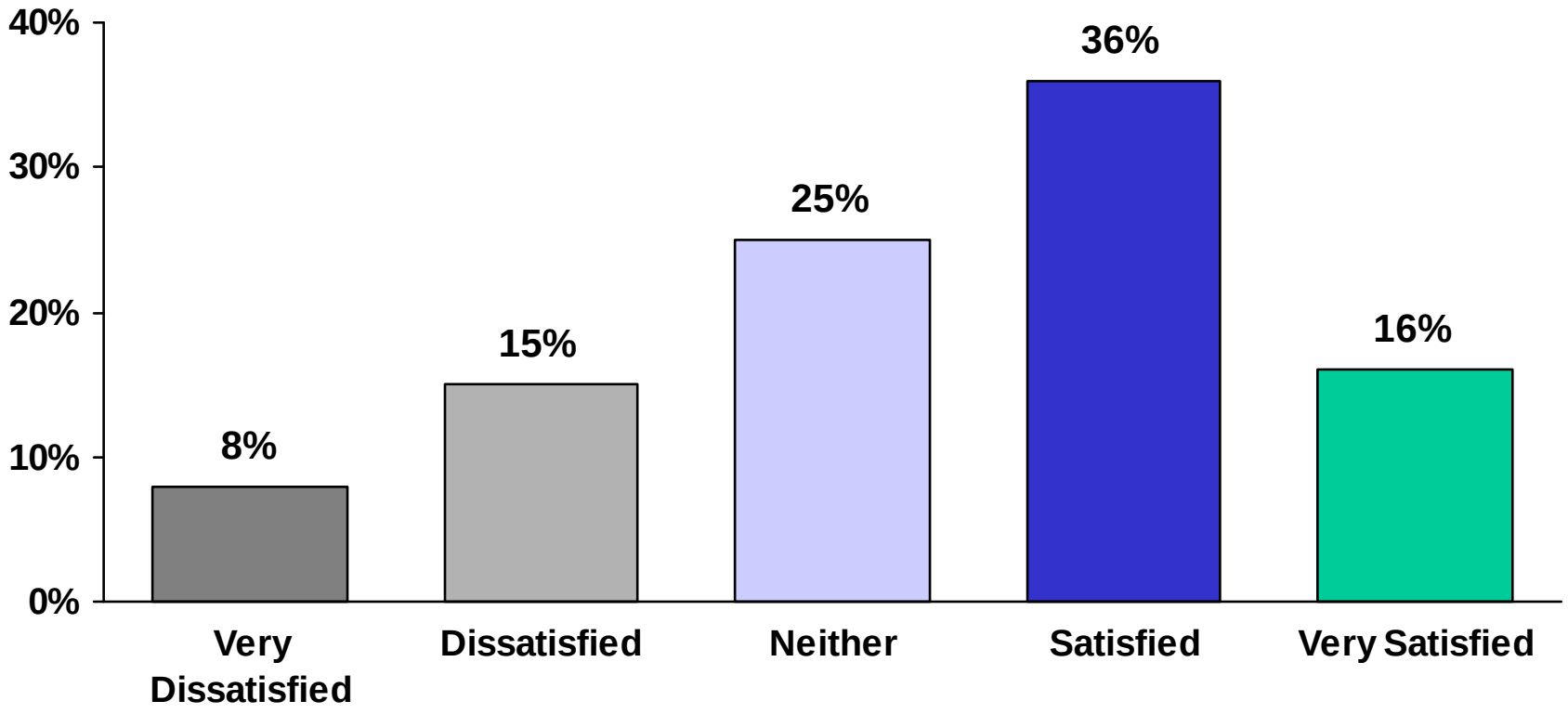
CLASSIFICATION EXPERIENCES



Unclassified

New Sailor Survey Results
Classification Experiences

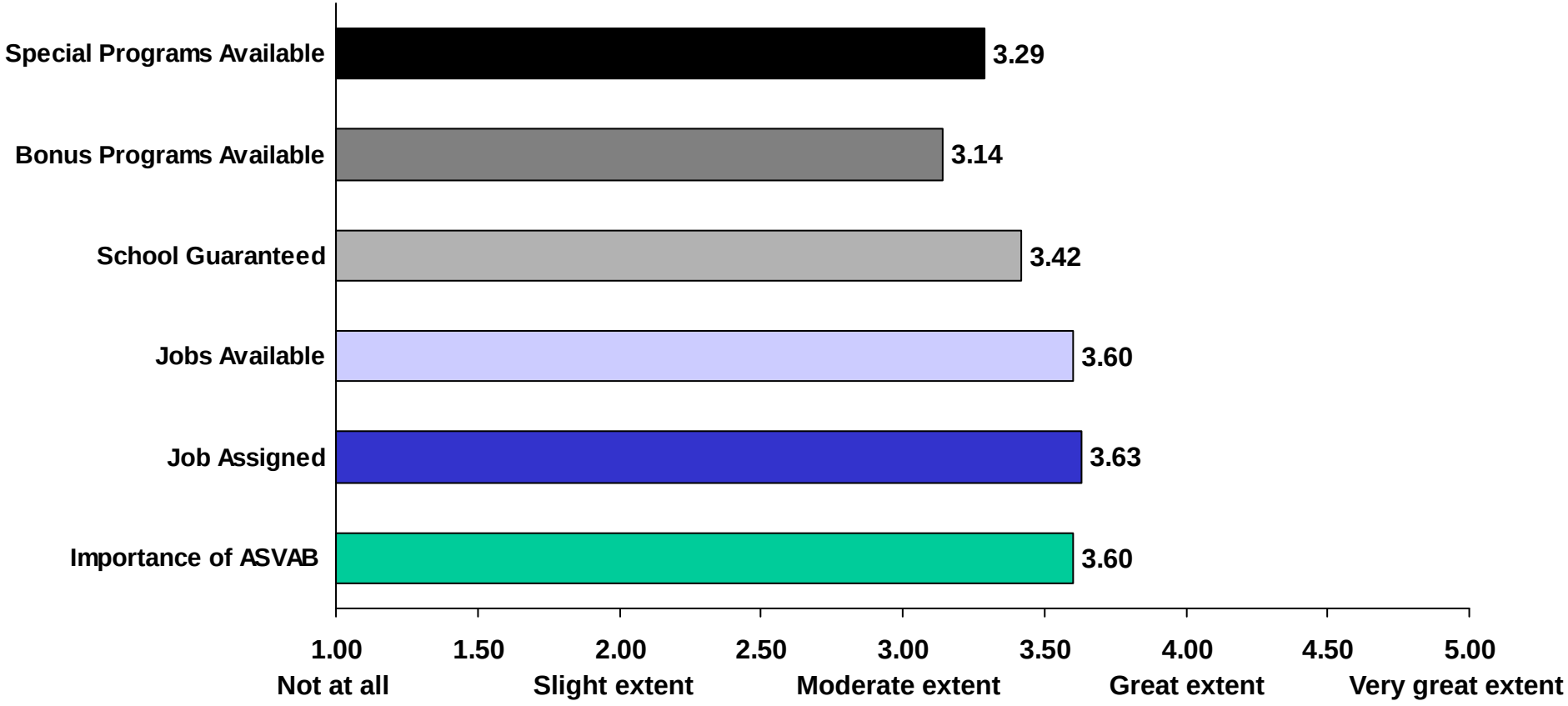
"How satisfied were you with the amount of time you spent with your classifier?"



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?"



Classifiers give greater explanation of Jobs than Programs

DEP EXPERIENCES



Unclassified

New Sailor Survey Results
DEP Experiences

How long were you in the DEP?

	FY 09 Totals	FY08 Totals
0-1 month	10%	14%
2-3 months	15%	23%
4-6 months	36%	42%
7-9 months	27%	13%
10 or more months	12%	8%

How long were your DEP meetings?

	FY 09 Totals	FY08 Totals
Less than 15 minutes	3%	7%
15 – 30 minutes	6%	6%
30 – 60 minutes	27%	22%
60 – 90 minutes	41%	46%
> 90 minutes	22%	22%

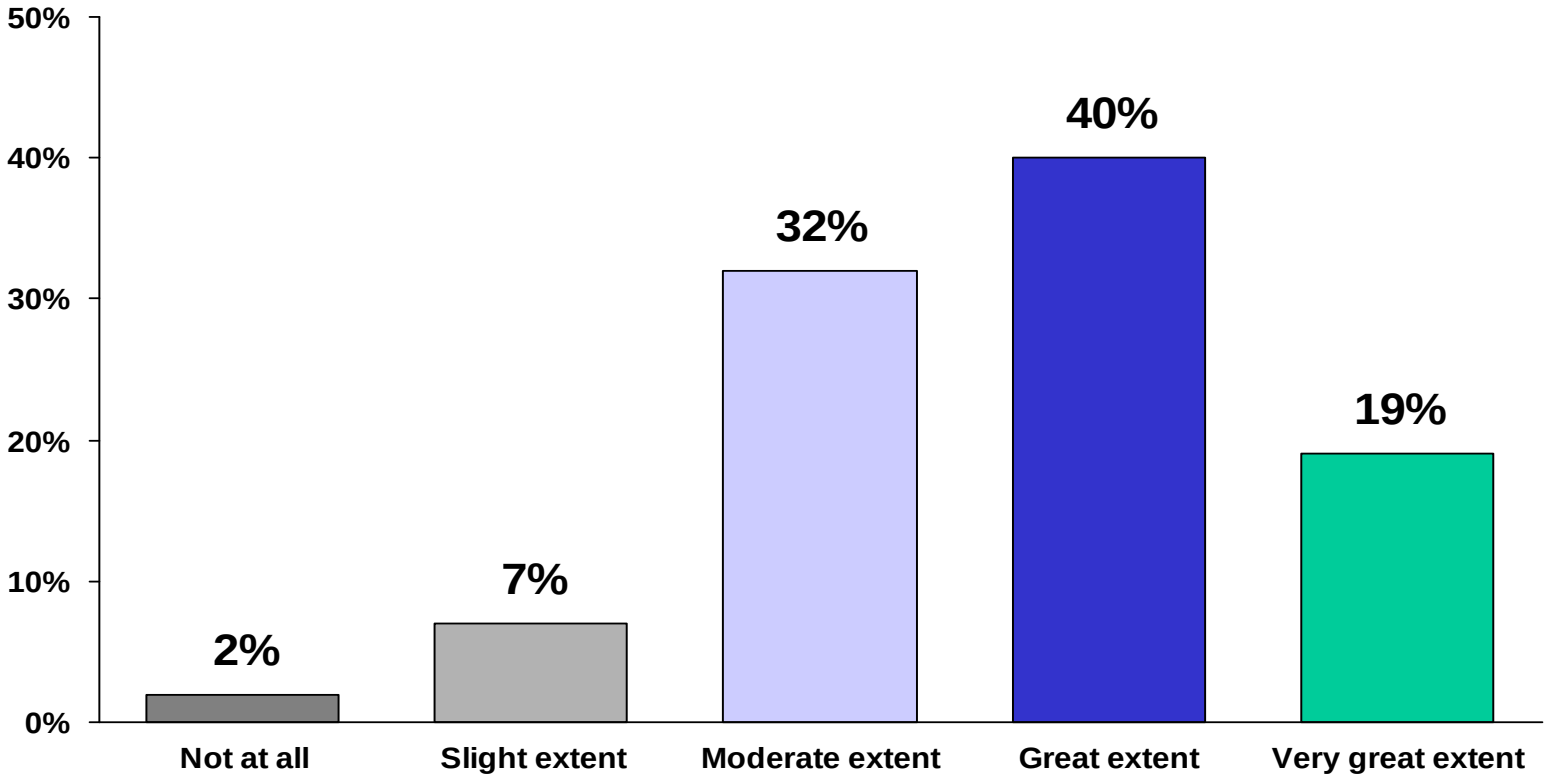
Approximately how many DEP meetings did you attend?

	FY 09 Totals	FY08 Totals
None	4%	7%
1-3	30%	41%
4-6	35%	32%
7-9	18%	11%
10 or more	13%	9%

More recruits stay in DEP at least 7 months

New Sailor Survey Results
DEP Experiences

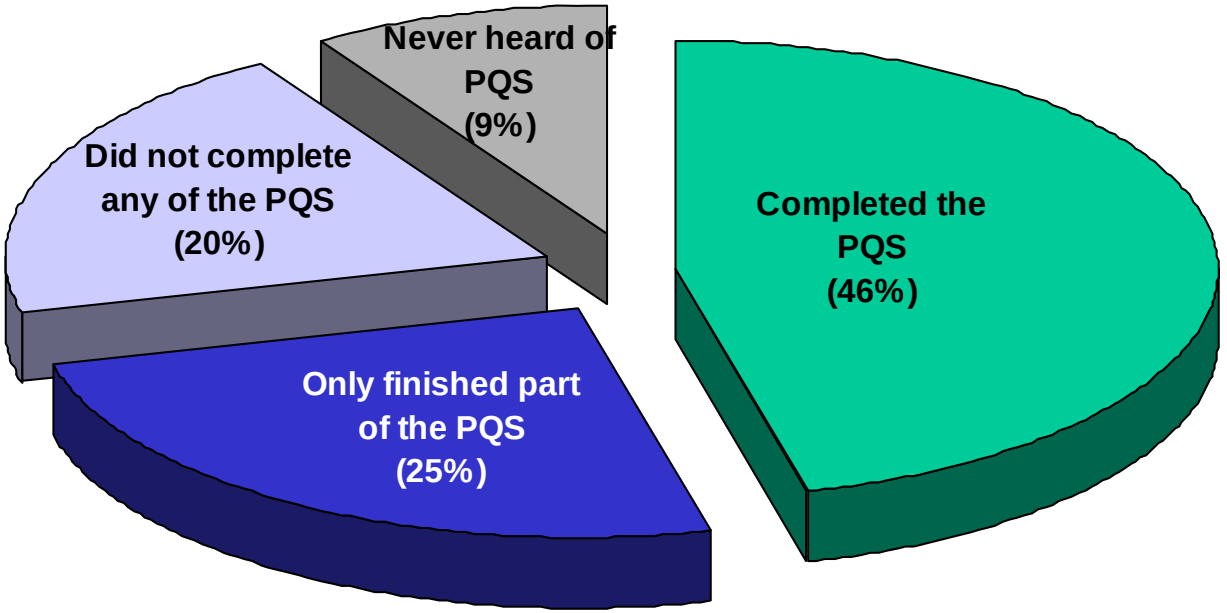
"To what extent was the information you received in the DEP accurate?"



Most recruits getting accurate information in DEP

New Sailor Survey Results
DEP Experiences

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



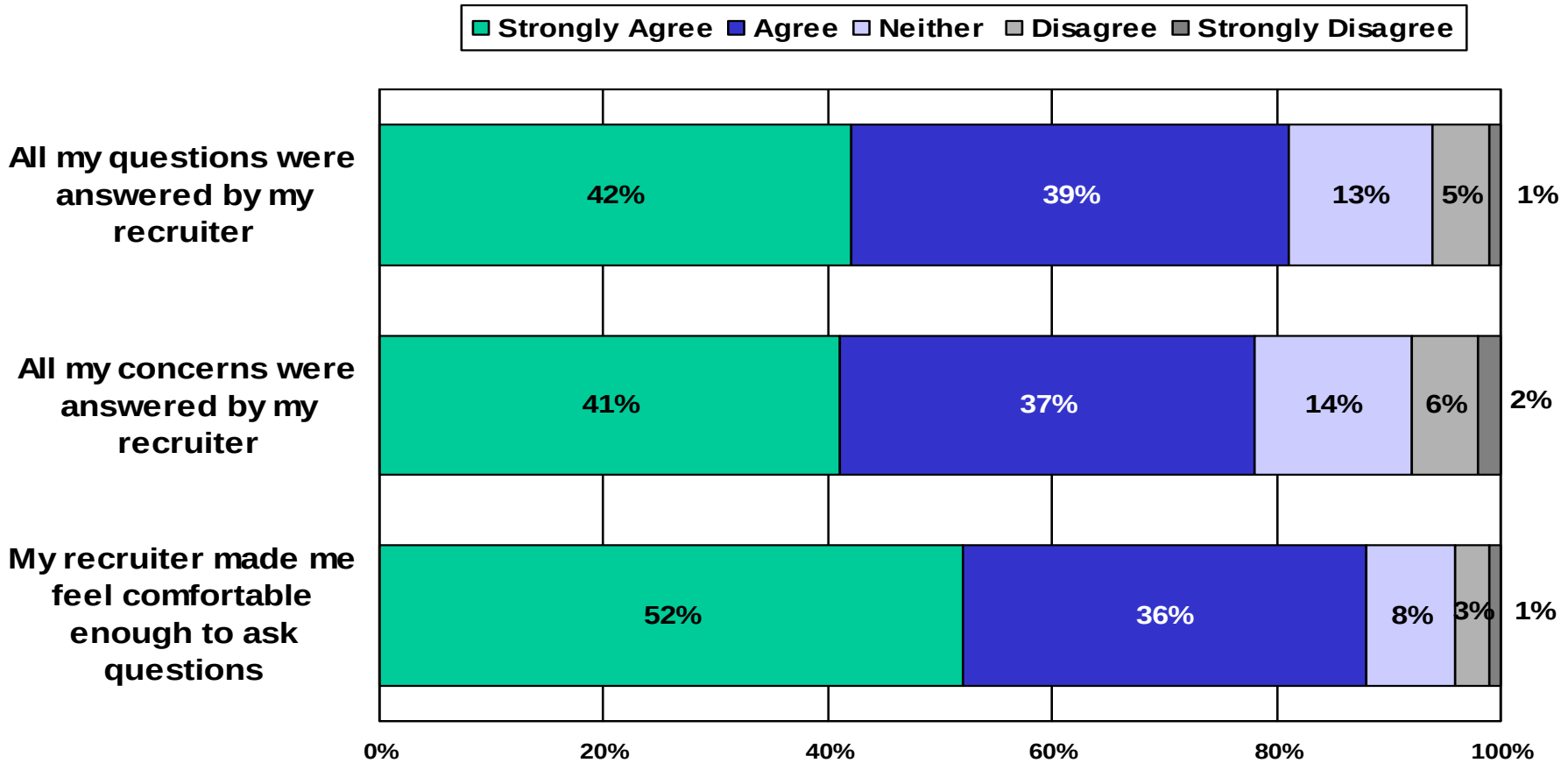
Most recruits do not complete the PQS before entering RTC

RECRUITING EXPERIENCES



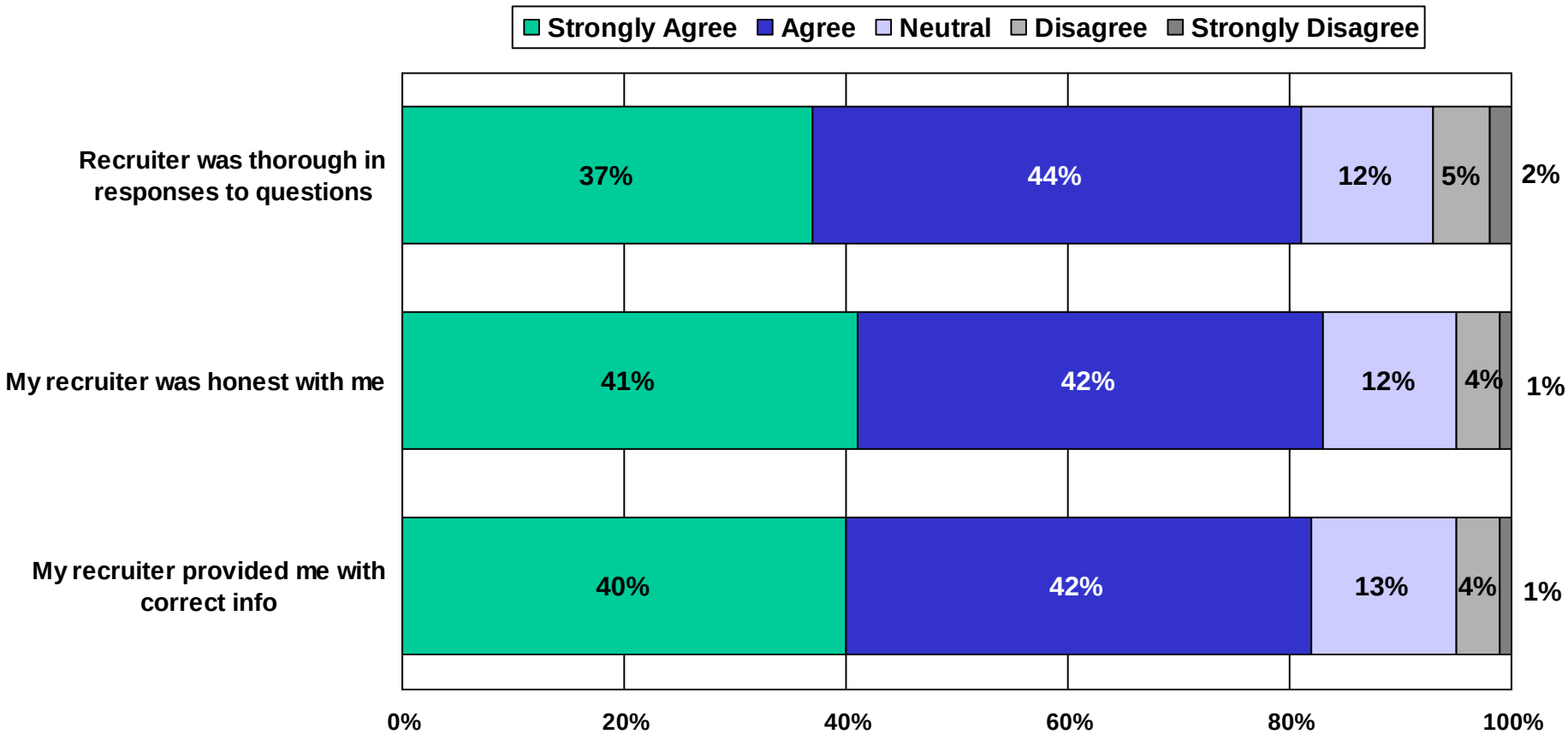
Unclassified

New Sailor Survey Results
Recruiting Experiences



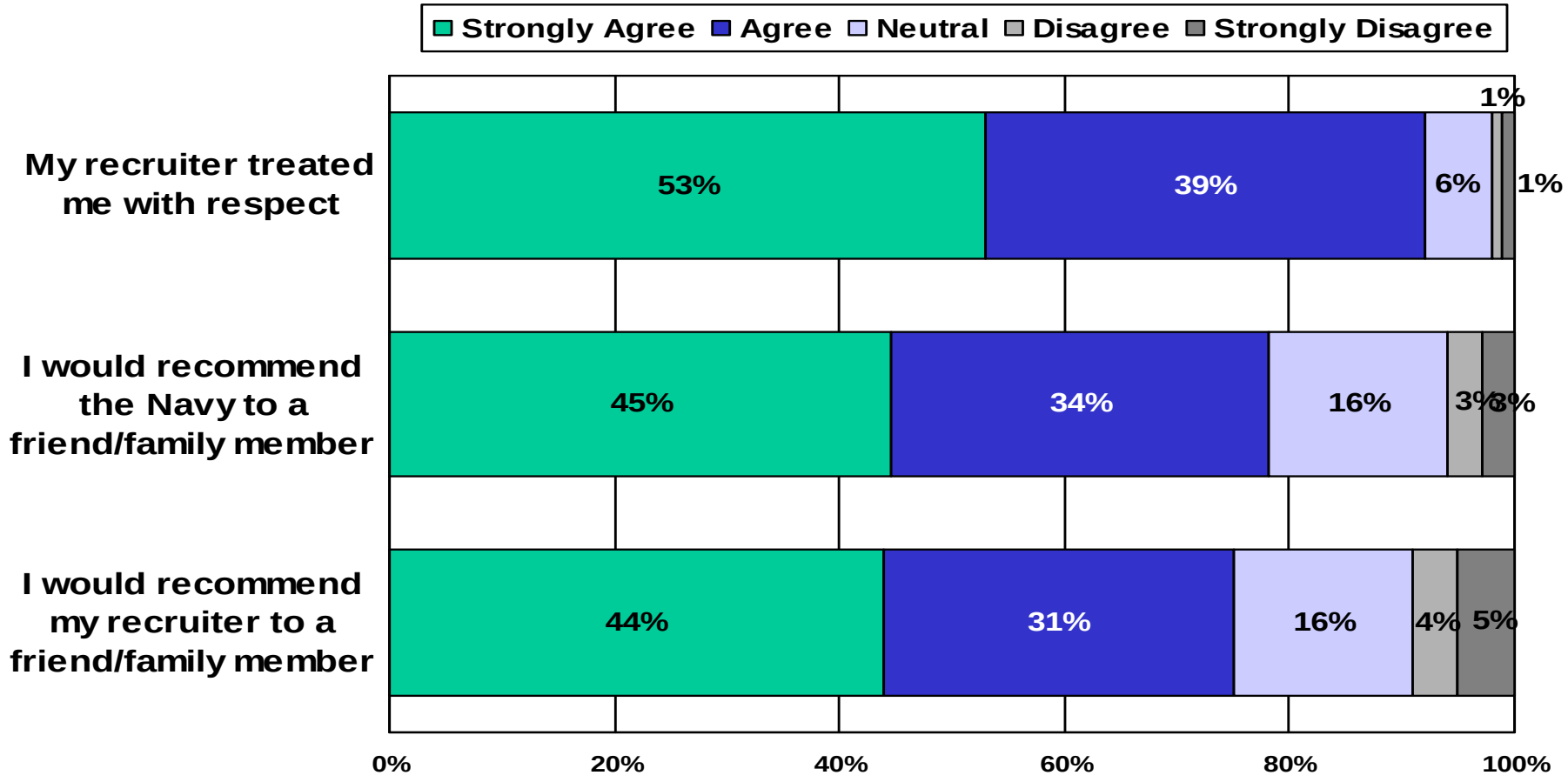
Recruiters addressing recruits' questions and concerns

New Sailor Survey Results
Recruiting Experiences



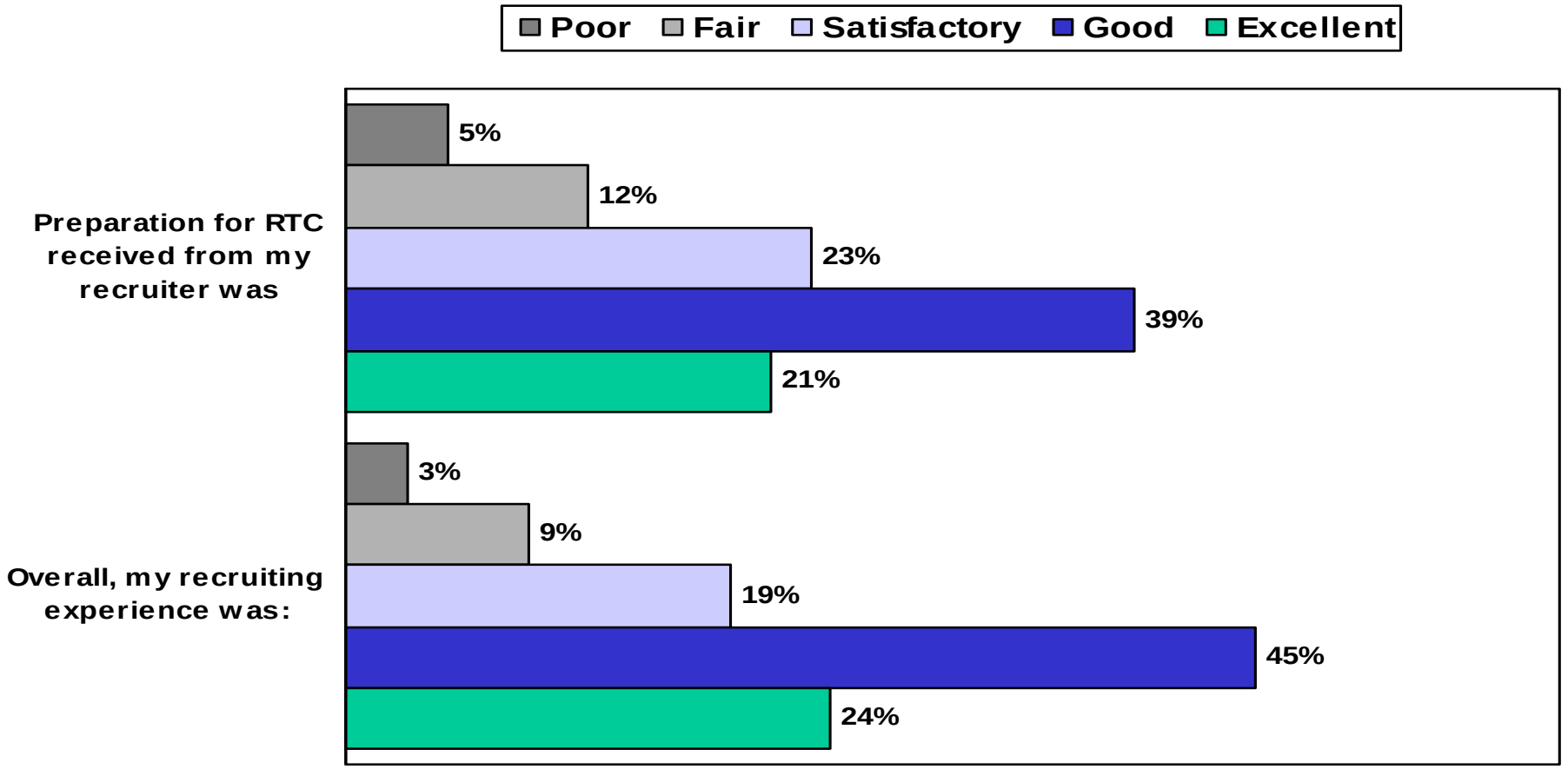
Recruiters providing thorough, honest, and accurate information to recruits

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

Conclusion

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



Unclassified

BACKUP SLIDES



Unclassified

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**

Grandparent	***n* = 1387 (51%)**
Father	***n* = 861 (32%)**
Sibling (brother or sister)	***n* = 416 (15%)**
Mother	***n* = 143 (5%)**

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?

	FY09 Totals	FY08 Totals
Less than once per month	5%	6%
Once per month	30%	29%
Once every two weeks	31%	32%
Once per week or more	34%	34%

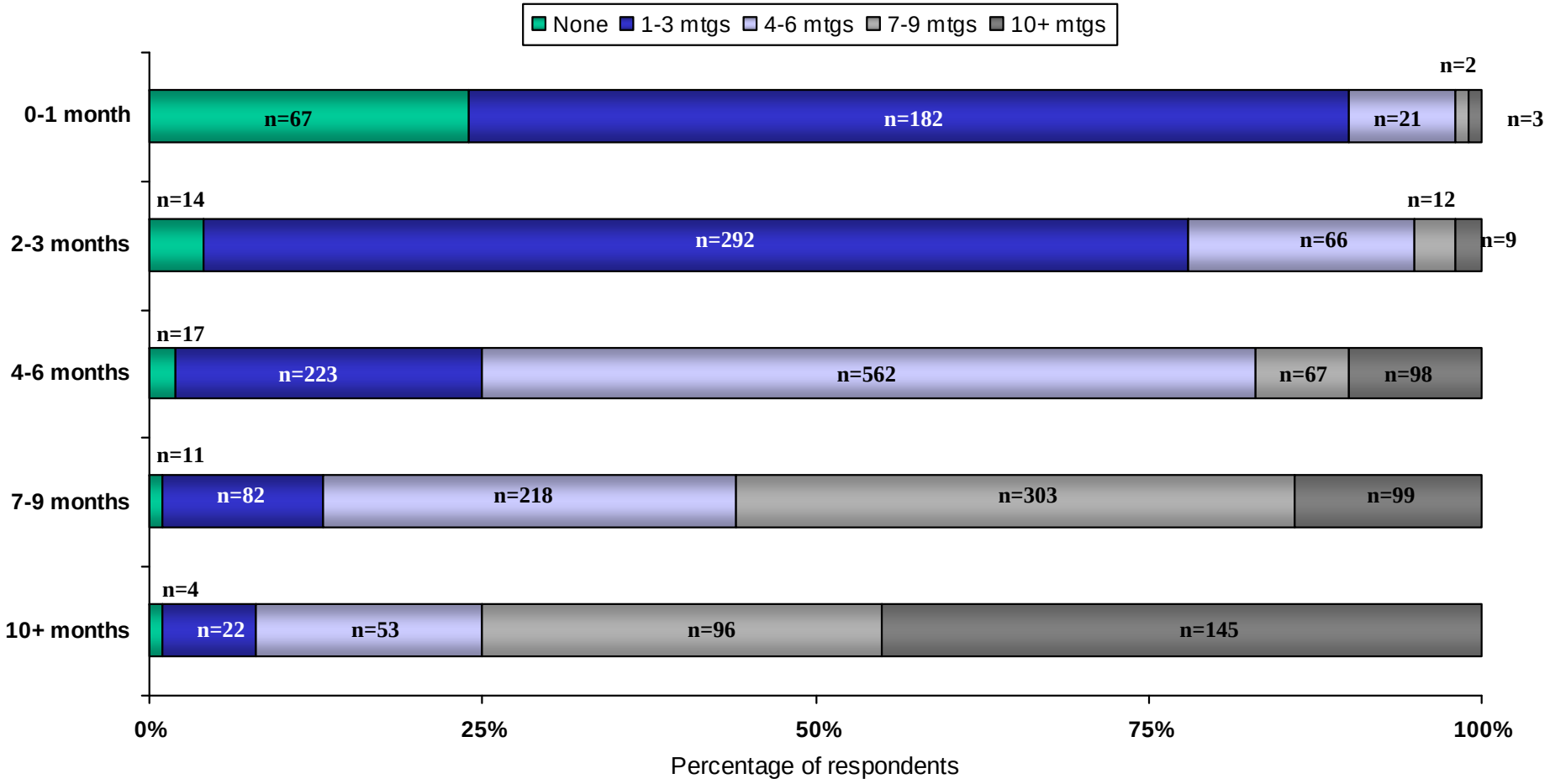
Was the number of contacts with your recruiter before coming to RTC?

	FY09 Totals	FY08 Totals
Too few	19%	20%
About right	78%	77%
Too many	3%	3%

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

Did your recruiter explain your responsibilities while in the DEP?

	FY 2009
Yes	90%
No	5%
I really don't remember if my recruiter did or did not	5%

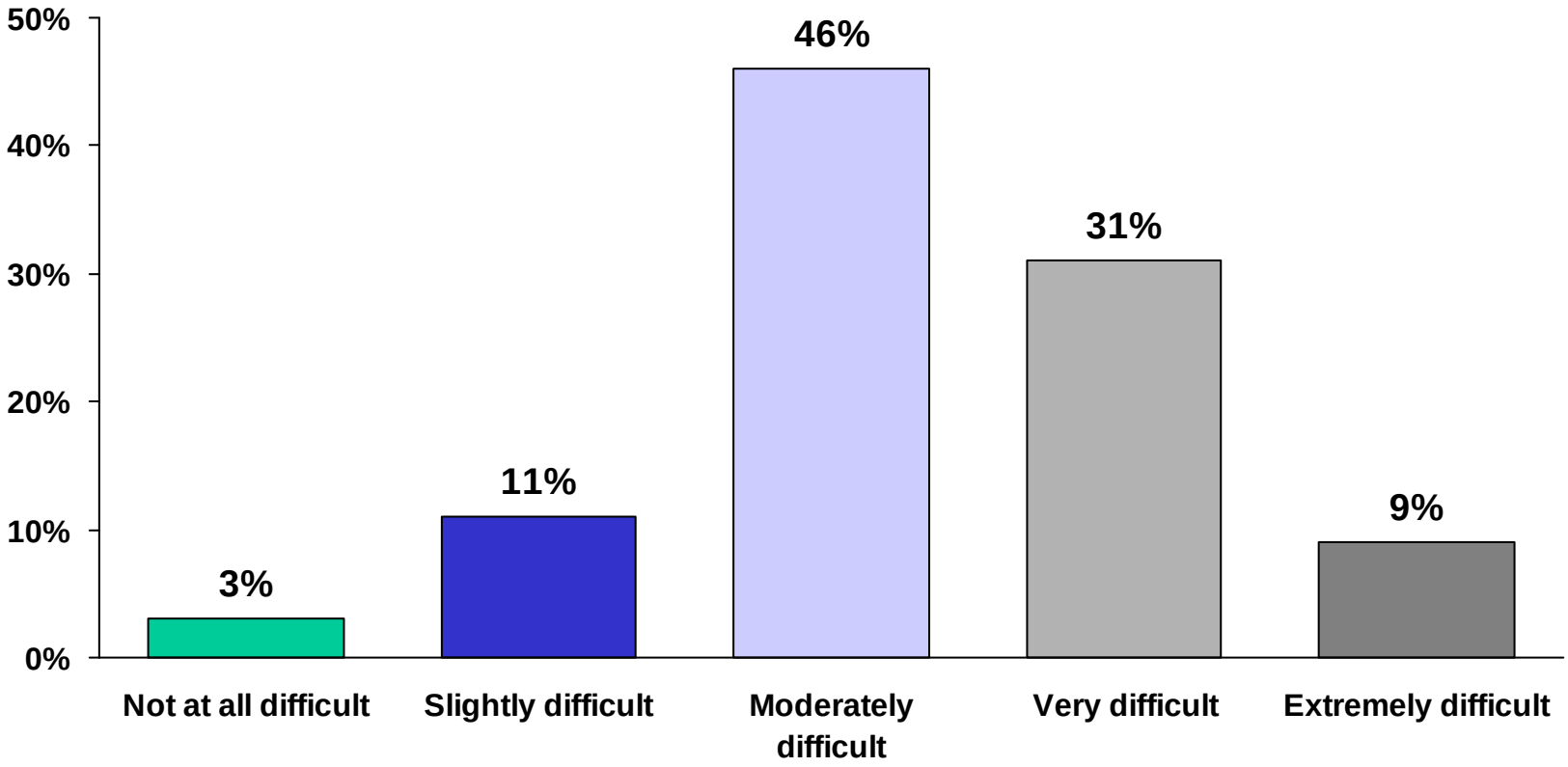
Did your recruiter meet with your parent(s)?

	FY 2009
Yes, once	30%
Yes, more than once	41%
No	15%
NA, parents were not involved with enlistment process	14%

Recruiters explaining responsibilities to recruits but not always meeting parents

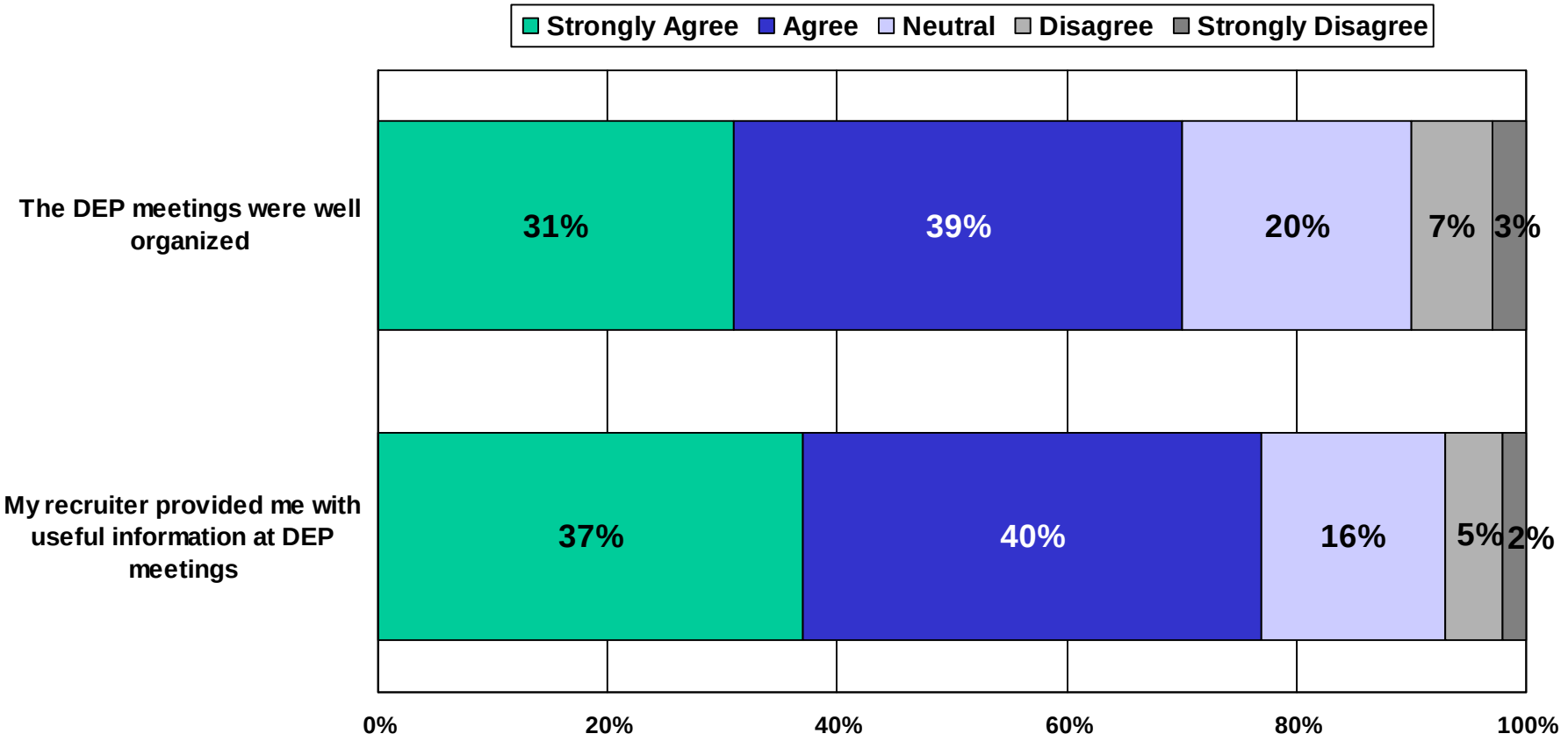
New Sailor Survey Results
Boot Camp

"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

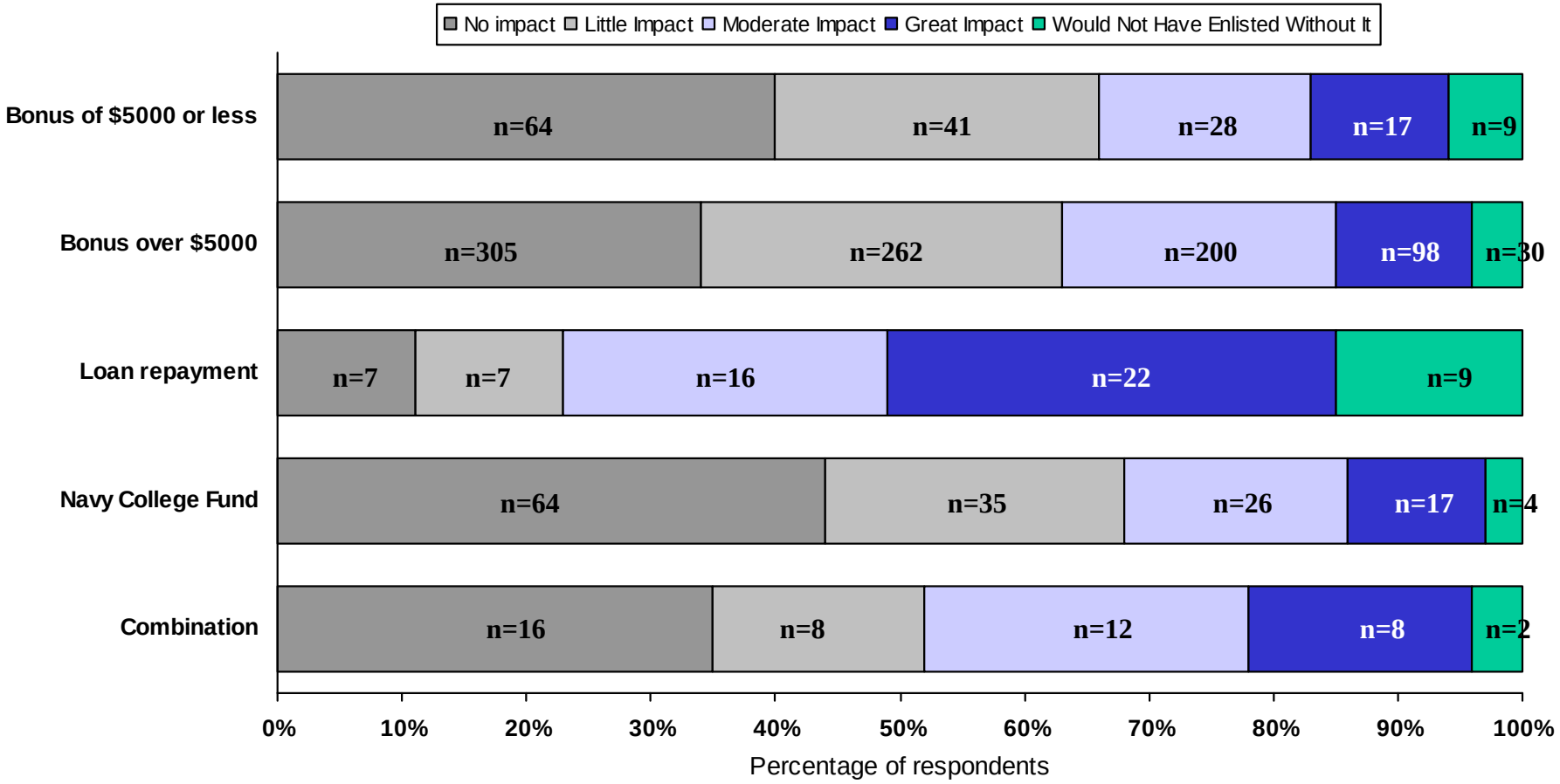


Most recruits found their DEP meetings to be organized and useful

New Sailor Survey

FY09 Enlistment Incentives and Impact

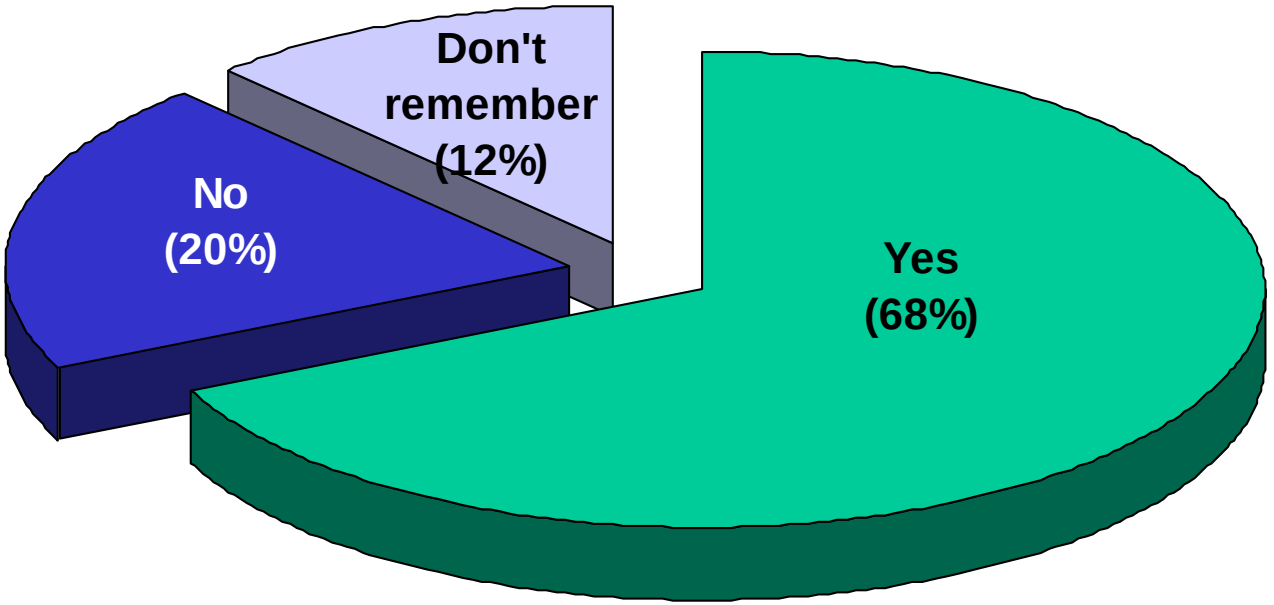
Type of Enlistment Incentive Received and Impact of Incentive on Decision to Enlist
FY09 combined totals



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?"

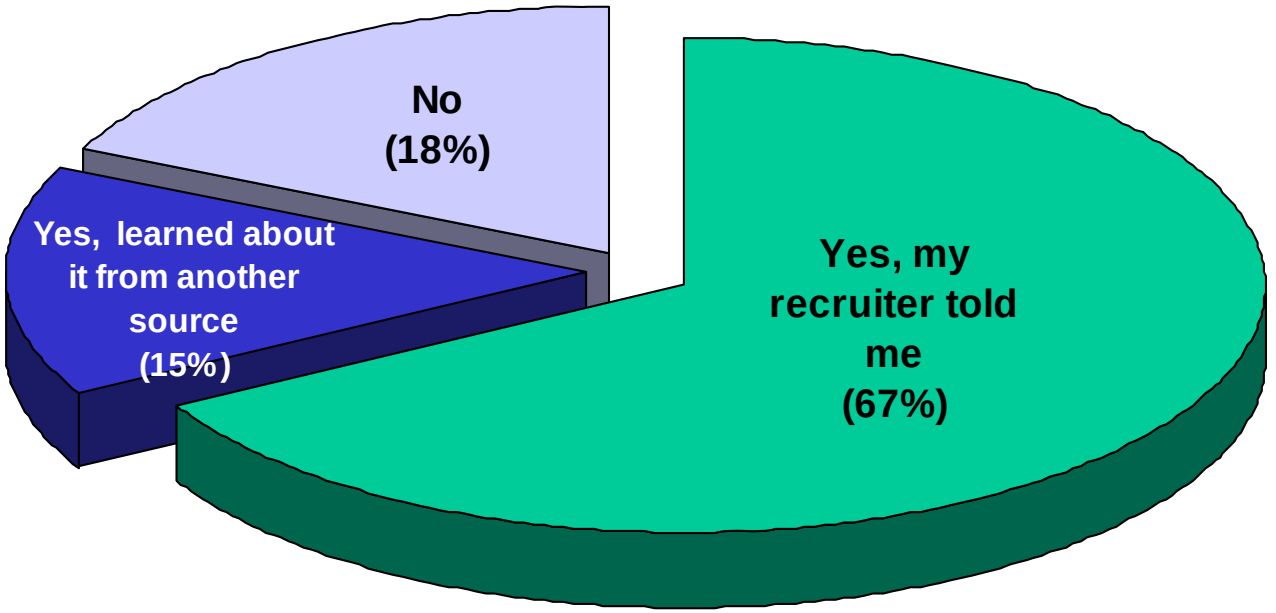


Most recruits recall seeing a salary comparison from their recruiter

New Sailor Survey Results

New GI Bill Awareness

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



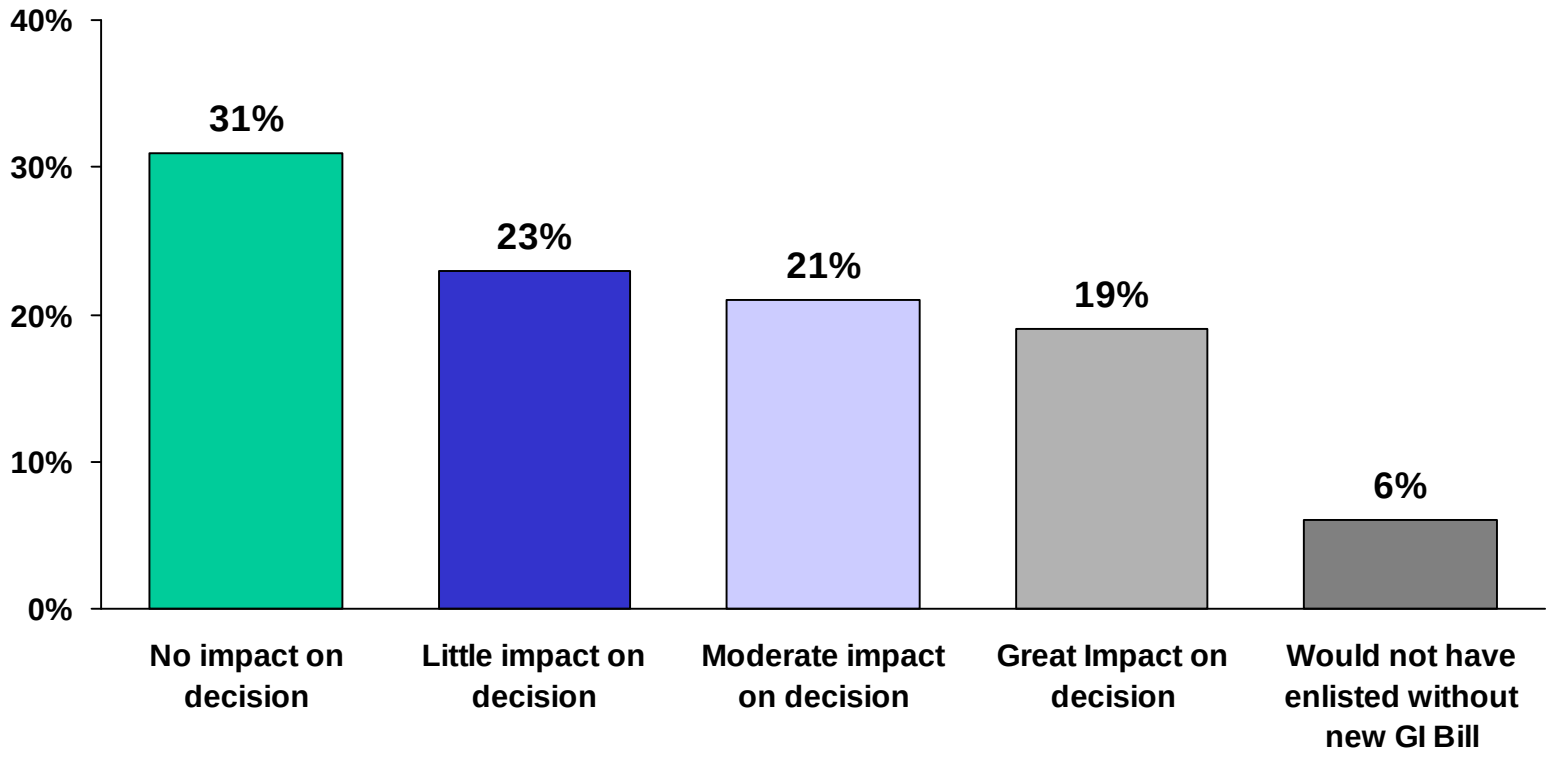
n = 2153

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?"



n = 1775

The new GI Bill had little or no impact on over half of new recruits' decision to enlist

Deloitte.

Performance Based Costing at Navy Recruiting Command



Mike Sumrall, Deloitte Consulting LLP

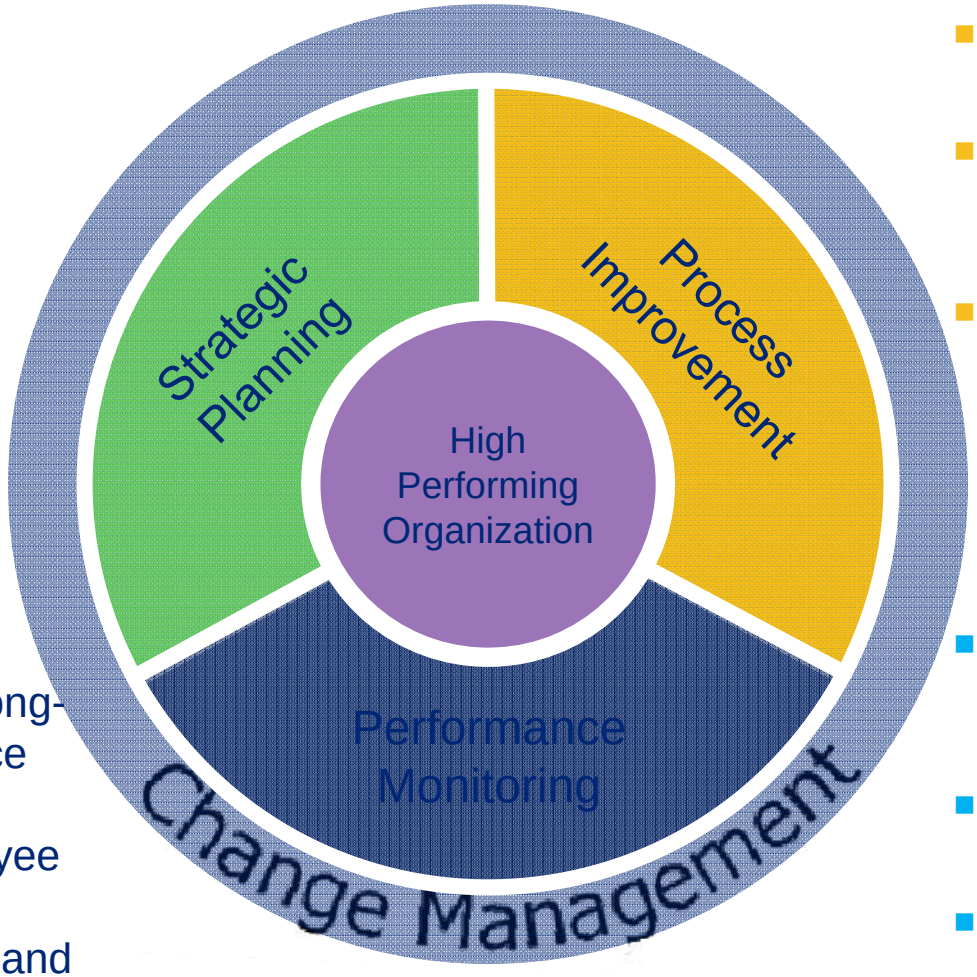
Agenda

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

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Continuous Performance Improvement

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



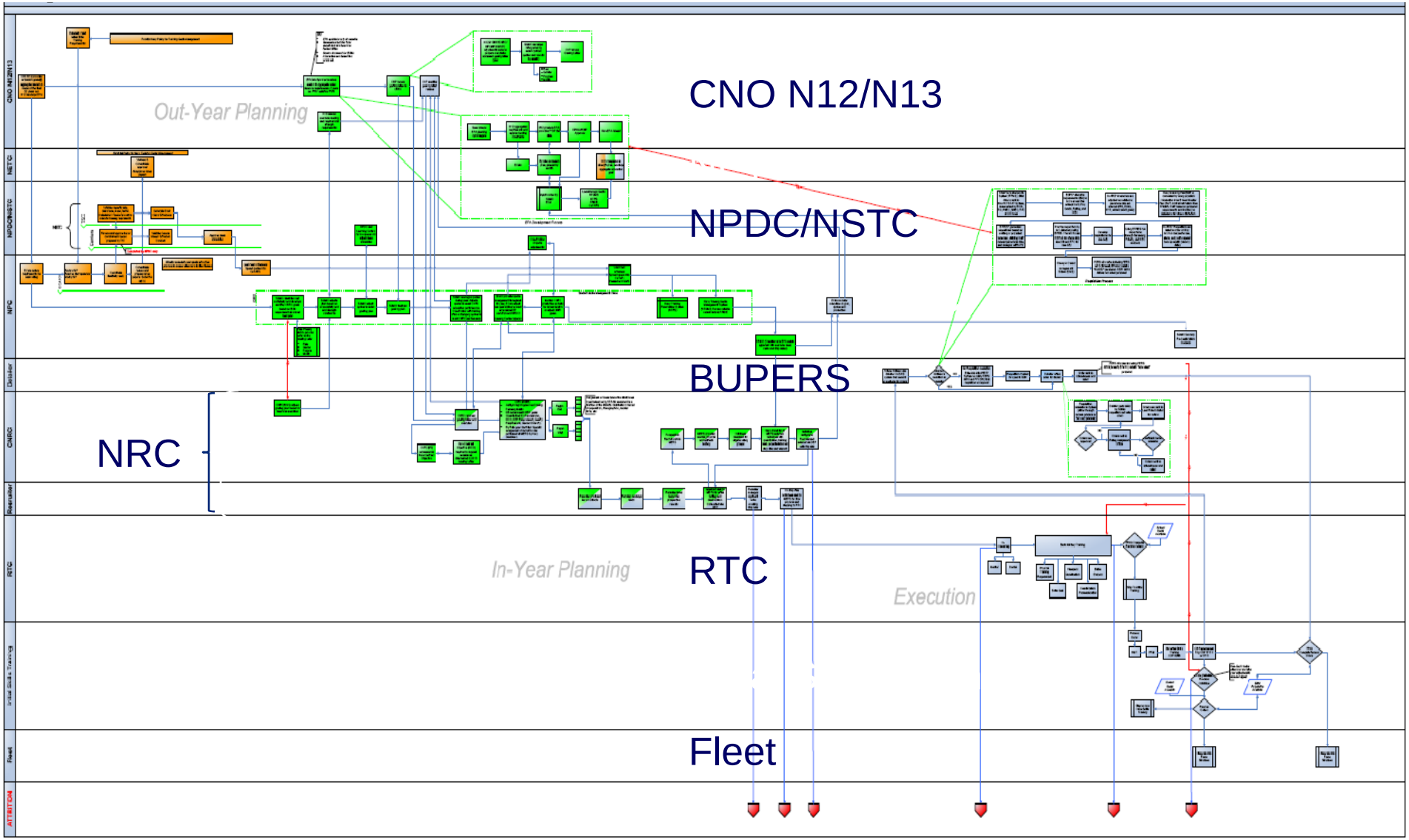
- Driven by Strategic Issues
- Strategic significance drives process selection
- Lean Six Sigma is mandated by DoD/SecNav

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

- Demonstrates accountability and produces results
- Enables evidence-based decision making
- Process Costs provide direction for resource allocation & improvements

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MPTE Street-to-Fleet Supply Chain



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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.

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Navy Recruiting Core Value Streams

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

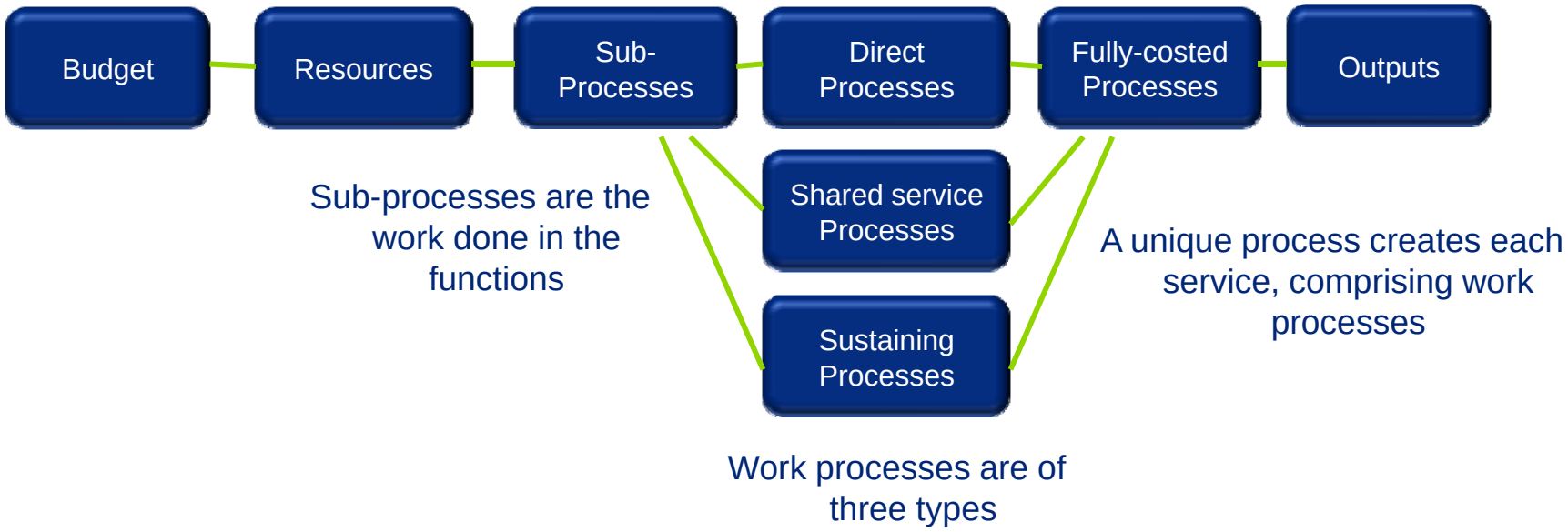
- Active Enlisted
- Reserve Enlisted
- Active Officers
- Reserve Officers
- NROTC

The PBC Model flows along these value streams!

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“Process Based” Costing Fundamentals

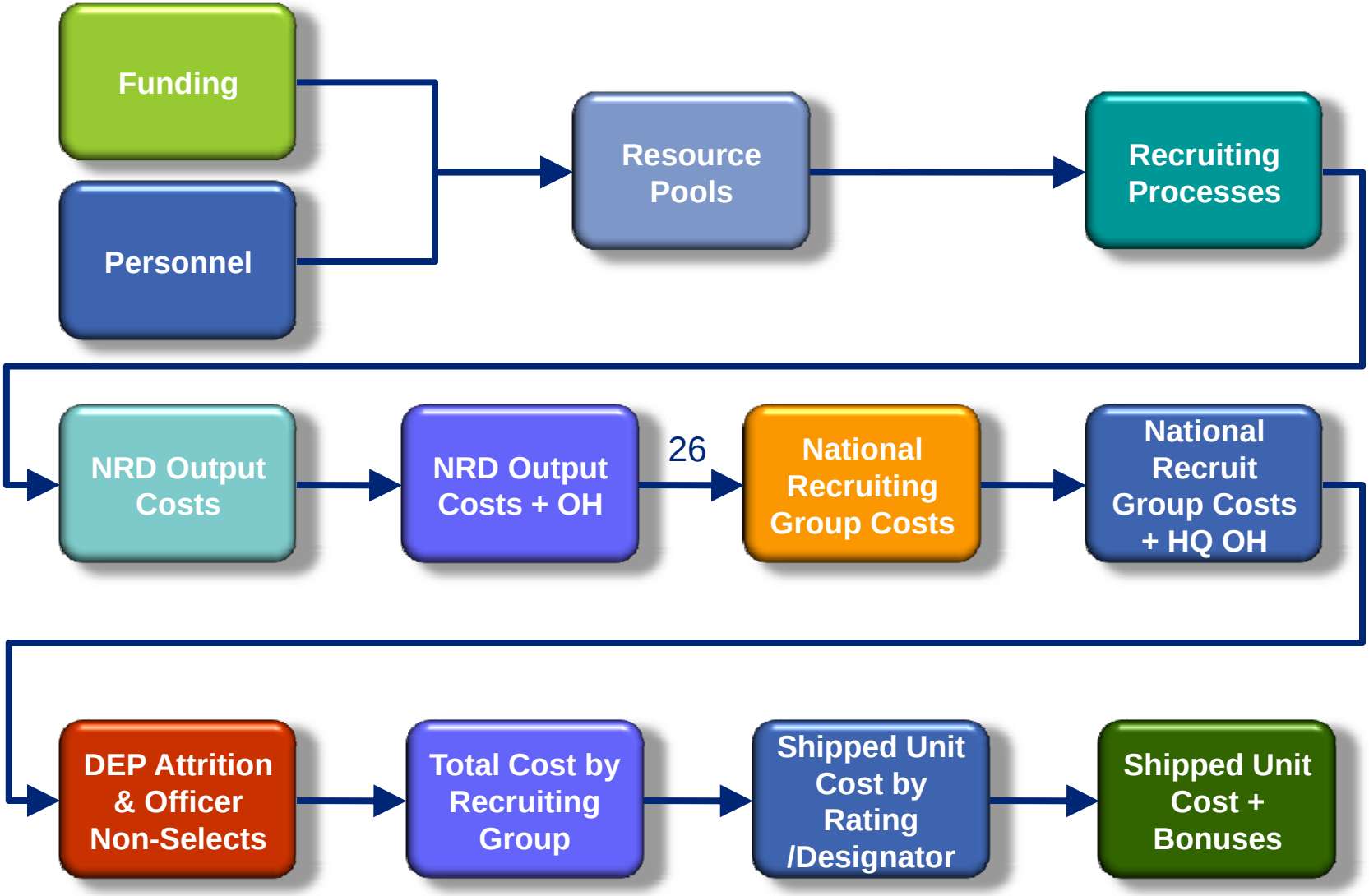
The “ends” or outputs are first



Work “flows” through the model based on output quantity and productivity assumptions

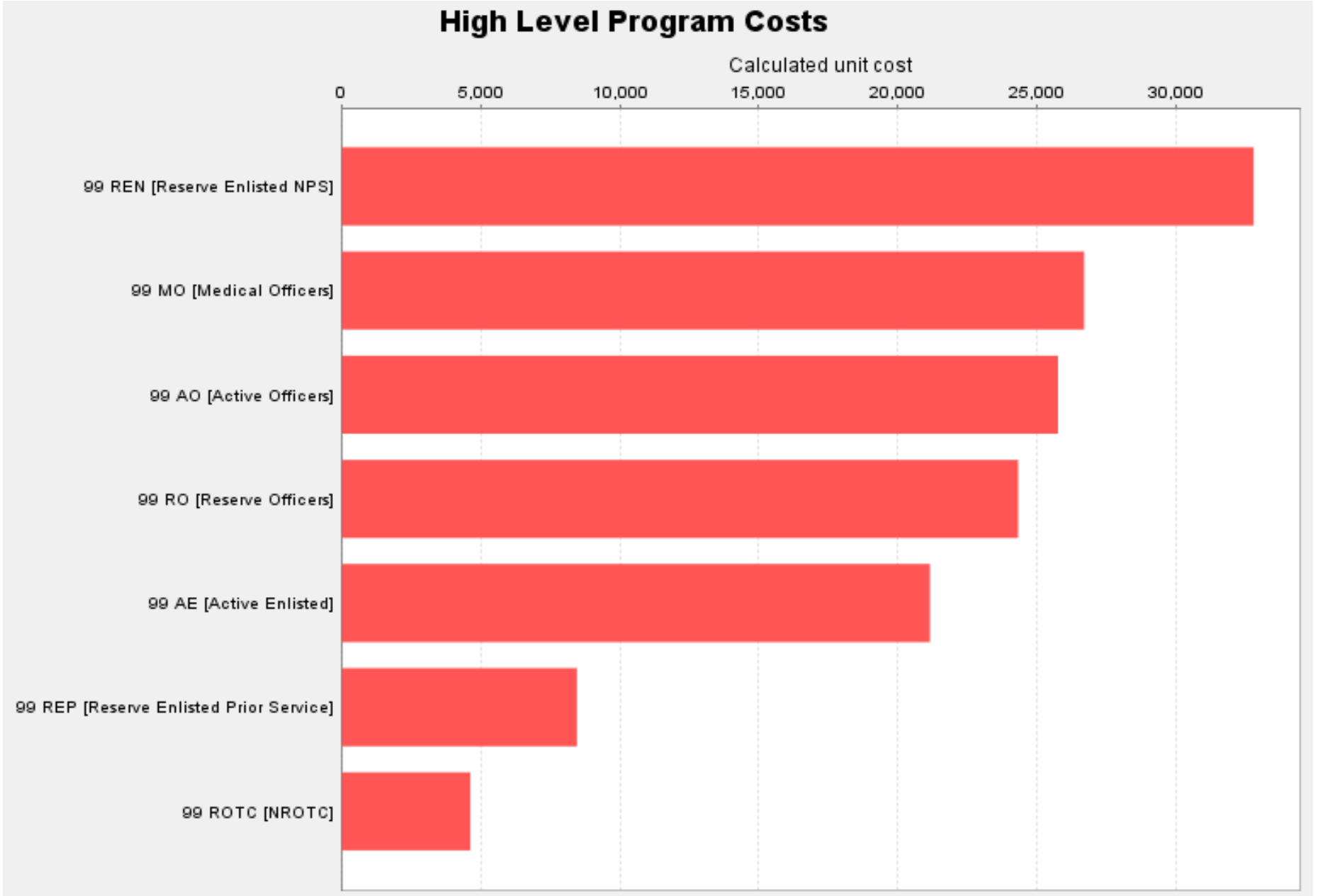
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NRC Cost Model Structure

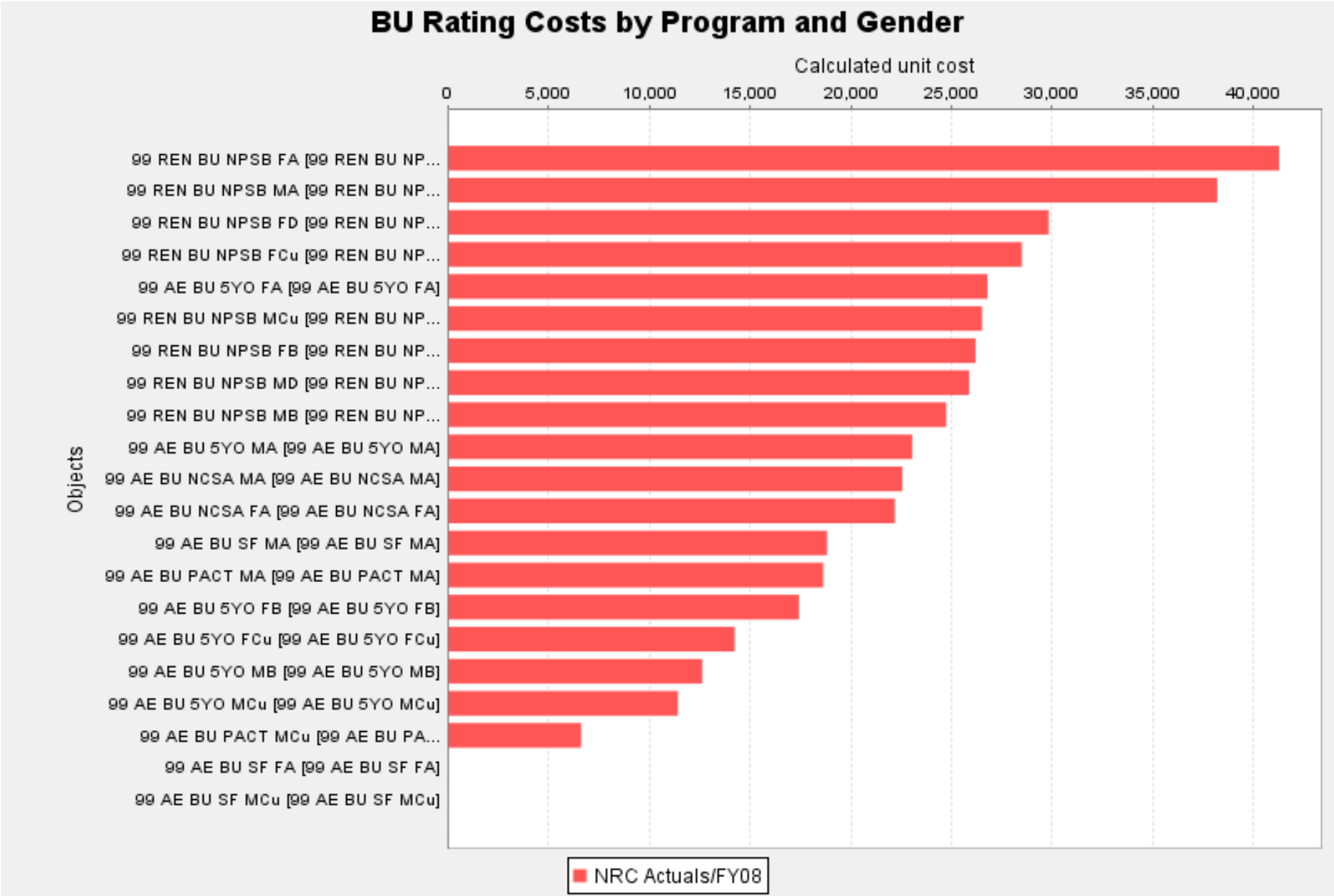


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The Big Picture of Recruiting Costs – FY2008



Costs Relative to Gender & Quality



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:

% Quality	Recruiters	Cost
73%	4412	$309M
70%	4262	$298
3%	150	$11M

-4.06,9.22

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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

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

Program	Contracted	Selected	Non-Select %
Active General Officer Students	600	469	21.8%
Active Dental Corps	20	15	25.0%
Active Medical Student	595	474	20.3%
Active Medical Service Corps	144	106	26.4%
Active Medical Corps	13	12	7.7%
Active Nurse Corps	102	85	16.7%
Active General Officers	2358	1365	42.1%
Active Chaplains	116	100	14.1%
Active Chaplain Students	48	45	6.3%
Reserve Medical Corps	265	259	2.3%
Reserve Dental Corps	33	30	8.8%
Reserve Medical Service Corps	34	33	2.8%
Reserve Nurse Corps	95	89	6.3%
Reserve Chaplains	33	30	9.1%
Reserve General Officers	1365	1046	23.4%
	5822	4158	

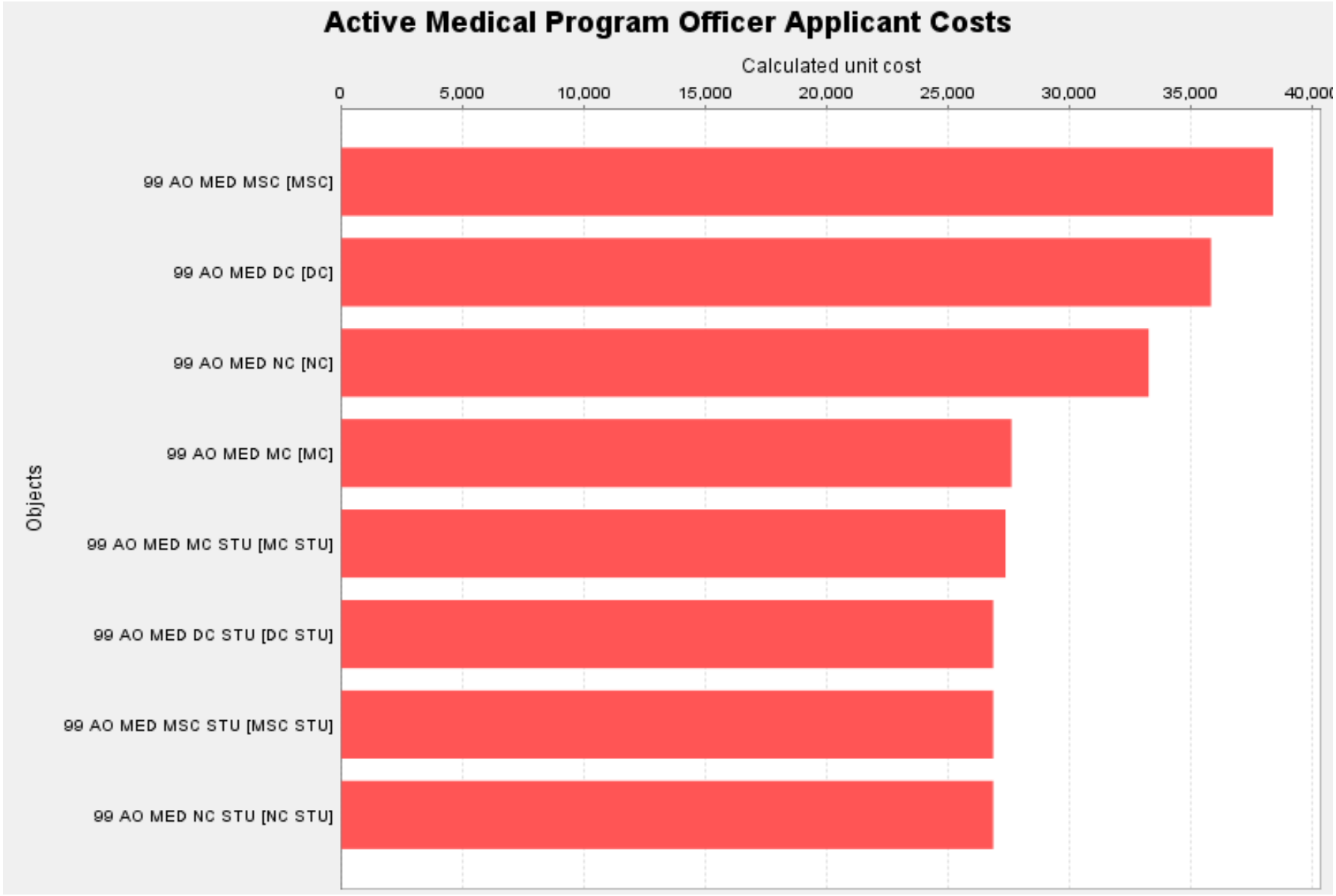
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Impact of Diversity Initiative on Applicant Costs

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

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FY08 Medical Officers



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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.

	Objects	Relative %	Global %	Relative Costs	Costs/Unit Output	Volume
1	99 ROTC [NROTC]	100.0%	100.0%	25,500,310.04	4,641.48	5,494.00
2	90 ROTC [NROTC]	100.0%	100.0%	25,500,310.04	4,641.48	
3	80 ROTC [NROTC]	100.0%	100.0%	25,500,310.04	4,641.48	
4	70 ROTC [NROTC]	100.0%	100.0%	25,500,310.04	4,641.48	
5	60 ROTC [NROTC]	89.1%	89.1%	22,731,107.30	4,137.44	
6	40 HQ 1 [HQ Sustaining]	10.9%	10.9%	2,769,202.74	504.04	
7	30 HQ N6 [IT & Comms]	36.1%	3.9%	999,888.06	182.00	
8	30 HQ NLR [Non-Labor Sustaining]	17.5%	1.9%	484,908.19	88.26	
9	30 HQ N3 [N3 Sustaining]	13.1%	1.4%	361,761.36	65.85	
10	30 HQ N00 [Executive]	7.1%	0.8%	195,615.08	35.61	
11	30 HQ Cyber [Cyberspace]	5.8%	0.6%	160,768.97	29.26	
12	30 HQ N1/N4 [Admin/HR & Supply]	4.7%	0.5%	131,460.66	23.93	
13	30 HQ CA [CARIT]	4.1%	0.4%	114,745.53	20.89	
14	30 HQ N73 [Trainers Ovhd]	3.9%	0.4%	108,655.09	19.78	
15	30 HQ N5 ["Strat, Plans, Analysis"]	2.9%	0.3%	80,016.20	14.56	
16	30 HQ NO [NORU]	2.6%	0.3%	72,774.11	13.25	
17	30 HQ N8 [Comptroller]	2.1%	0.2%	58,609.48	10.67	

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The National Cost of a Male Nuc Before Process Losses Applied

	Objects	Relative %	Global %	Relative Costs	Costs/Unit Output	Volume
Fully Costed Nuc	**- 60_010_M [E-NUC Males (with OH)]**	**100.0%**	**100.0%**	**38,480,614.75**	**15,947.21**	**2,413.00**
NRD Direct + G&A/OH	+ 58 E NUC 3 [NRD Costs]	57.9%	57.9%	22,293,805.63	9,239.04	
	+ 58 E NUC 1 [HQ Advertising]	28.2%	28.2%	10,849,403.31	4,496.23	
	- 40 HQ 1 [HQ Sustaining]	8.9%	8.9%	3,405,872.29	1,411.47	
	+ 30 HQ N6 [IT & Comms]	30.5%	2.7%	1,040,225.68	431.09	
	+ 30 HQ NLR [Non-Labor Sustaining]	24.4%	2.2%	832,702.81	345.09	
HQ G&A/OH	+ 30 HQ N00 [Executive]	18.8%	1.7%	641,666.63	265.92	
	+ 30 HQ Cyber [Cyberspace]	6.4%	0.6%	219,194.26	90.84	
	+ 30 HQ CA [CARIT]	5.5%	0.5%	188,932.96	78.30	
	+ 30 HQ N1/N4 [Admin/HR & Supply]	5.5%	0.5%	187,001.32	77.50	
	+ 30 HQ N5 ["Strat, Plans, Analysis"]	3.9%	0.3%	133,596.94	55.37	
	+ 30 HQ N3 [N3 Sustaining]	2.4%	0.2%	83,212.97	34.49	
	+ 30 HQ N8 [Comptroller]	2.3%	0.2%	79,338.73	32.88	
	- 58 E NUC 2 [HQ Direct Enl Nuc]	4.4%	4.4%	1,688,328.35	699.68	
	+ 40 HQ 2224 [Subs Enlisted Program Support]	36.4%	1.6%	614,510.43	254.67	
HQ Direct	+ 40 HQ 2222 [NUC Enlisted Program Support]	36.4%	1.6%	614,510.43	254.67	
	+ 40 HQ N7 [Training/Inspecting]	22.8%	1.0%	384,904.60	159.51	
	+ 40 HQ 2225 [General Enlisted Program Support]	2.6%	0.1%	44,183.98	18.31	
	+ 40 HQ 223 [HQ Enlisted Processing]	1.8%	0.1%	30,218.91	12.52	
	- 58 E NUC 4 [Region Program Support]	0.4%	0.4%	154,524.14	64.04	
	+ 40 RW 21 [West Training]	30.4%	0.1%	46,922.73	19.45	
	+ 40 RE 21 [East Training]	29.7%	0.1%	45,843.09	19.00	
	+ 40 RE 17 [East Classifying]	20.2%	0.1%	31,150.58	12.91	
	+ 40 RW 17 [West Classifying]	19.8%	0.1%	30,607.74	12.68	
Region Direct + G&A/OH	- 40 RW 2 [Region West Sustaining]	0.1%	0.1%	45,345.69	18.79	
	+ 30 RW 22 [Region West Non-Labor Sustaining]	65.9%	0.1%	29,874.34	12.38	
	+ 30 RW 23 [Region West Executive]	22.0%	0.0%	9,997.07	4.14	
	+ 30 RW 24 [Region West Diversity]	12.1%	0.0%	5,474.28	2.27	
	+ 40 RE 2 [Region East Sustaining]	0.1%	0.1%	43,335.33	17.96	

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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

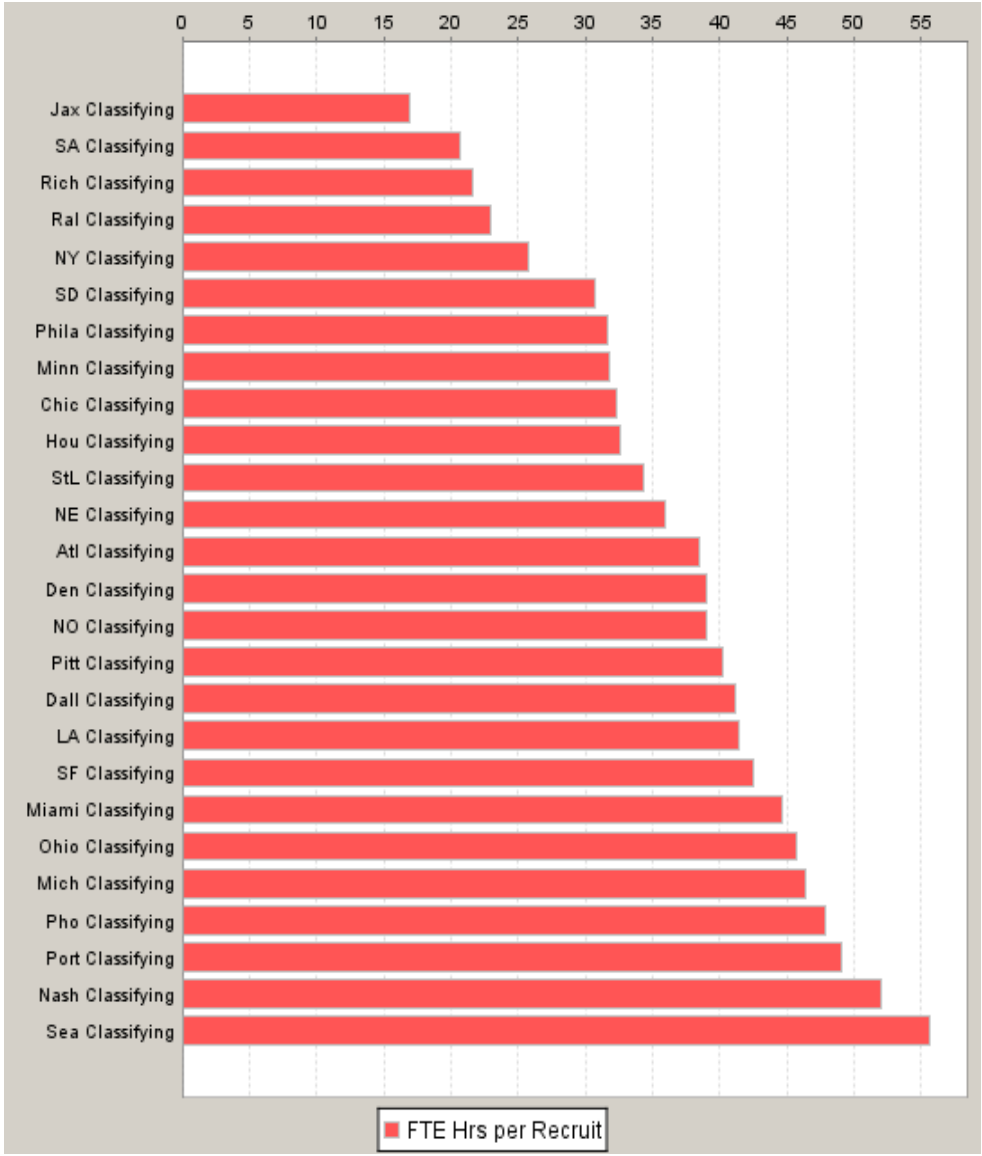
Quick process improvement analysis & validation

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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

JAX	3	HOU	6	SEA	8
SA	3	STL	6	PITT	8
NY	4	CHI	6	MIA	8
RICH	4	PORT	6	NASH	8
NO	4	ATL	6	DAL	9
DEN	5	SD	7	LA	9
RAL	5	NE	7	MICH	10
PHIL	5	SF	7	OHIO	11
MINN	5	PHO	7		



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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

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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.

Group	Code	A-Cell Equivalents	LOECAT
A-Cell	MA/FA	1	8
B-Cell	MB/FB	3	3
Cu-Cell	MCu/FCu	8	1
Cl-Cell	MCl/FCl	8	1
D-Cell	MD/FD	8	1

Level of Effort is adjustable in the Model Dashboard

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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

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Key Assumptions Used in the Model

- Cost of Military Personnel
  - Military personnel salaries were derived from the 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

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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 [(min + 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.

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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.

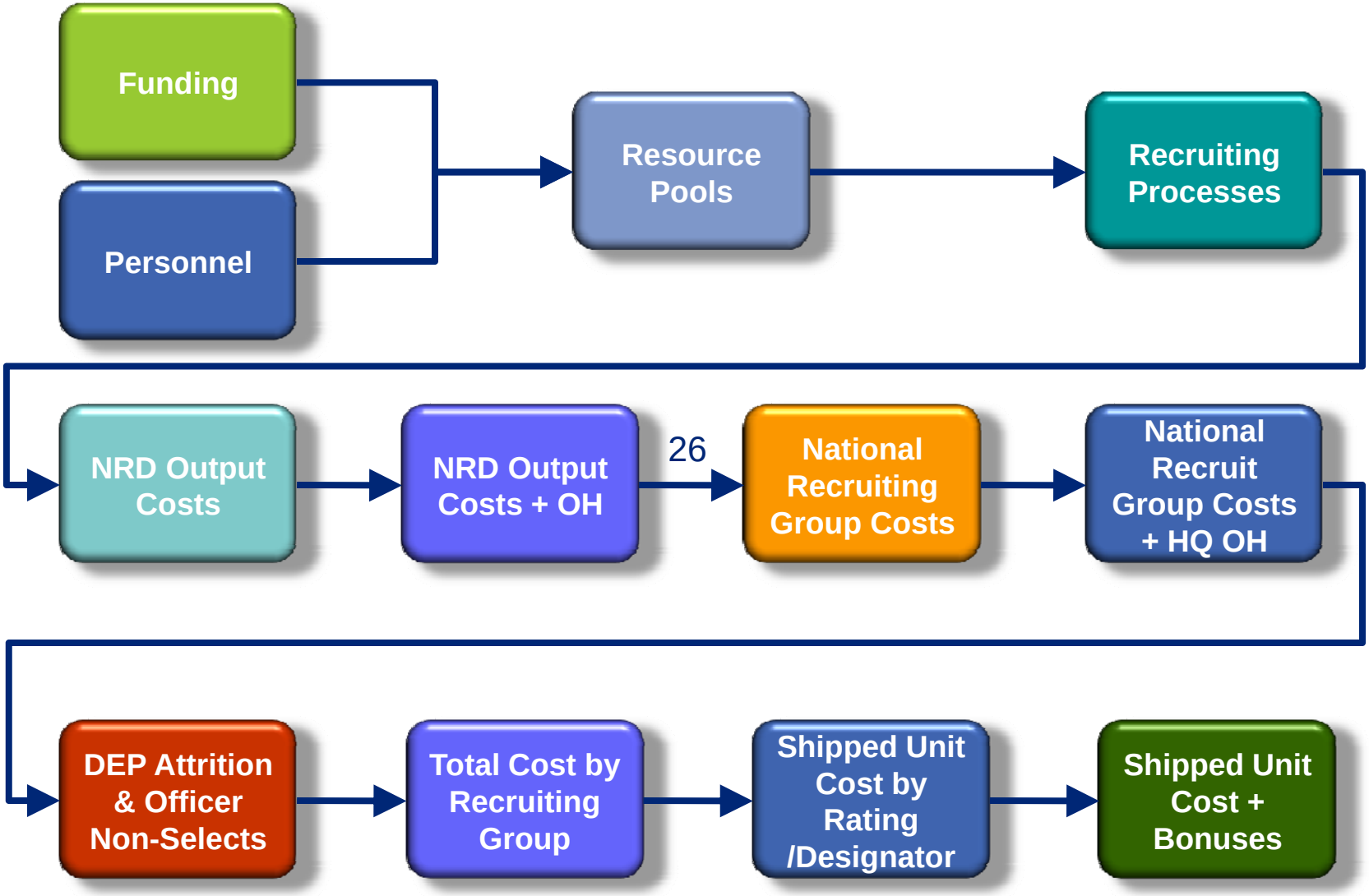
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Key Assumptions Used in the Model

- 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.

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Model Structure



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Model Structure - Funding



Funding captures:

External Funds

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

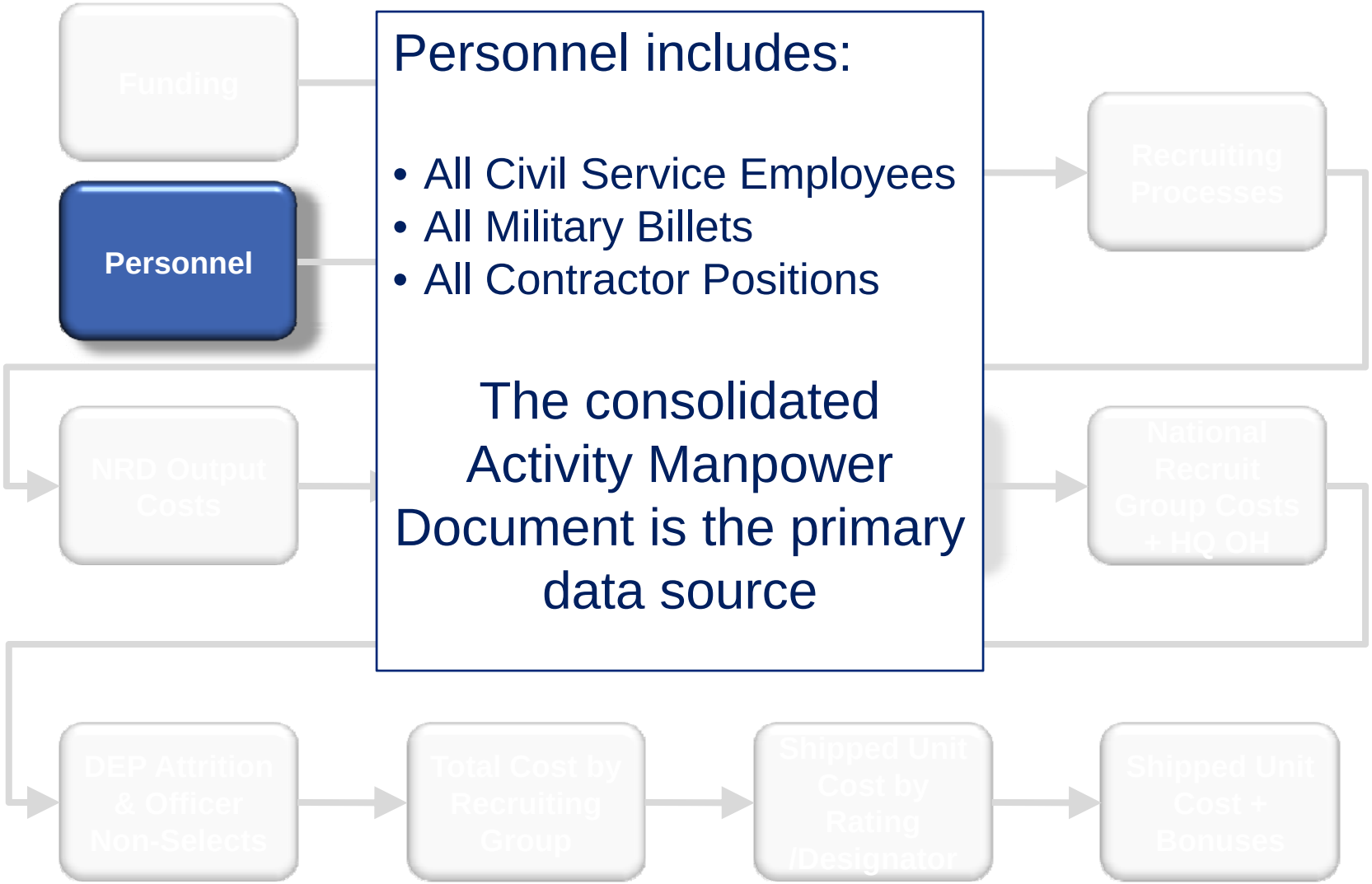
Internal Funds

- Civilian Labor
- Advertising
- All other budget lines

Does not capture facility costs below NRD level

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Model Structure

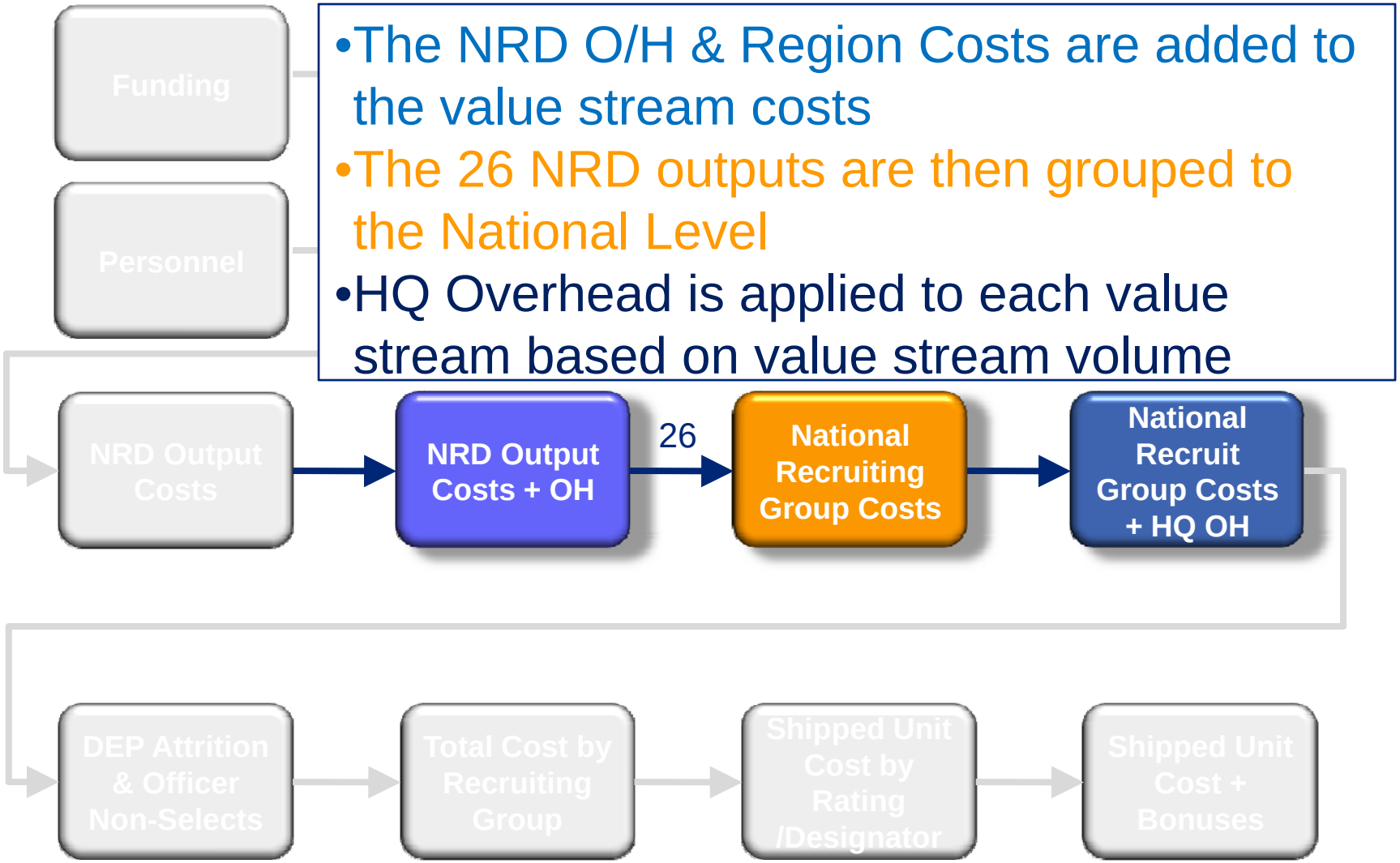


Direct Recruiting Processes capture the output volumes and costs for the five primary value streams:

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

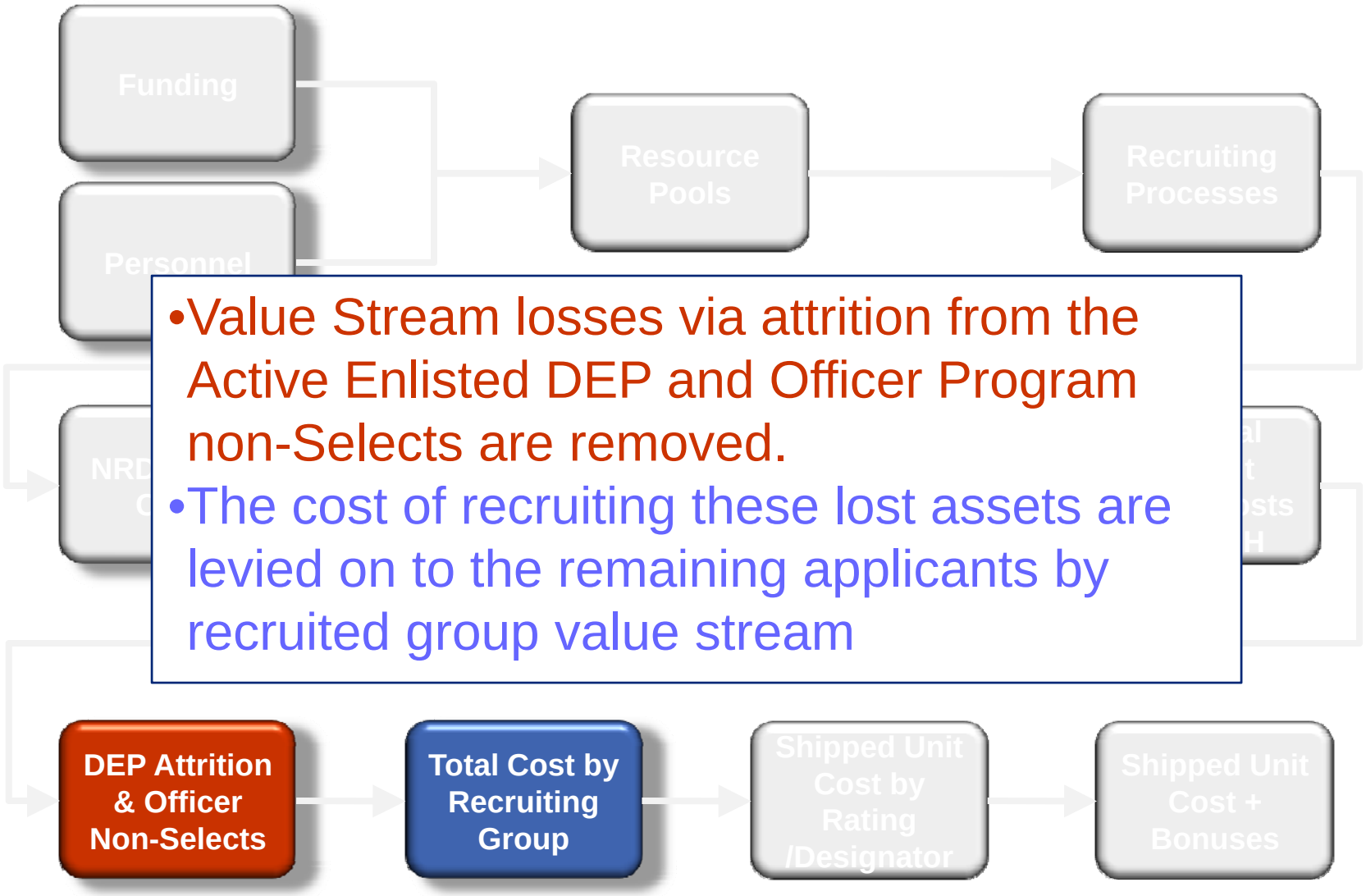
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Enhancing Officer Selection and Assignment

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

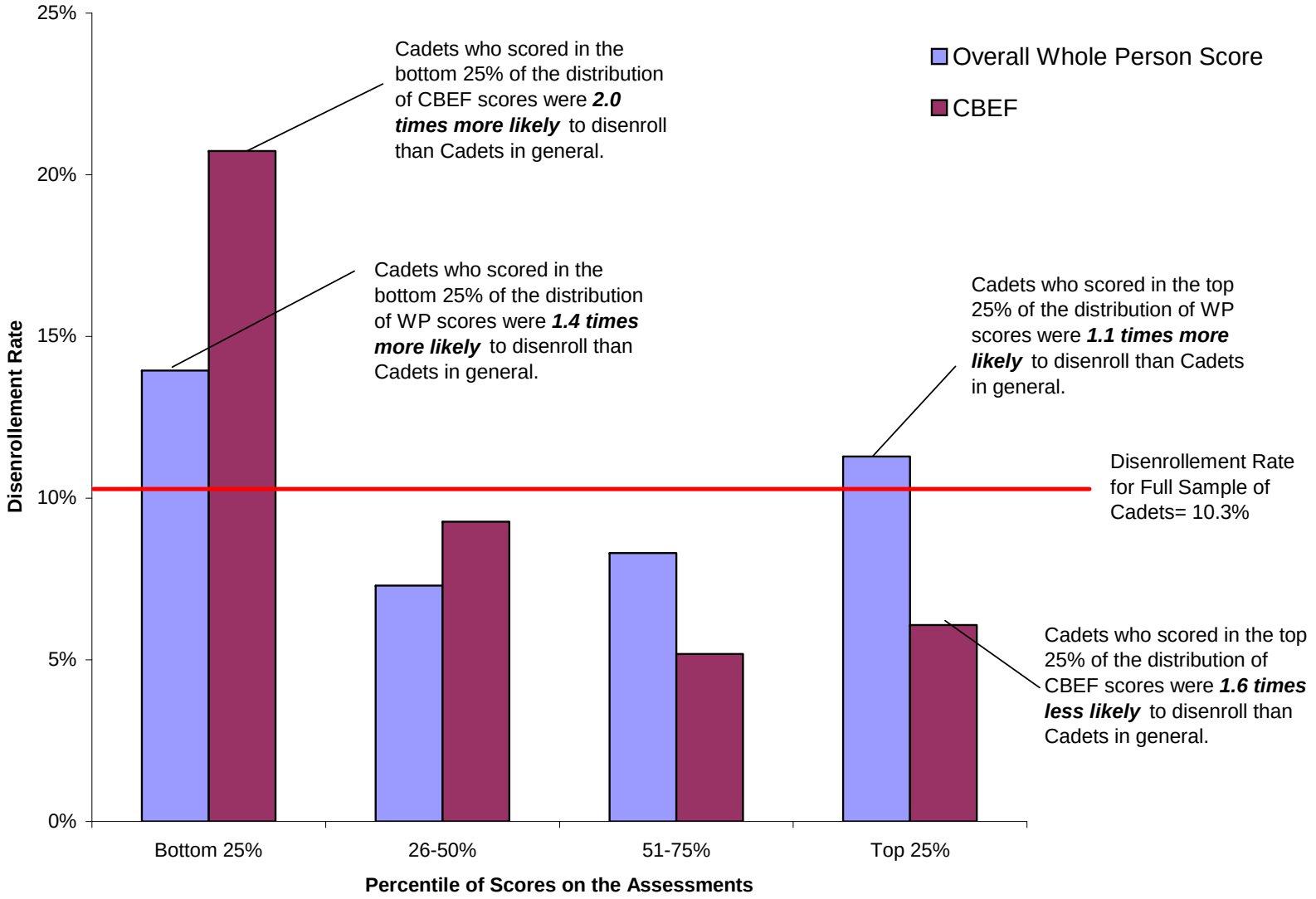
Stage One: ROTC Scholarship Selection

- 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

Comparison of WPS and CBEF for Predicting ROTC Disenrollment



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 .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

ROTC Timeline

SEP 09	CBEF fully integrated with web scholarship application process for AY 10–11 applicants
SEP 10	Determine validity of CBEF for predicting scholarship acceptance
DEC 10	Determine validity for predicting ROTC program entry for AY 10-11 applicants
DEC 11	Determine validity for predicting ROTC progression from program entry to sophomore year for AY 10-11 applicants
DEC 14	Determine validity for predicting ROTC program completion for AY 10-11 applicants

Stage One: OCS Research

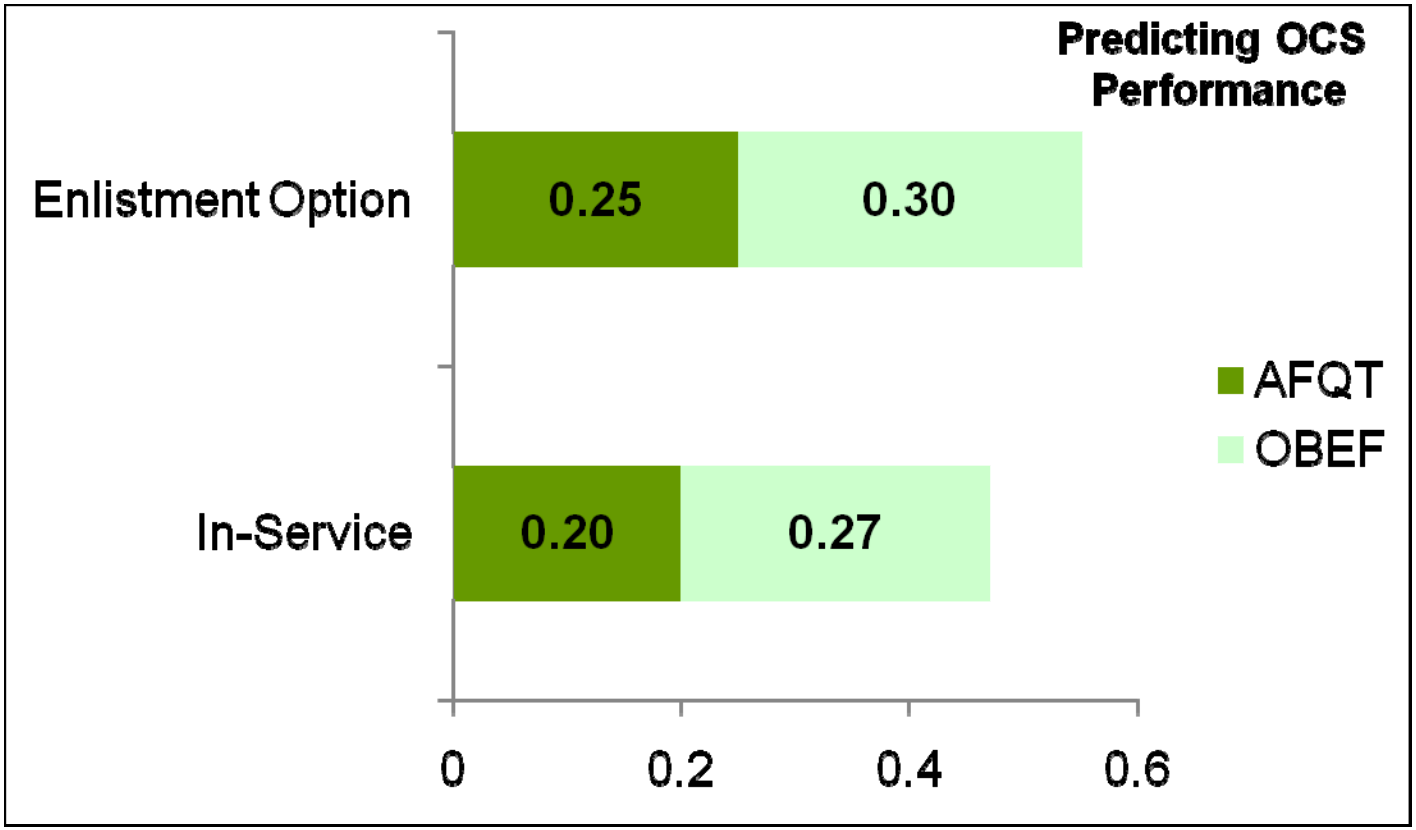
- Objectives: develop measures for selecting OCS candidates most likely to:
  - Perform well in OCS
  - Stay in the Army

- 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

OCS Research: Performance

OCS Candidates:

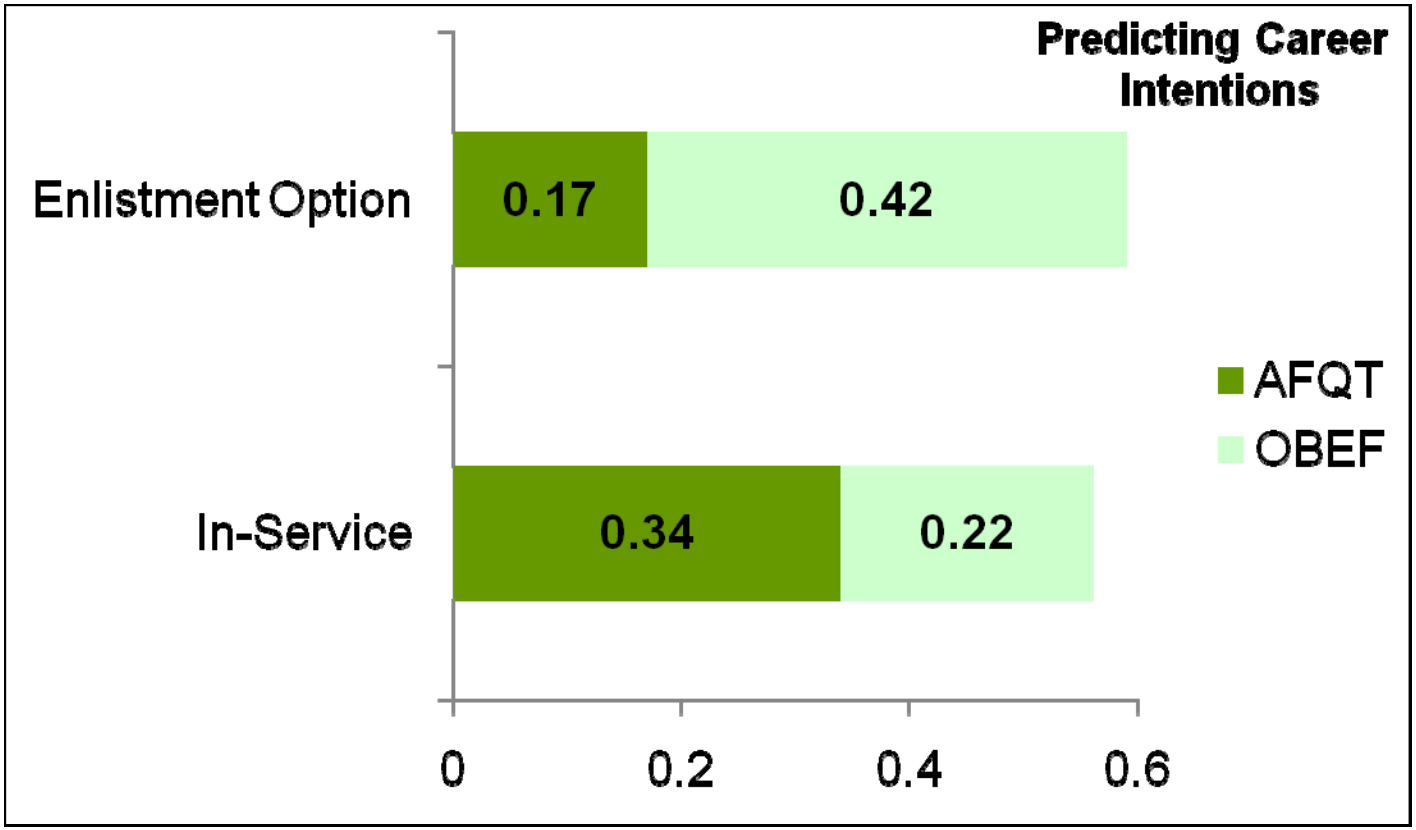


The OBEF adds value to AFQT for predicting OCS performance for both types of candidates.

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.

OCS Research: Career Intentions

OCS Candidates:



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.

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

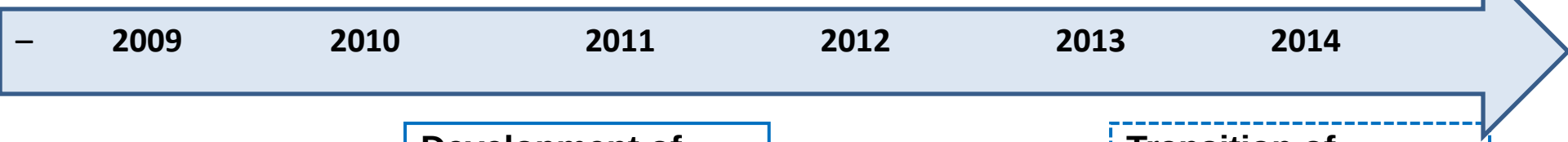
Officer Outcome Measures

- 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



Development of Officer Predictor Measures

Officer Job Analysis

Development of Criterion Measures of Officer Job Performance

Predictive Validity of New Measures

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

Analyses to refine Branch Assignment
- Subject to available funding

Final Products

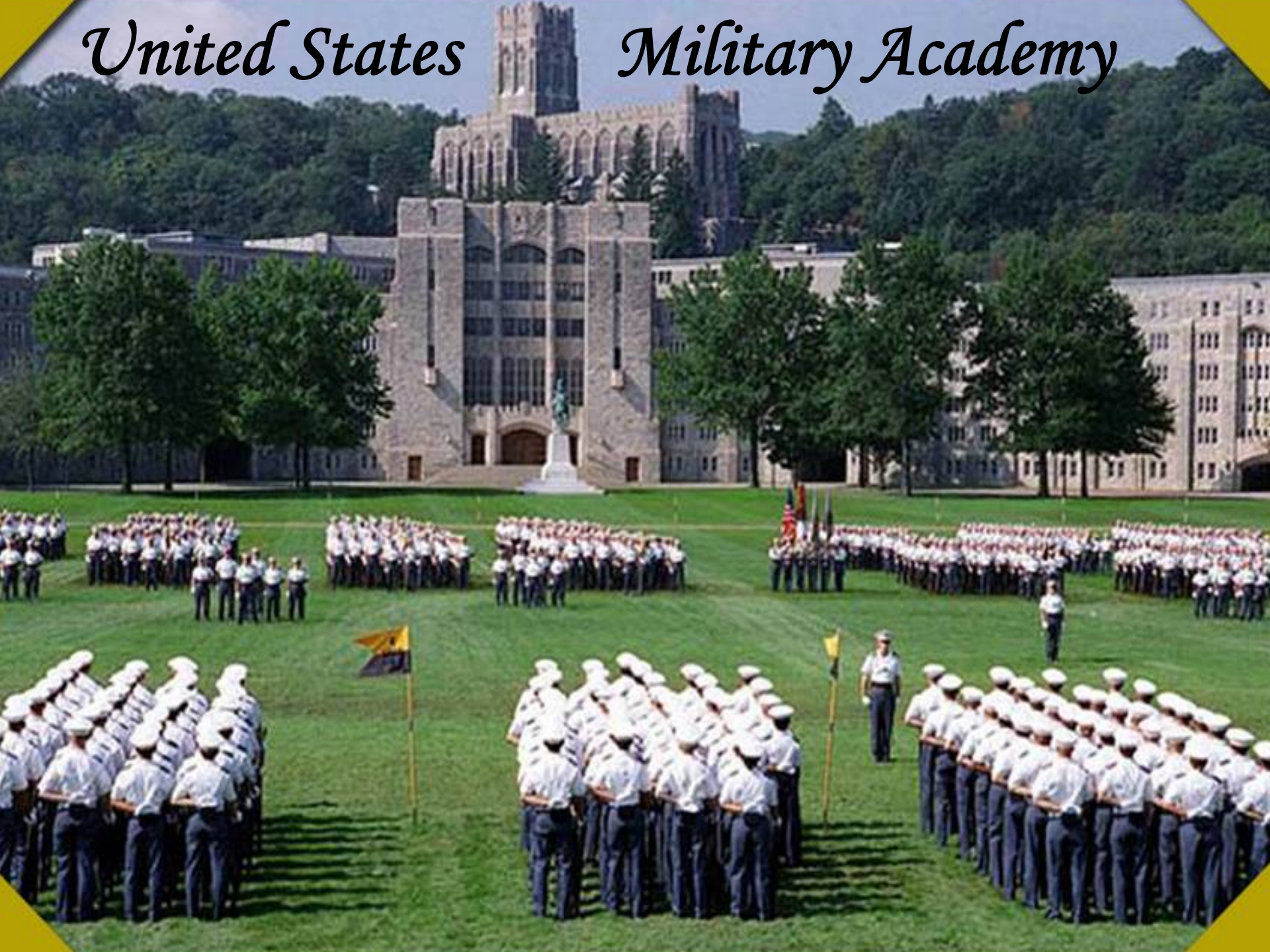
- ***Specification of officer performance requirements across rank & branch***
- ***Validated tests for officer candidate selection and branch assignment***

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


United States Military Academy

Agenda

- **Historical Trends in Physical Fitness**
- **Initial Entry APFT Performance for USMA Cadets (1992 – 2009)**
- **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)**

FM 21-20 (Physical Fitness Training); p. 1, 1946

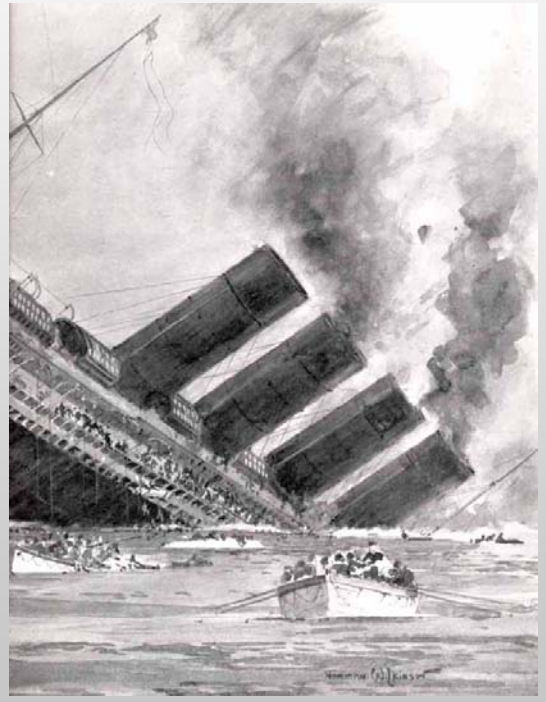
War places a great premium upon the strength, stamina, agility, and coordination of the soldier …

- **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



1917: Selective Service Act

Response

The fact that warfare has become mechanized has <u>accentuated</u> rather than minimized the importance of physical fitness. (FM 21-20, p. 1, 1946)



Army Physical Training/Testing

Cold War Era (1950 – 1983)

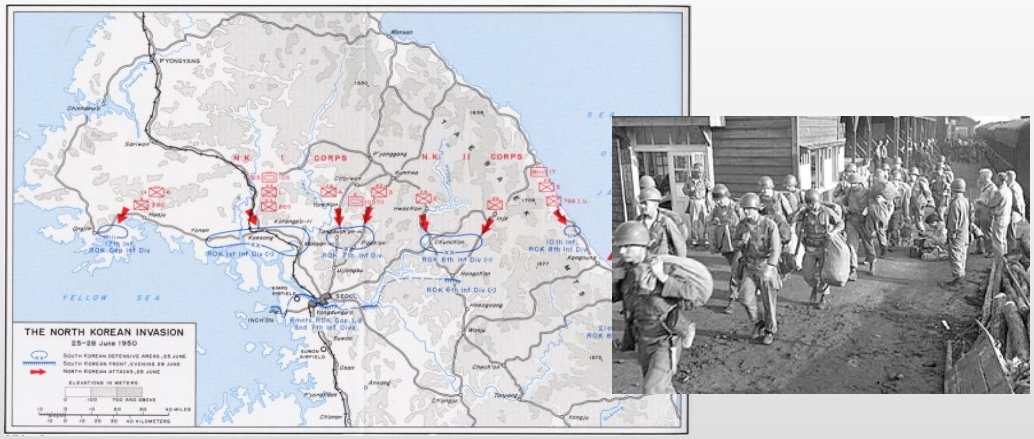
Trigger Event



1950: Ethel and Julius Rosenberg

Cold War Era (1950 – 1983)

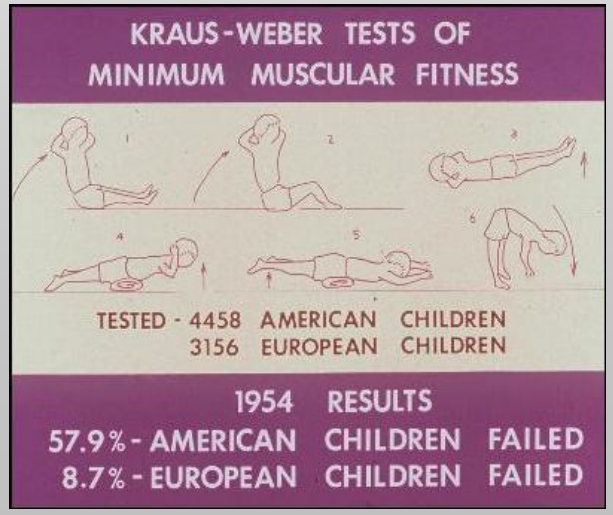
“Catalyzing Events”

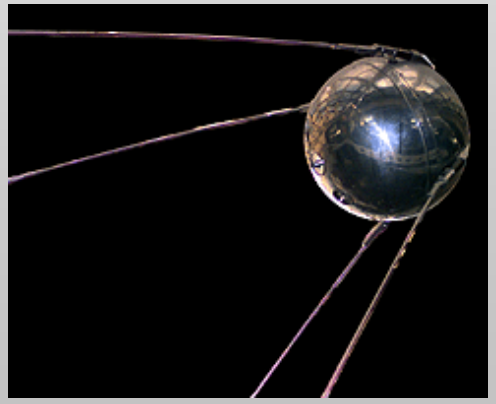


1950: Task Force Smith



1954: Joseph McCarthy





1957: Sputnik

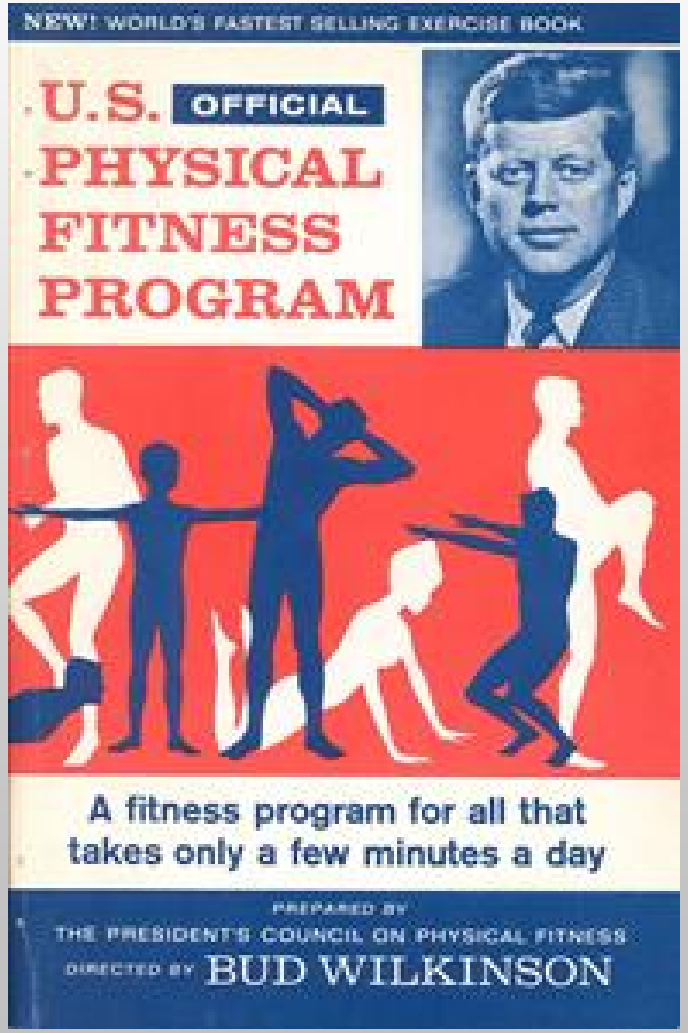
Cold War Era (1950 – 1983)

Response

1956: President's Council on Youth Fitness







GWOT Era (1983 - ????)

Catalyzing Event



2001: WTC Towers

Trigger Event



1983: Marine Barracks Bombing
Beirut, Lebanon

Mitigating Factor



2007: Globesity epidemic

Response



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

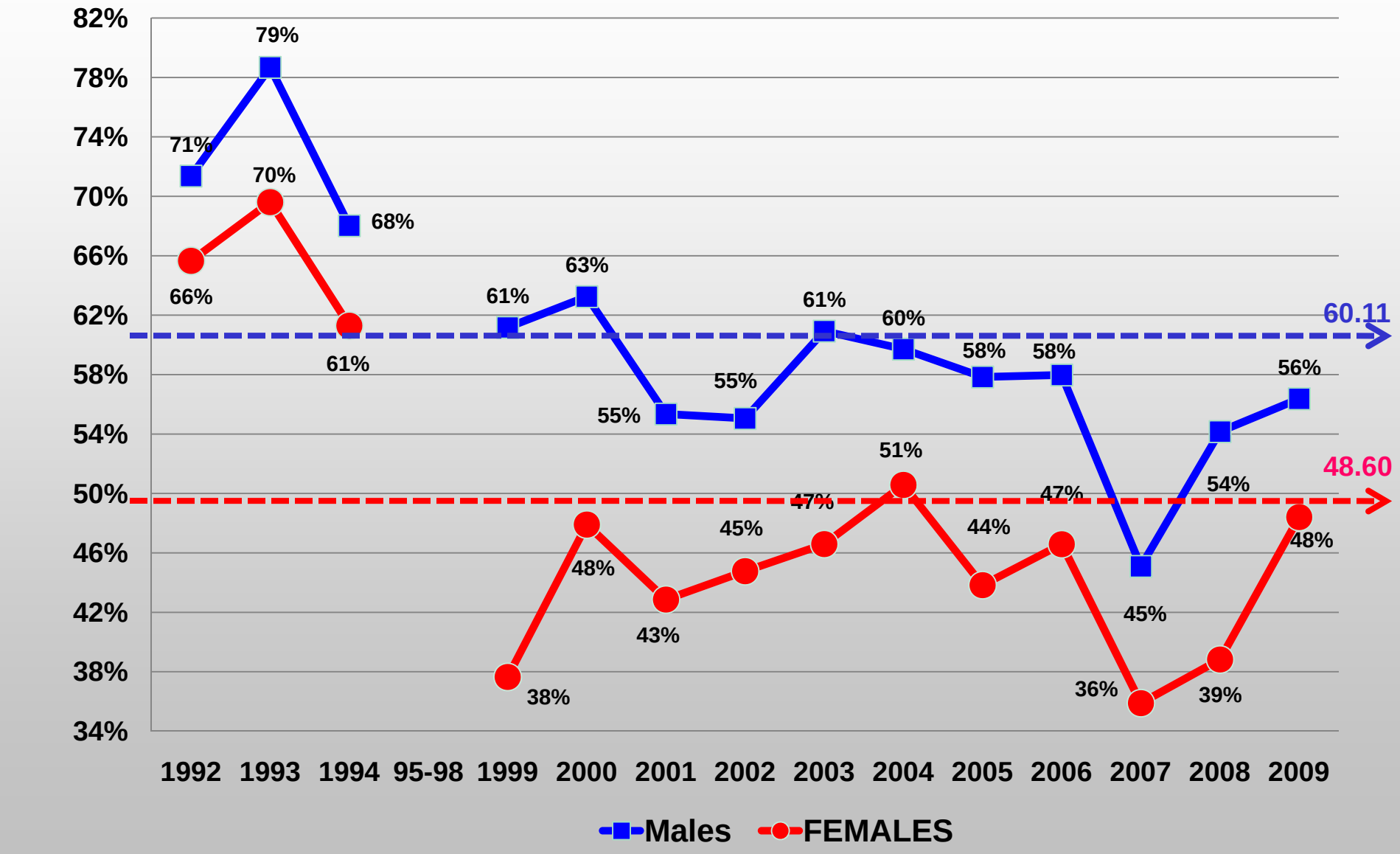




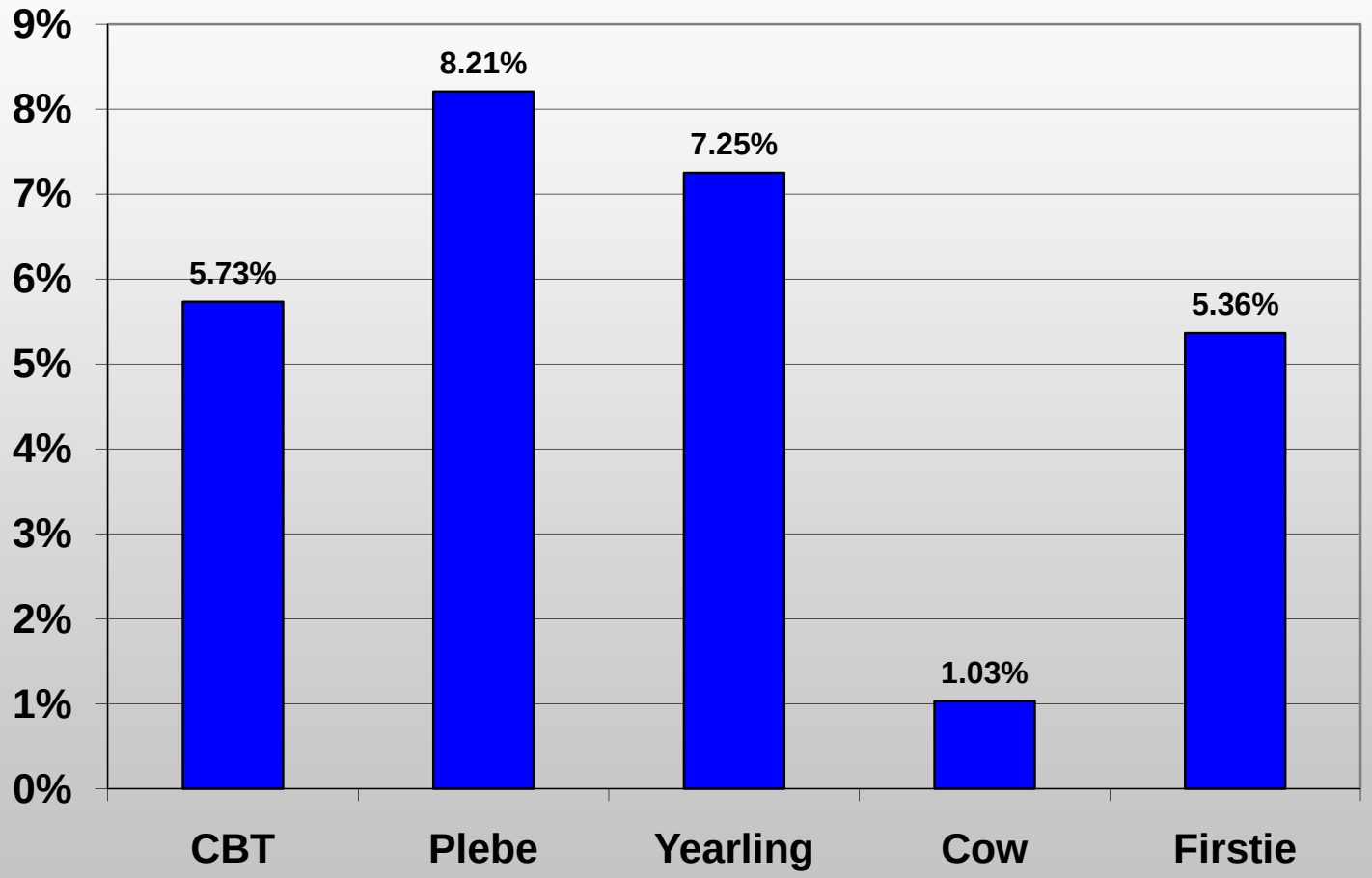
Historical Factors Affecting Initial Physical Performance

- **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



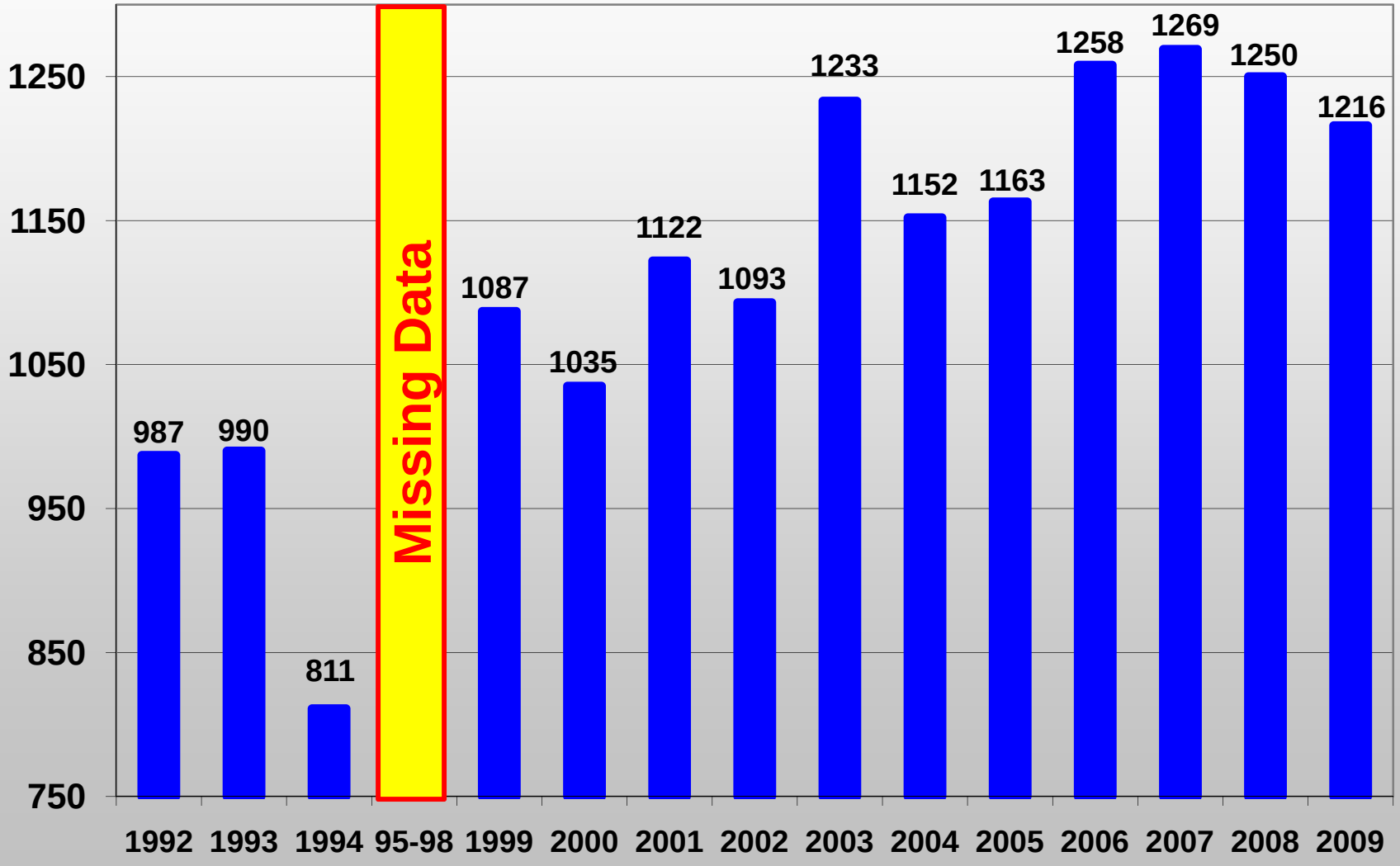
USMA Attrition



Average 4-yr Attrition = 27.59%

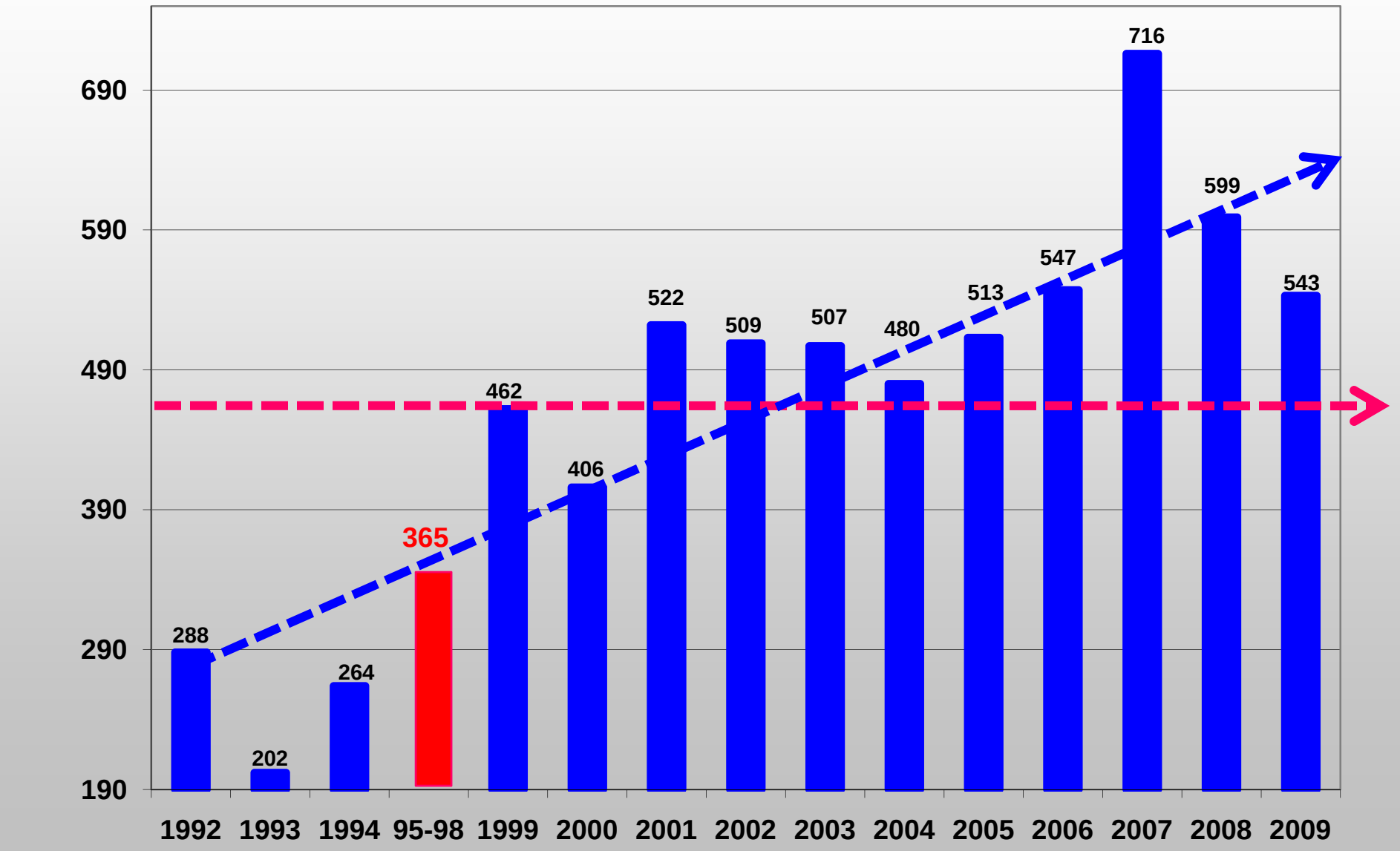
20-yr Commissioning Rate = 72.6%

New Cadets – Valid APFT



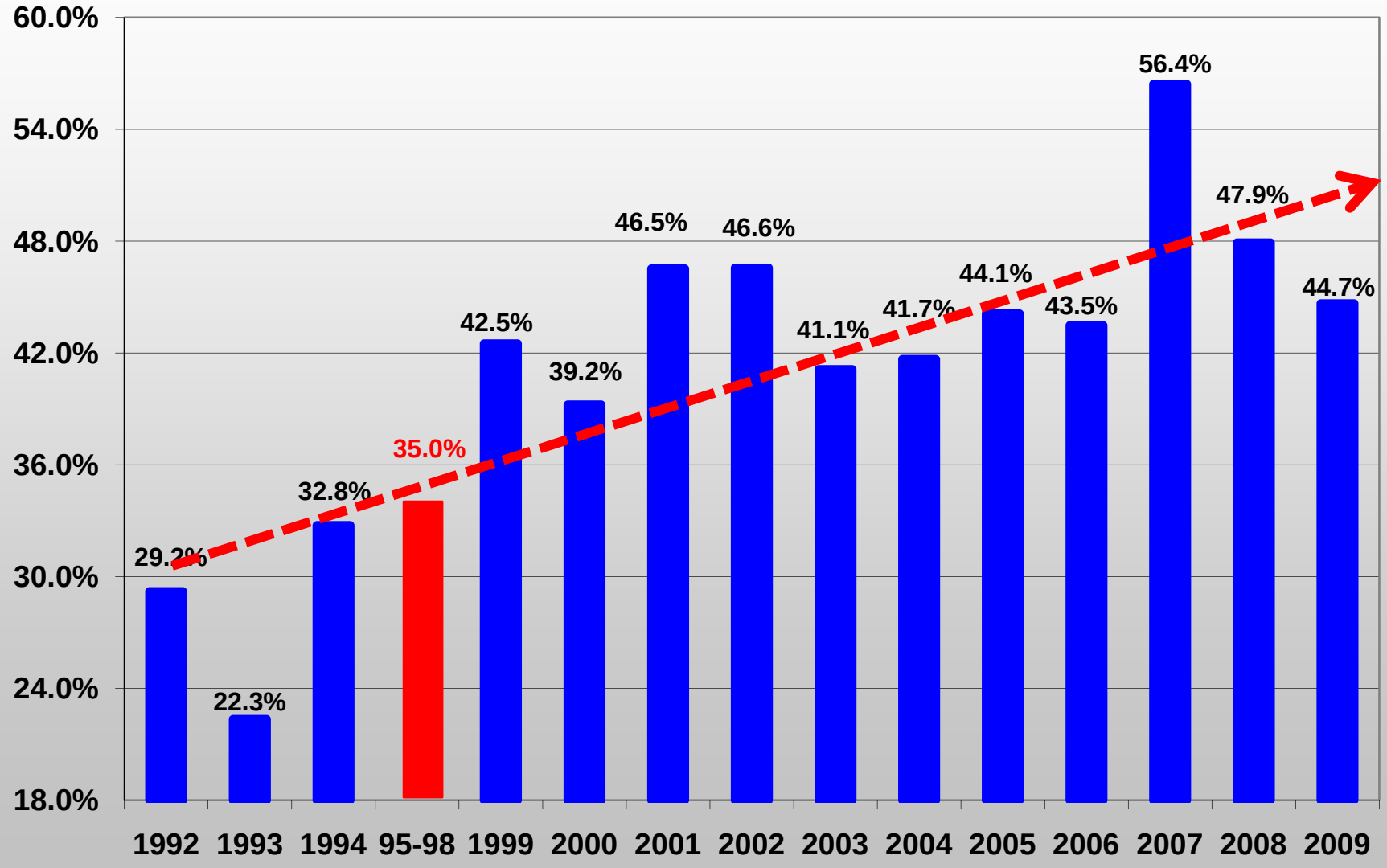
USMA - Cadet Basic Training

Week 1 APFT Failures

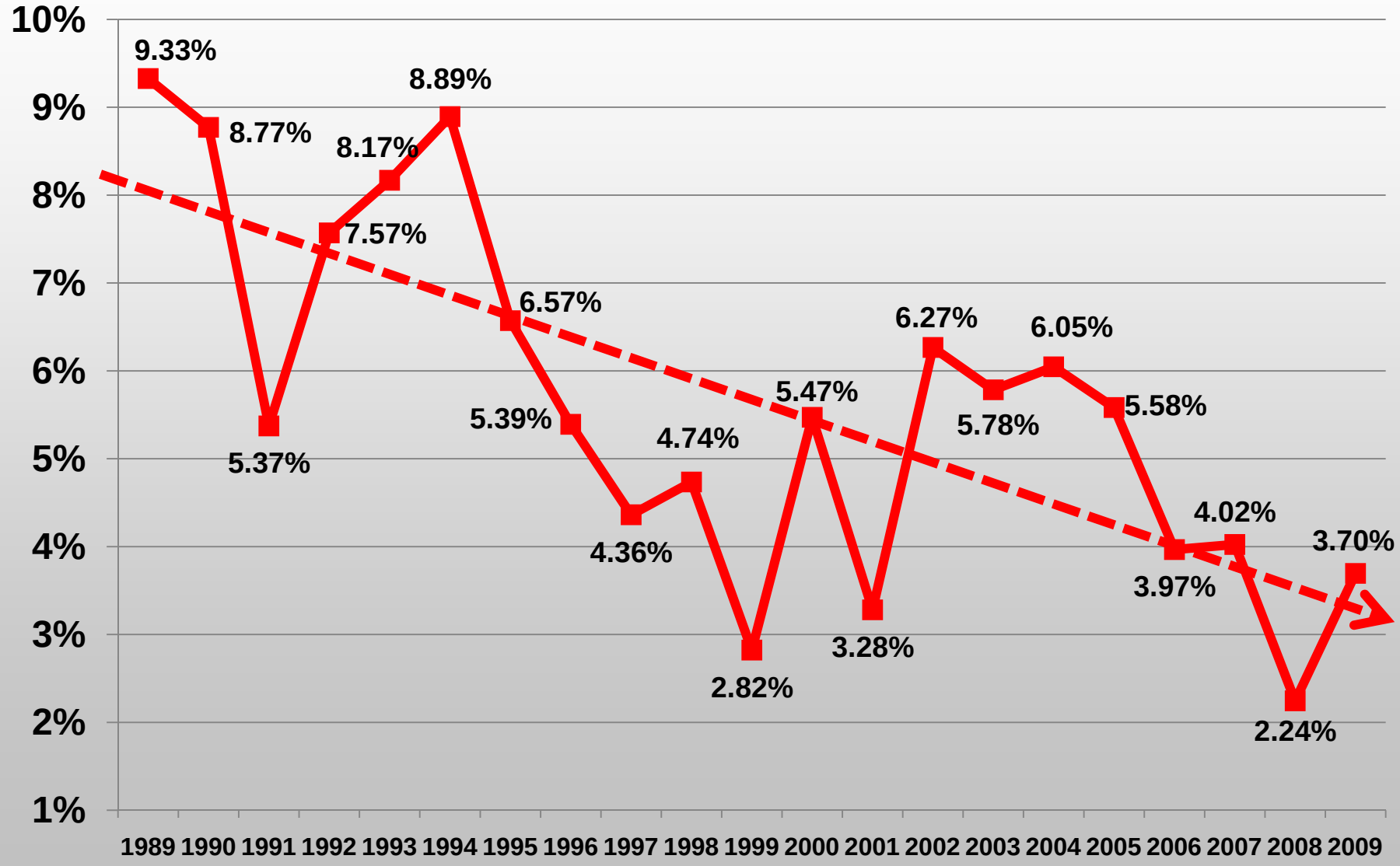


USMA - Cadet Basic Training

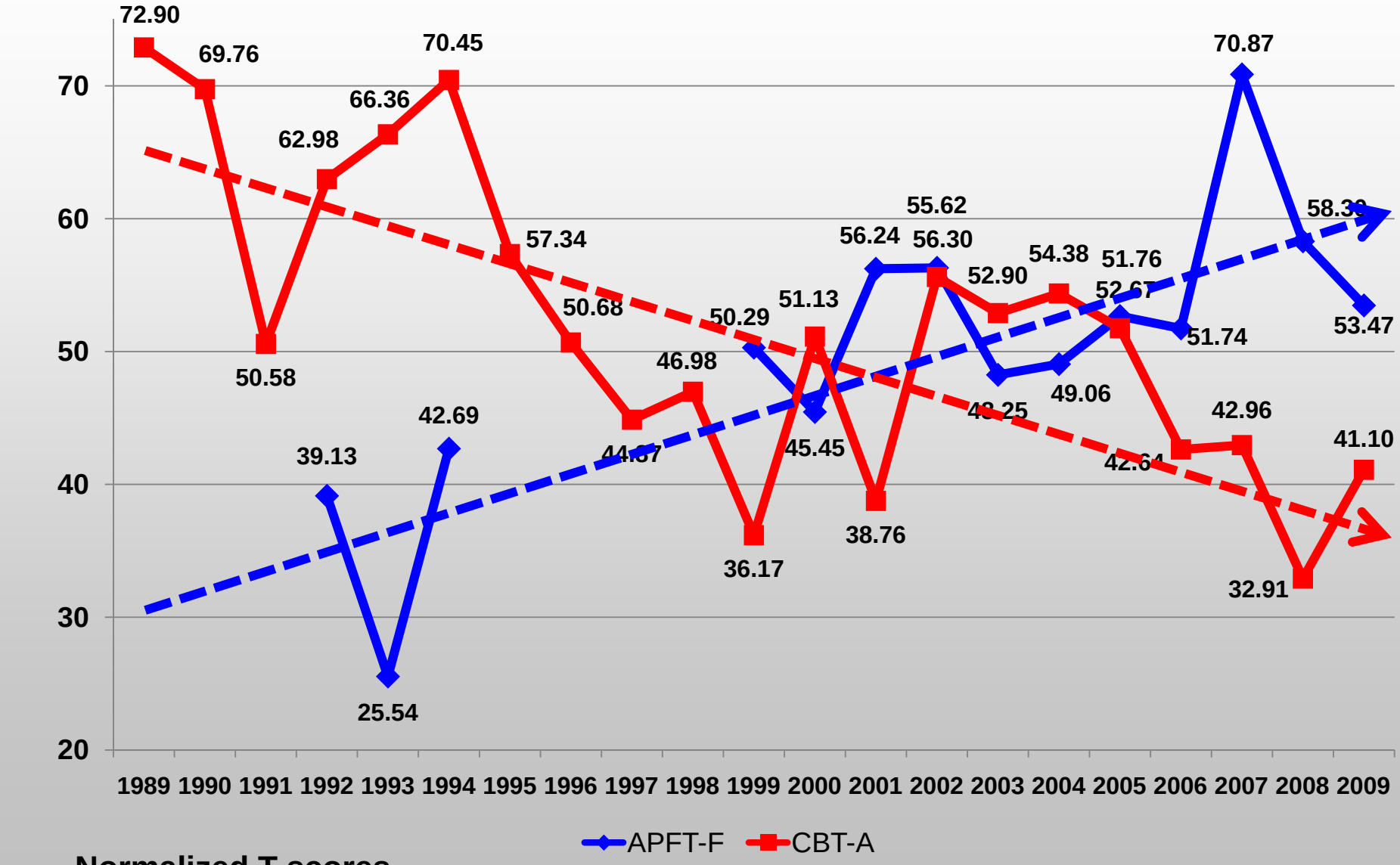
Week 1 APFT Failures (60/180)



CBT Attrition Averages

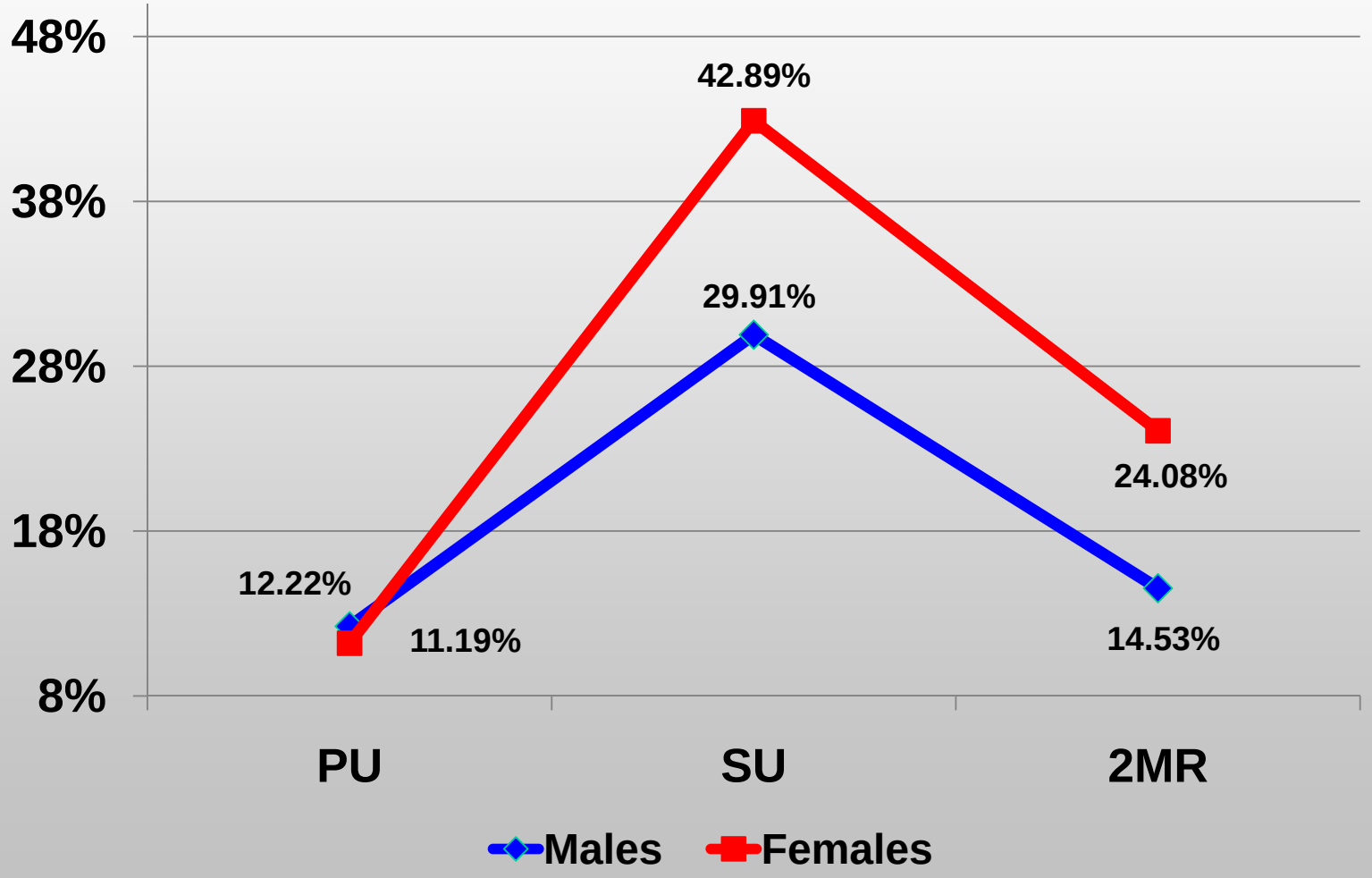


CBT Attrition v. APFT Failures



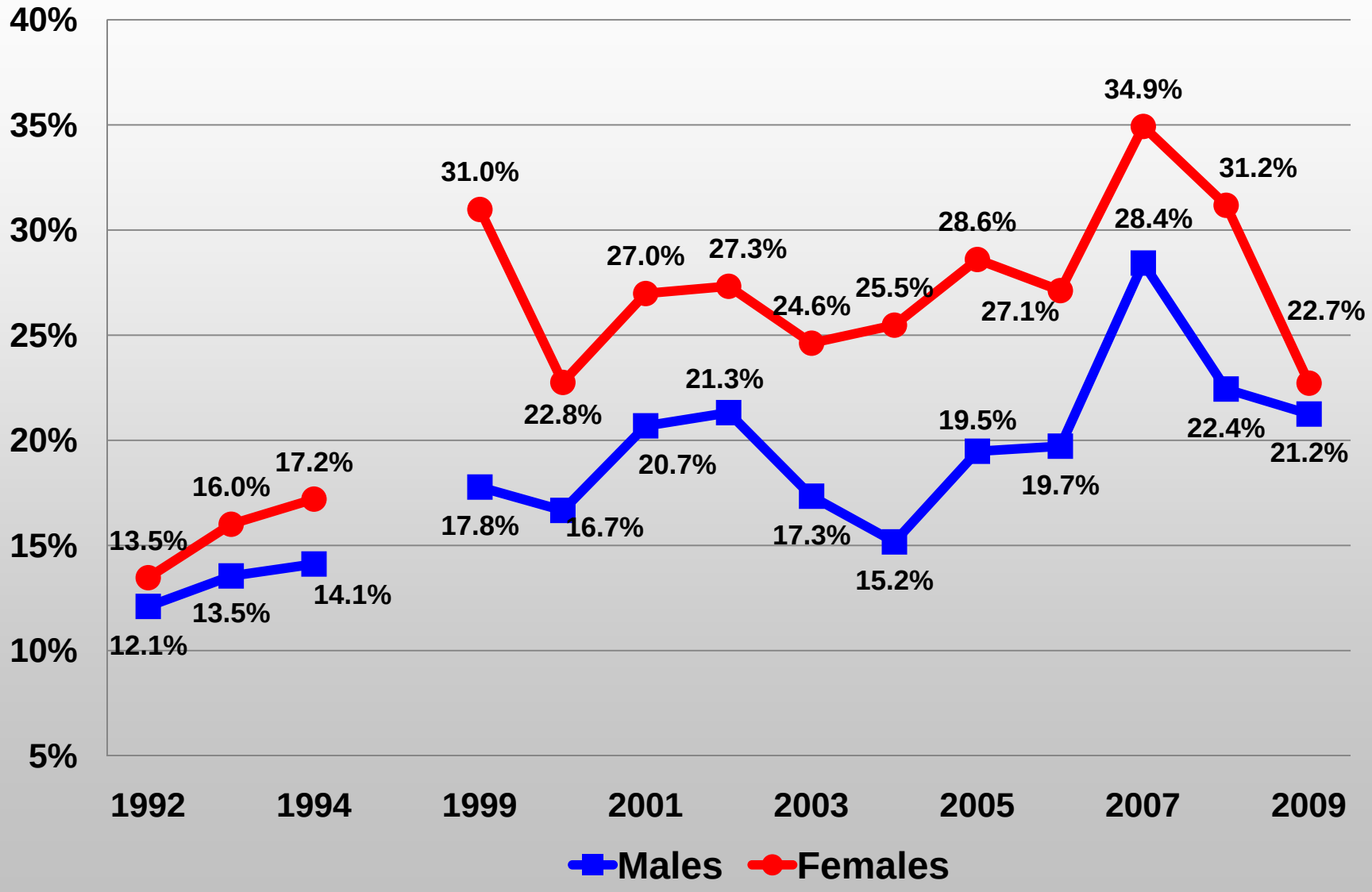
Normalized T-scores

Event Failures Rates

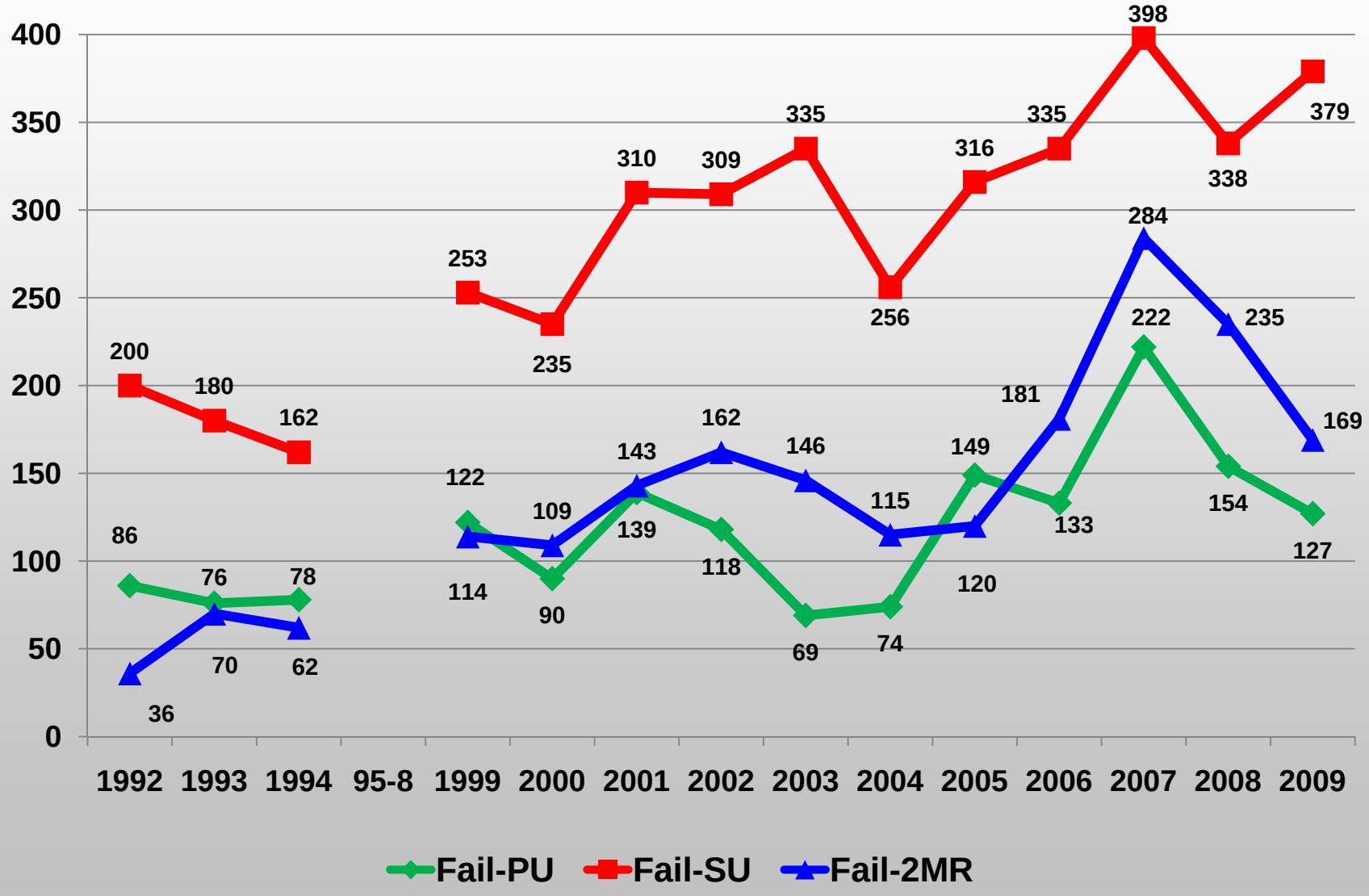


(N_m = 13,486; N_f = 2,180)

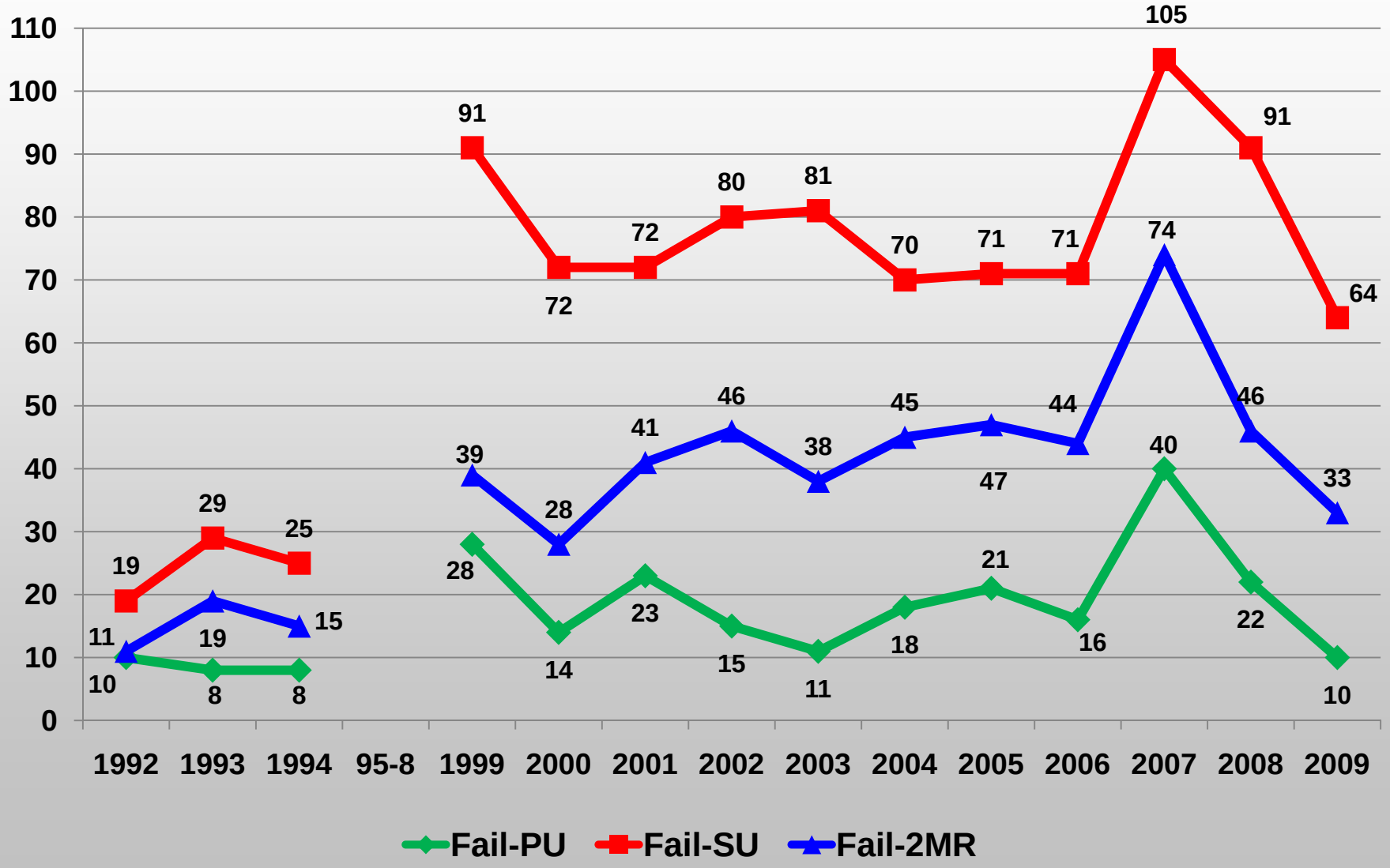
APFT Event Failure per Total Events



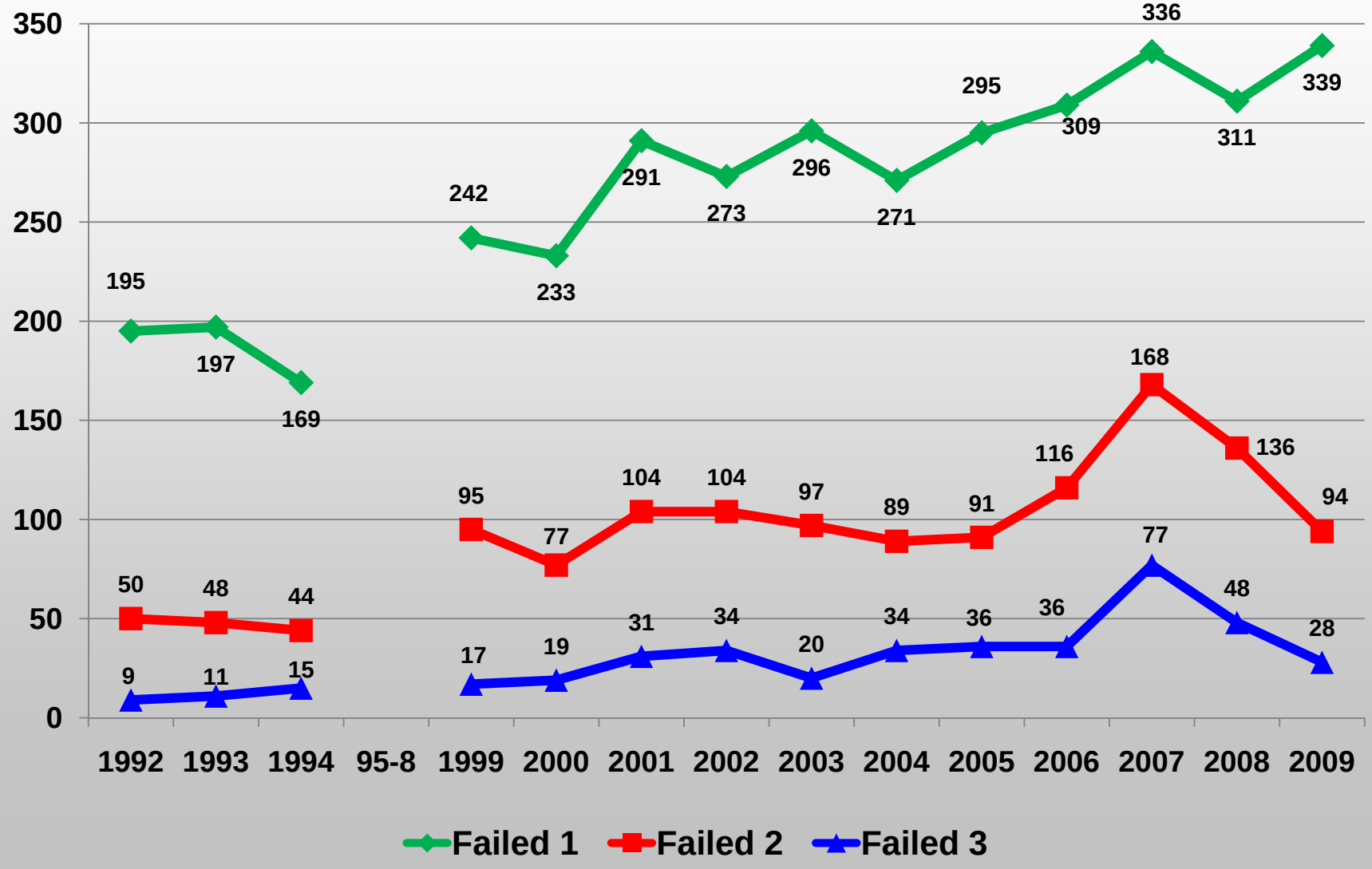
APFT Event Failures - Males



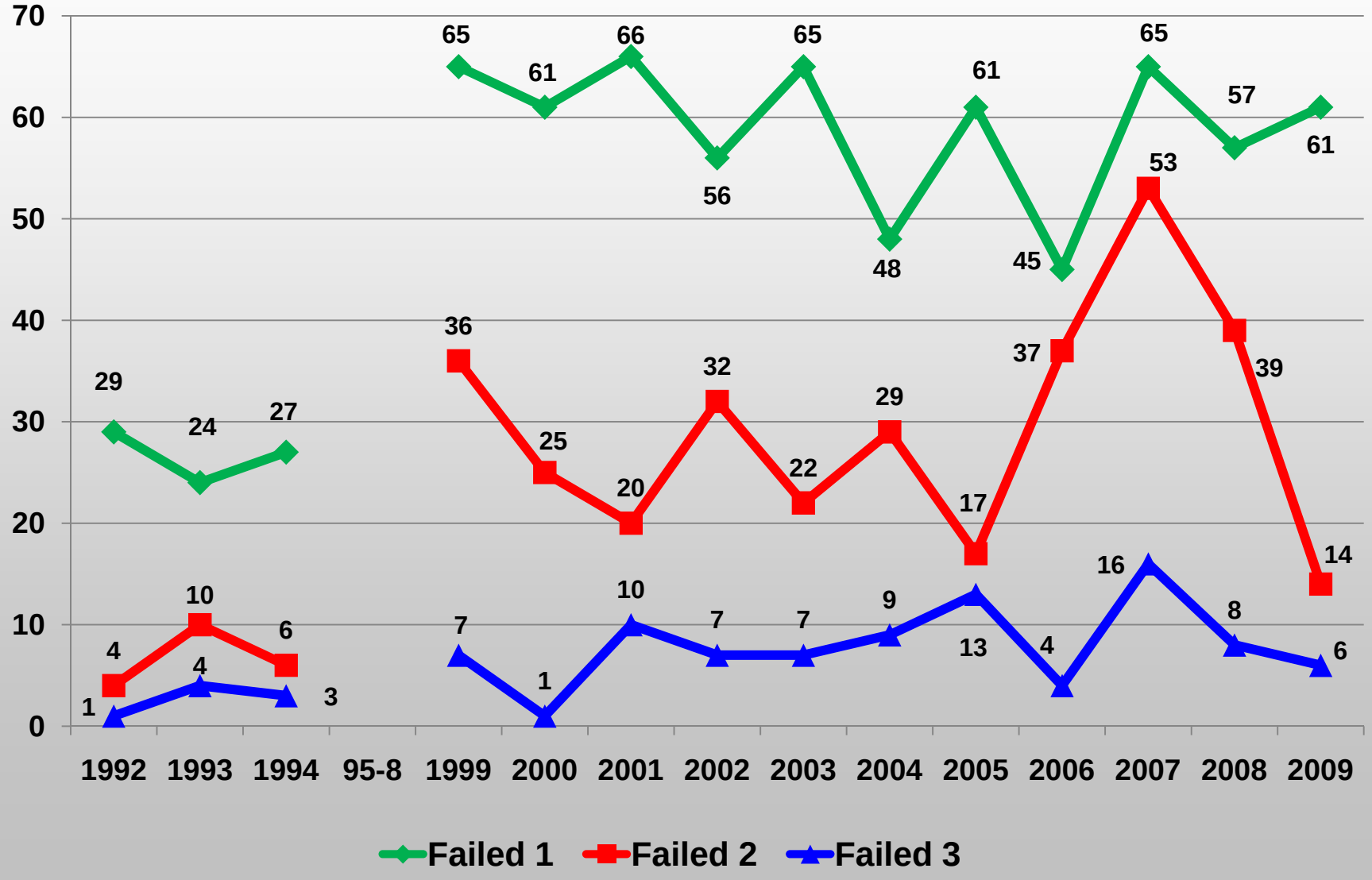
APFT Event Failures - Females



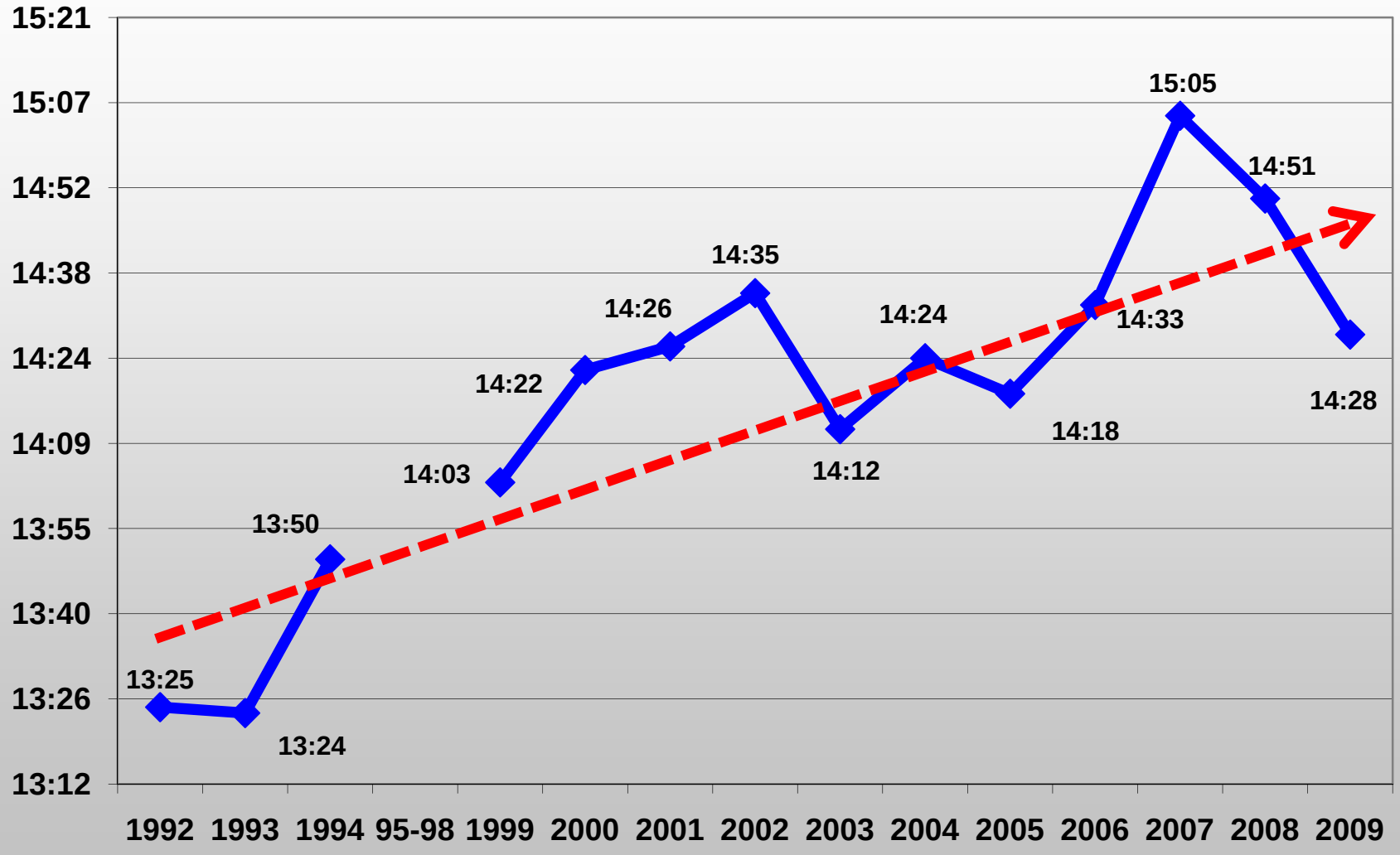
Multiple Event Failures - Males



Multiple Event Failures - Females

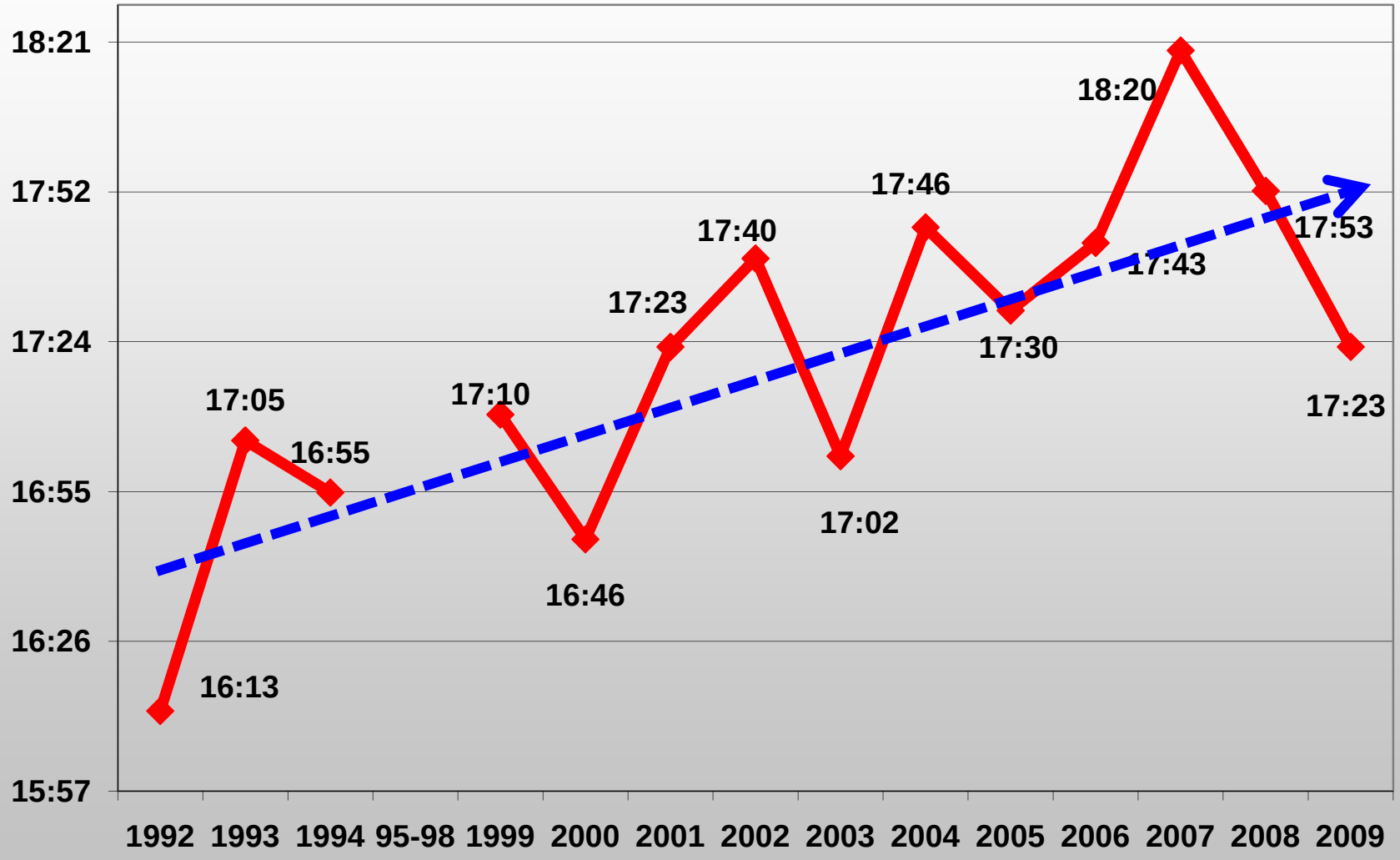


2MR Averages - Males



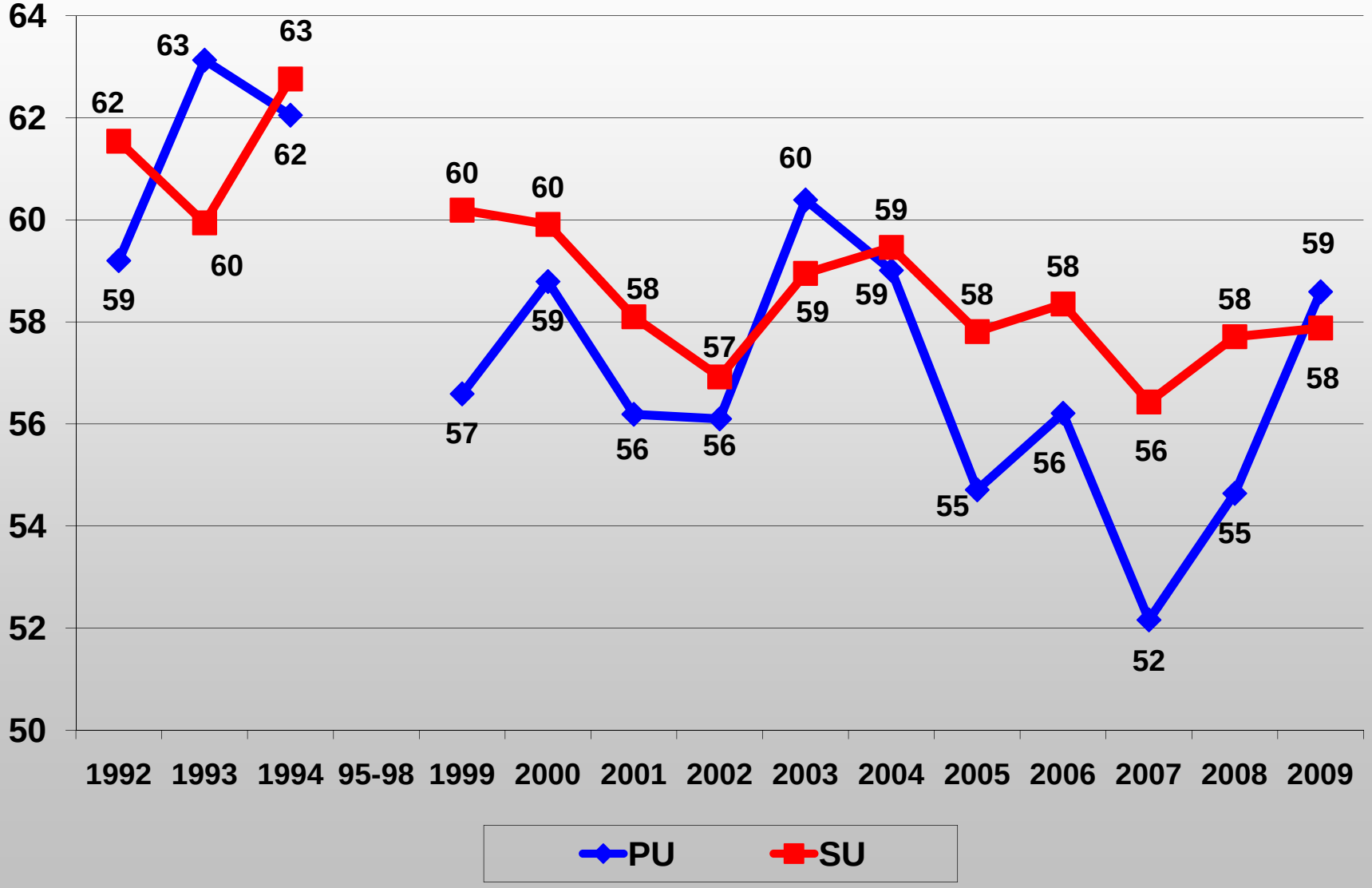
Approximately a 1:00 decrease in 2MR times

2MR Averages - Females

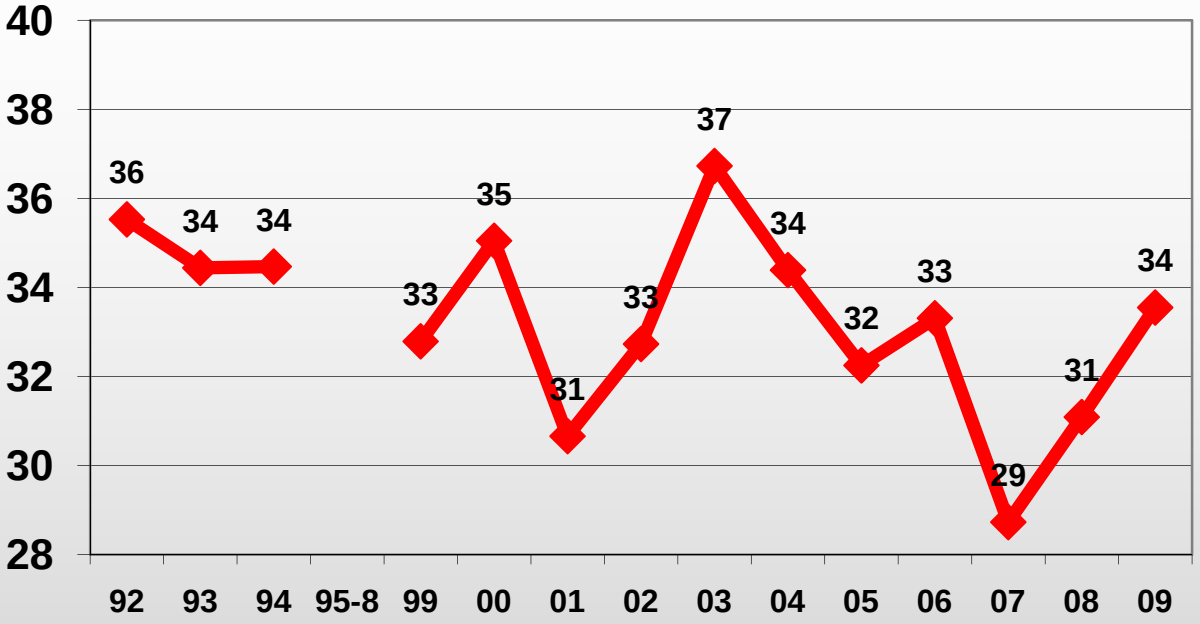


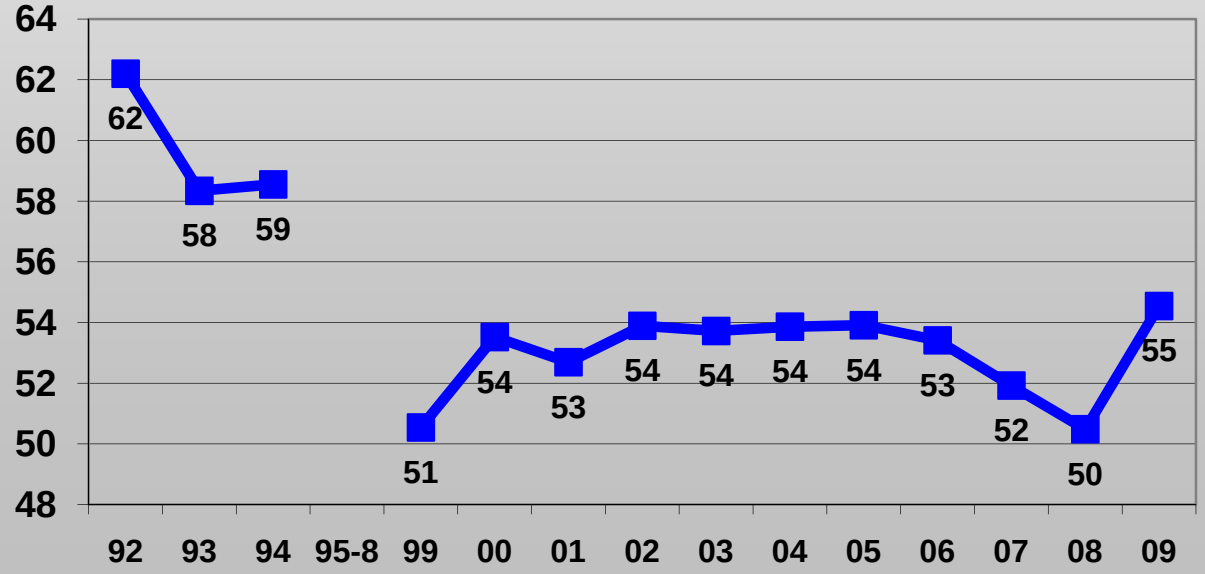
Approximately 1:15 decreased in 2MR times

PU/SU Averages - Males

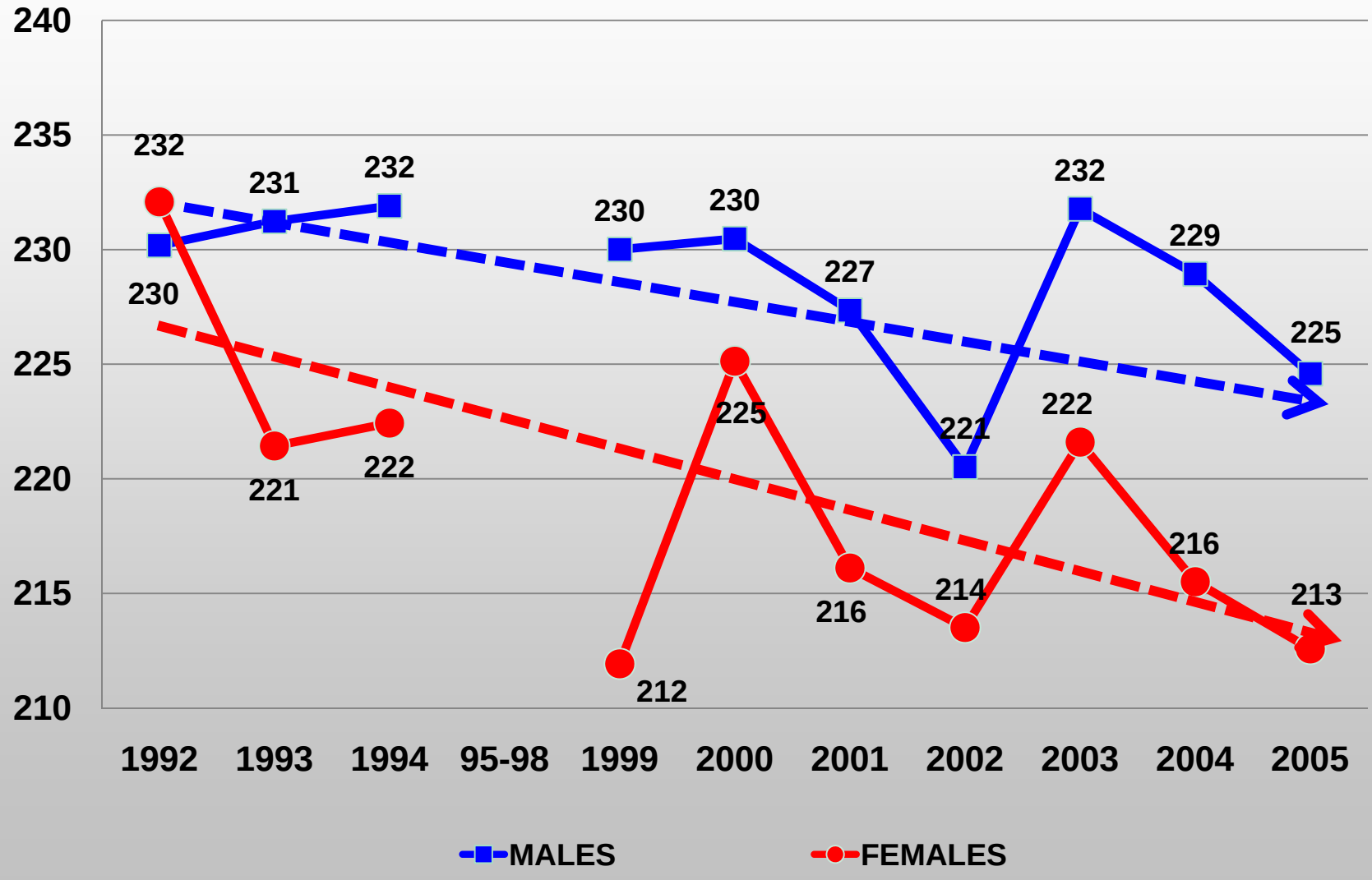


PU-SU Averages - Females

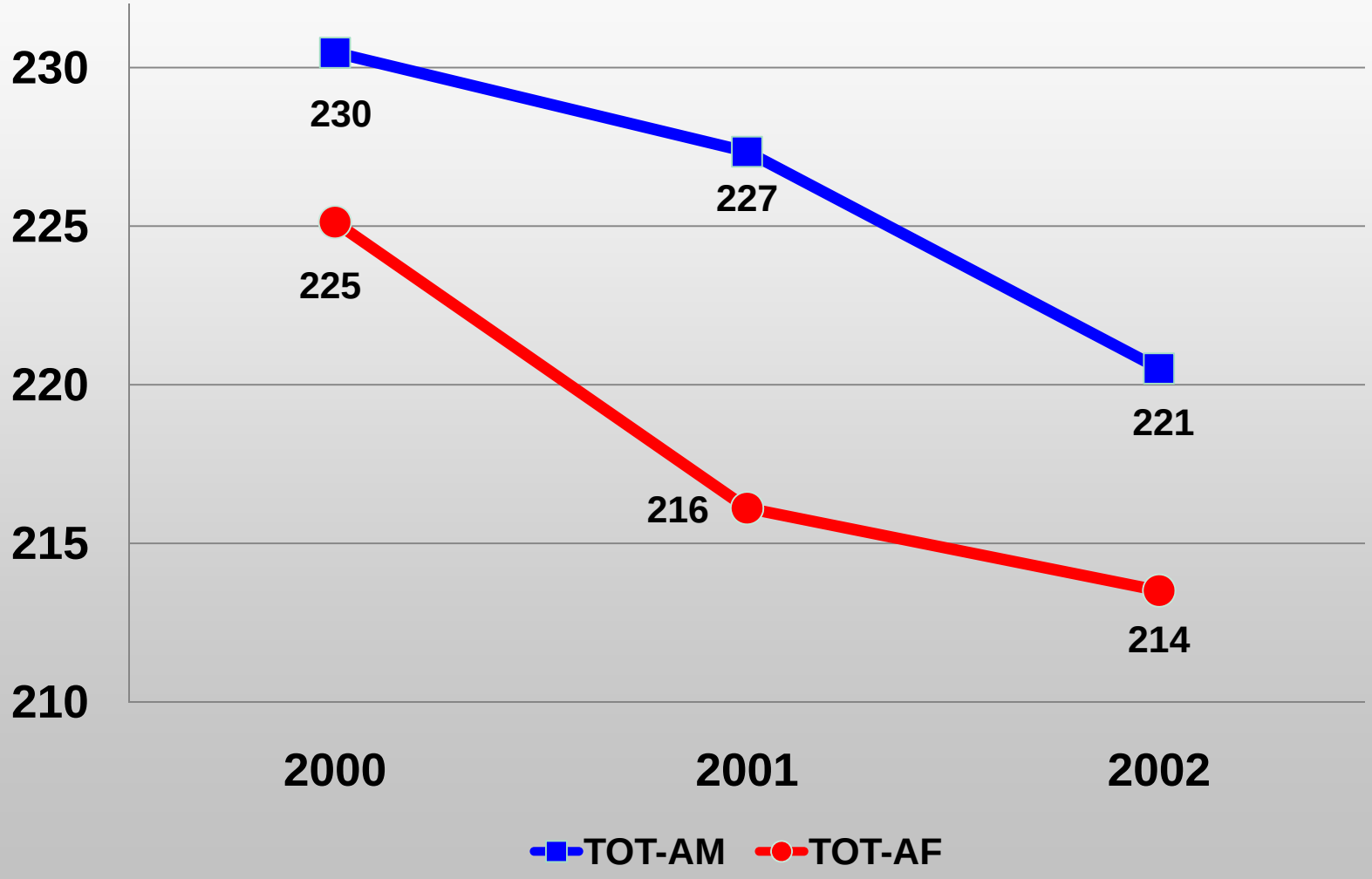




APFT Total Scores



Declining Performance Indicators

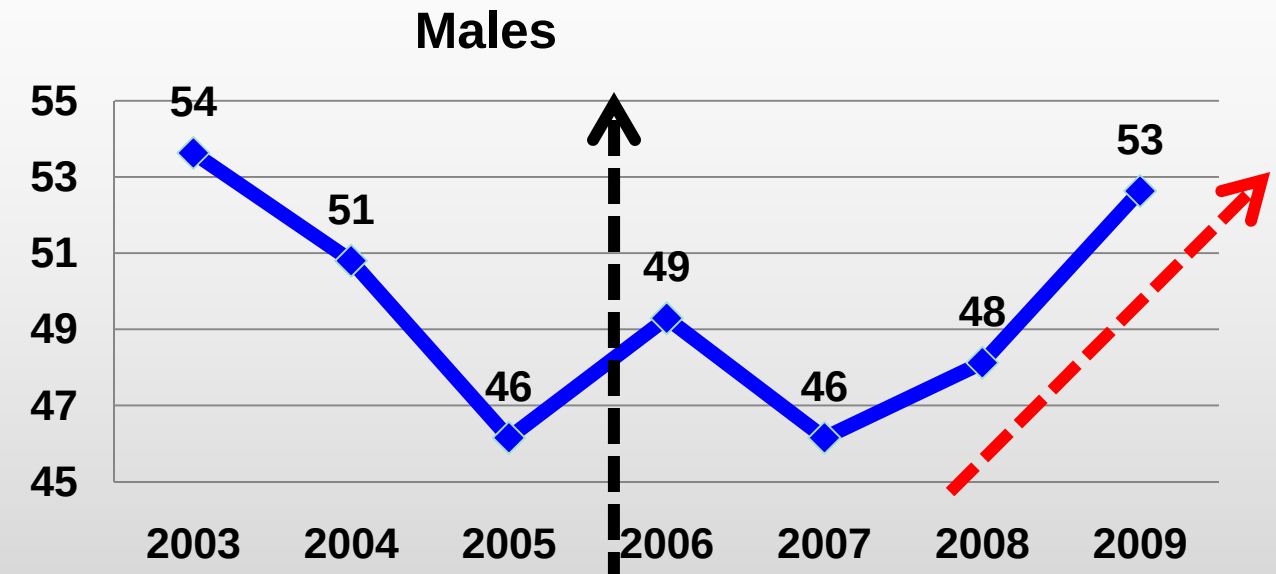


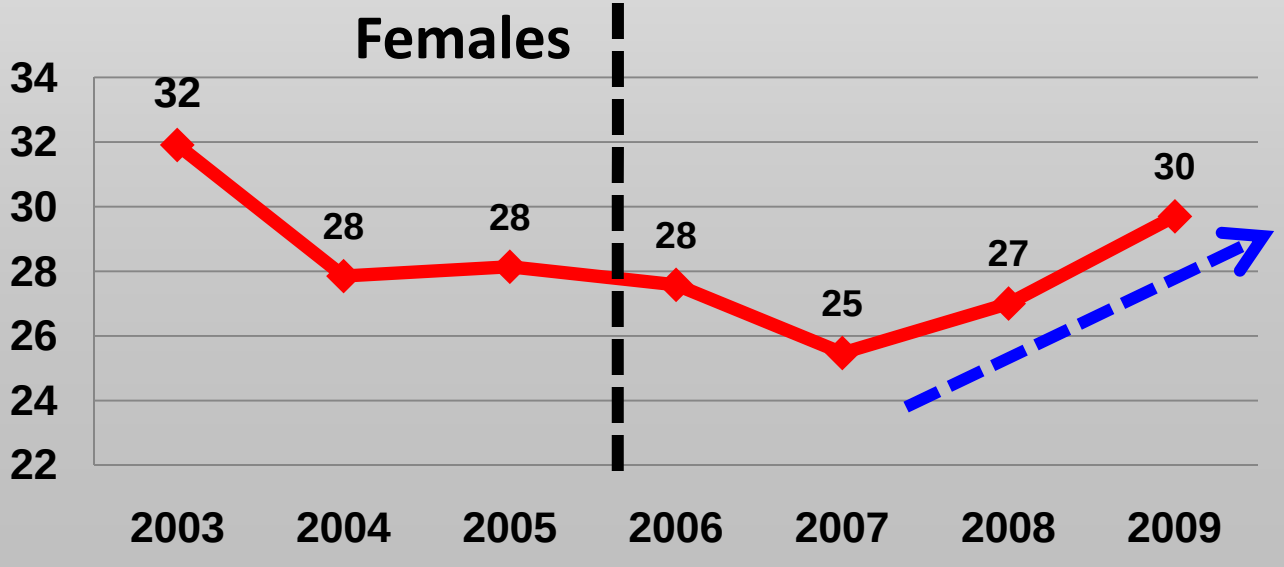
Candidate Fitness Assessment

- 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 v. the physical nature of USMA/ Army.

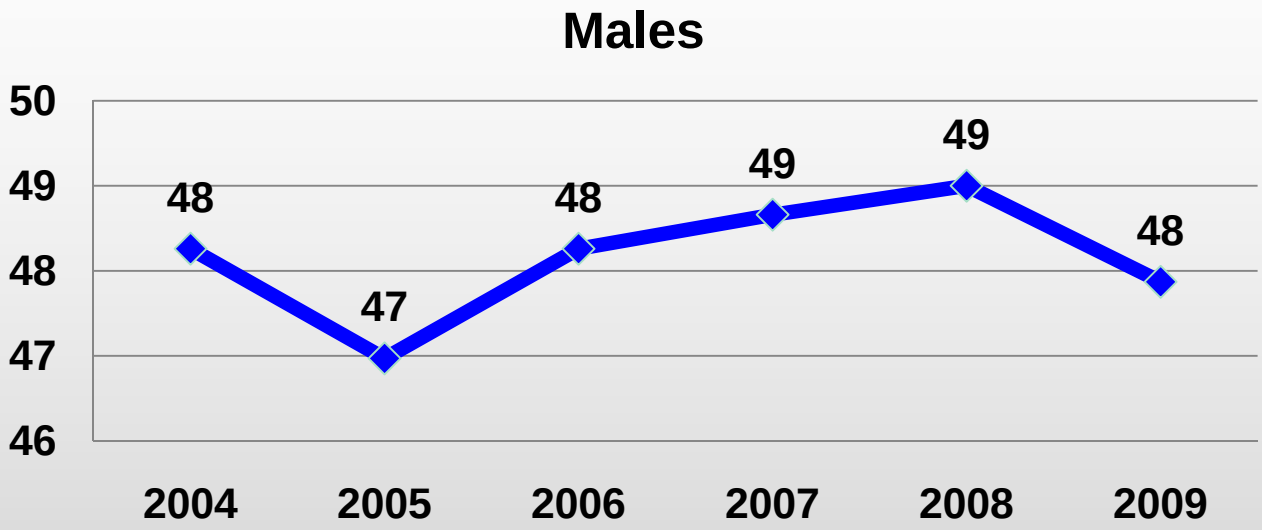
Physical Aptitude Exam
Basketball Throw
Standing Long Jump
300 yd. Shuttle Run
Sit-up
Push-up

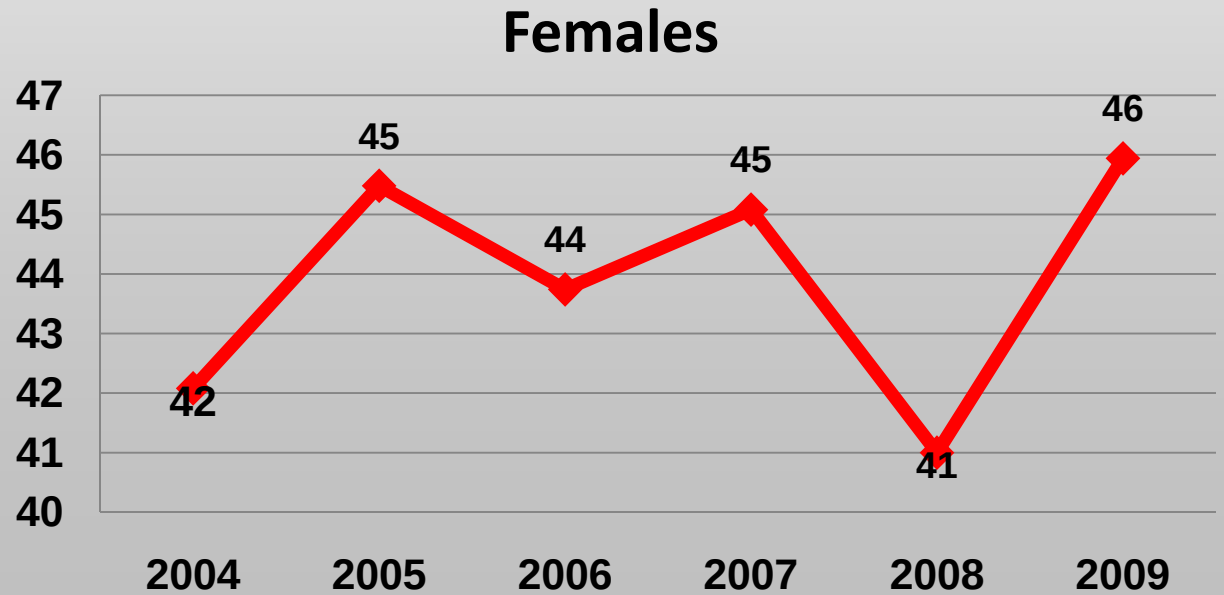
Changes in PU Performance B/A CFA for APFT Failures



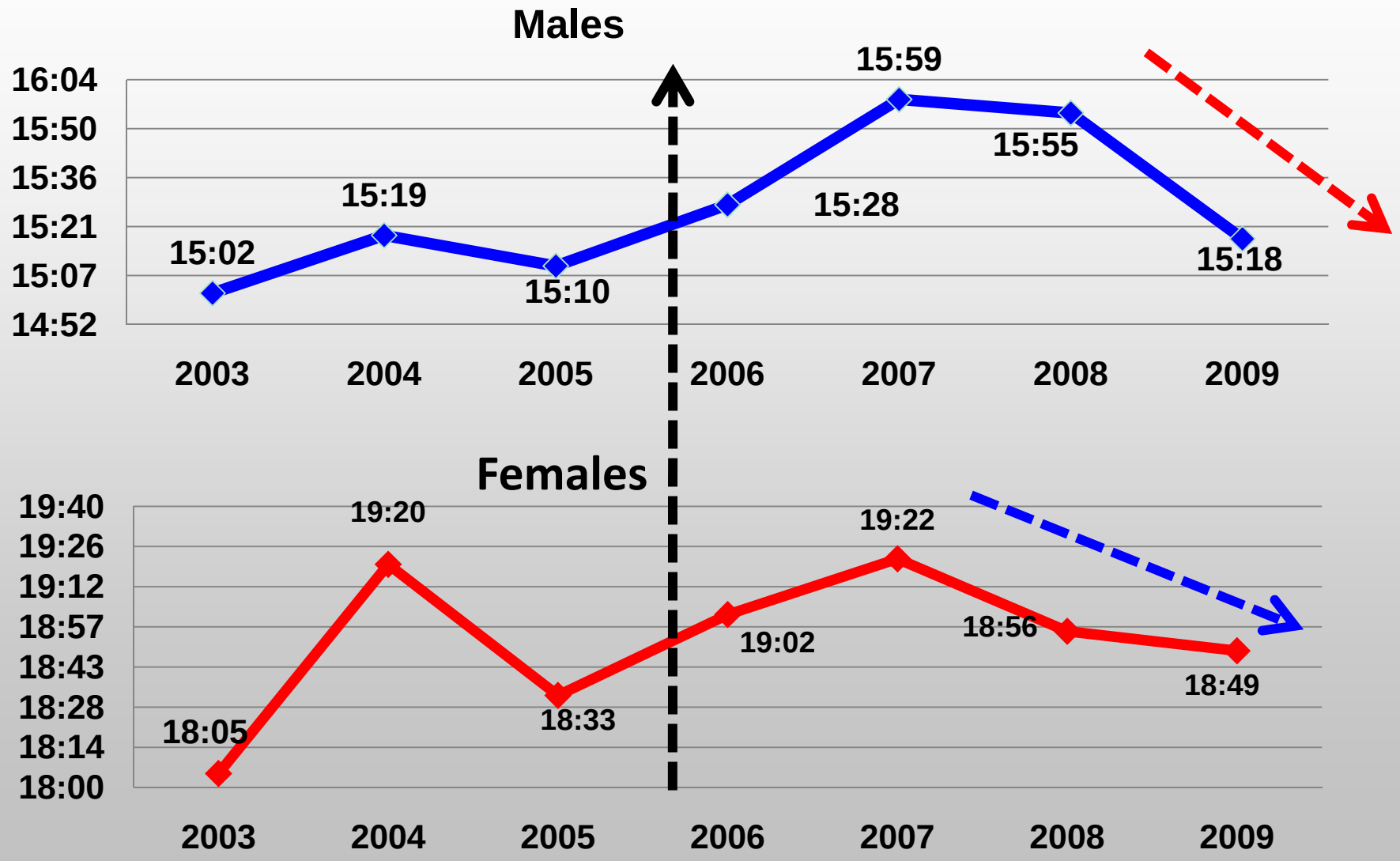


Changes in SU Performance B/A CFA for APFT Failures

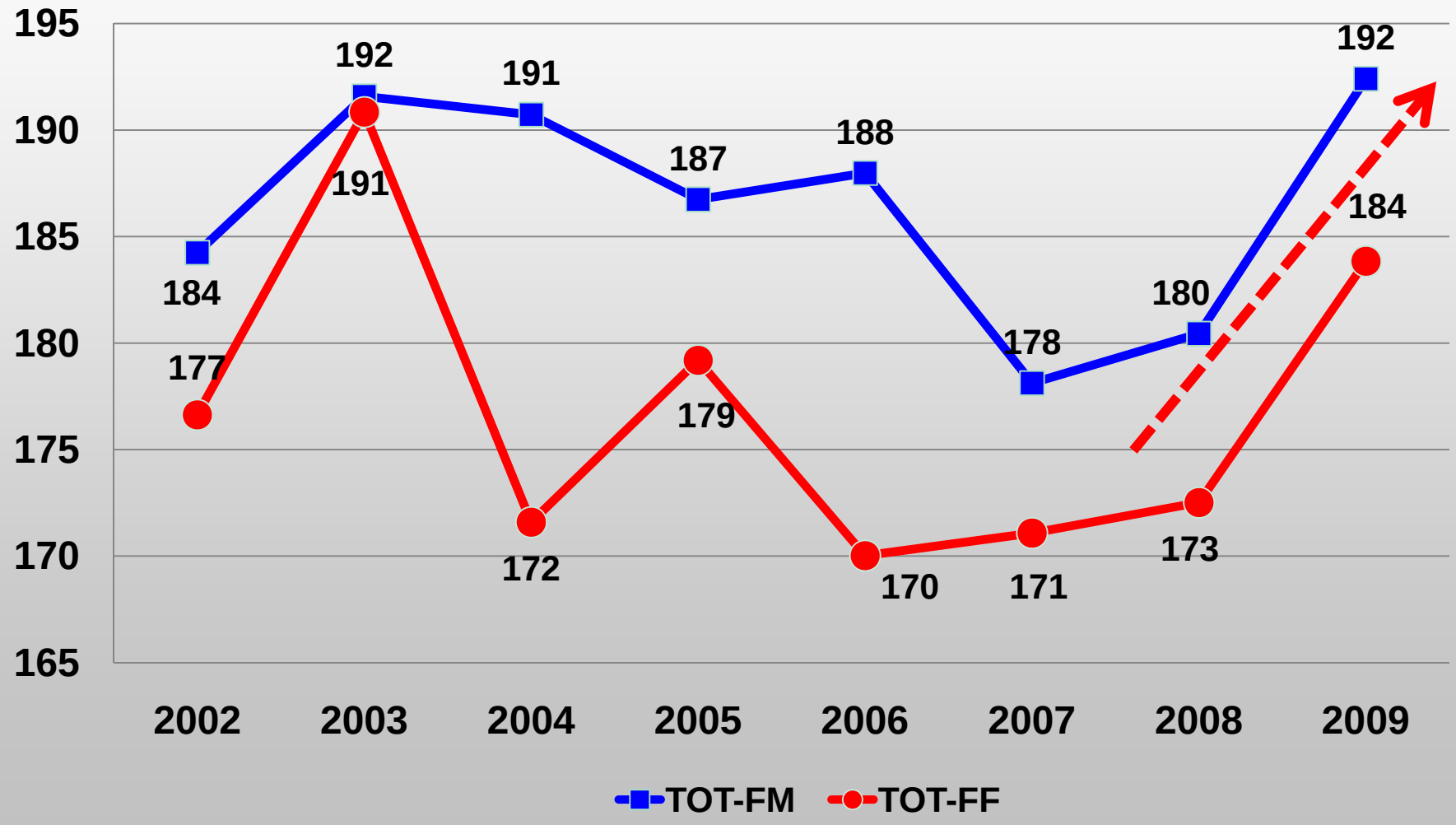




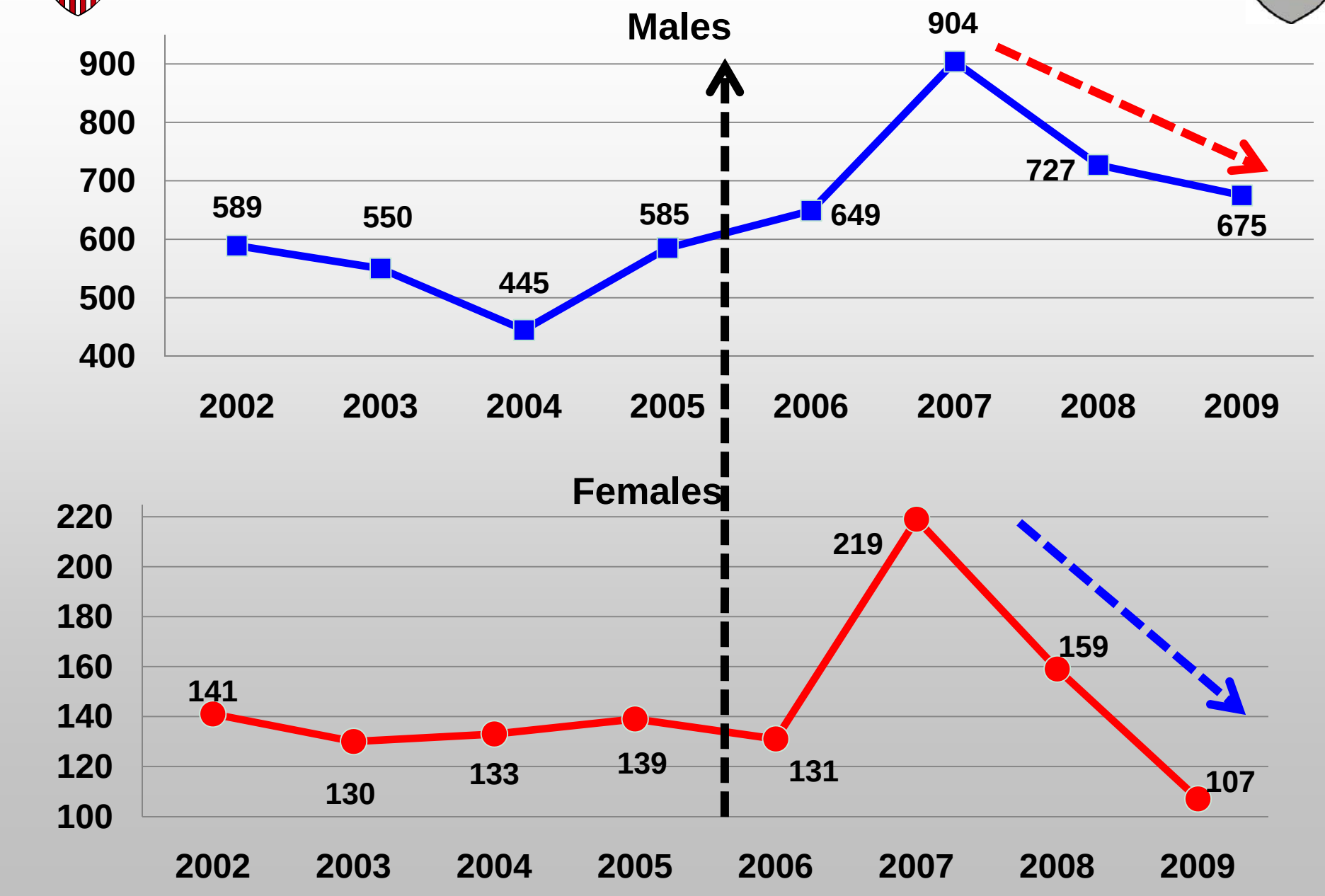
Changes in 2MR Performance B/A CFA for APFT Failures



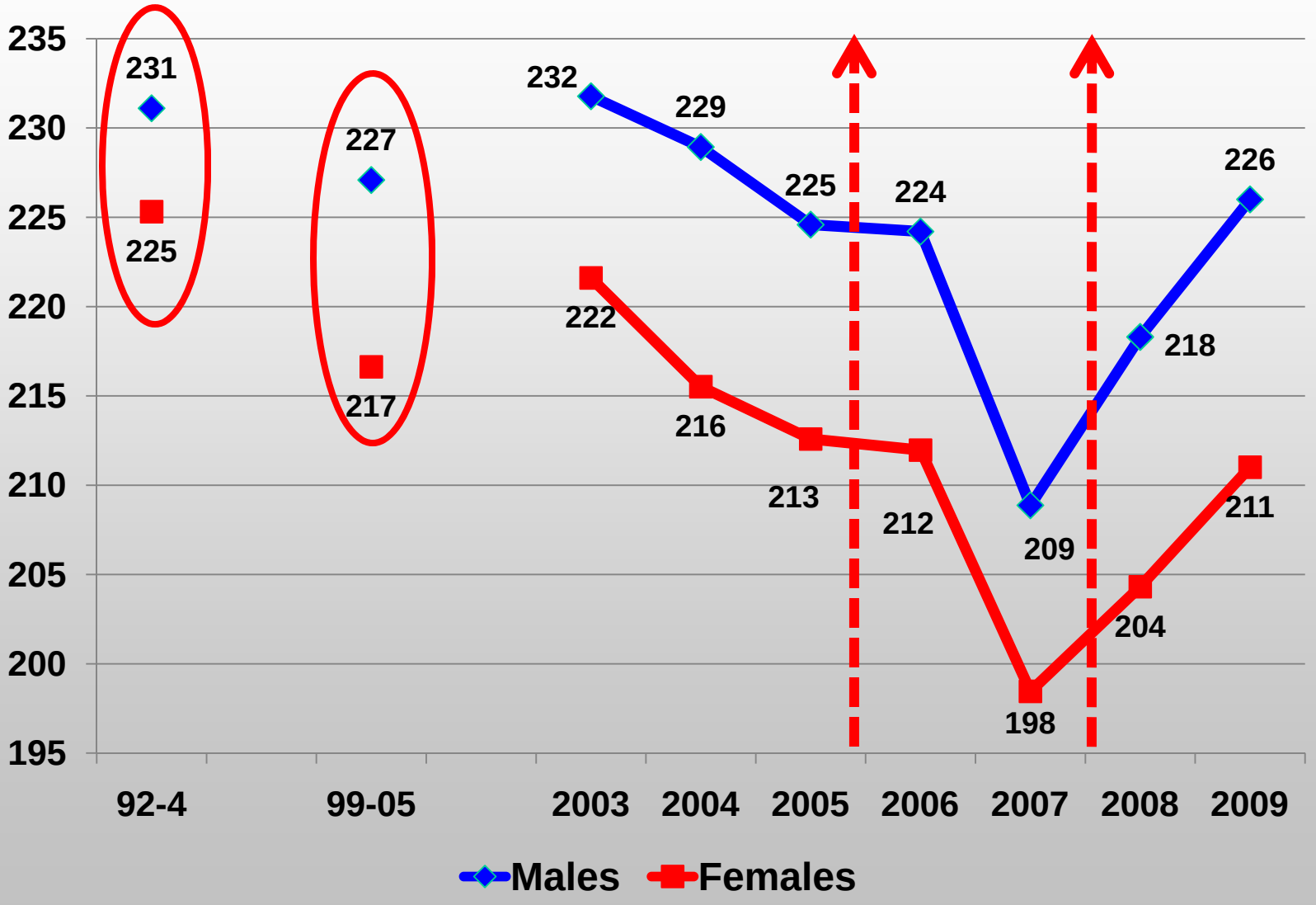
Total APFT Score - Failures



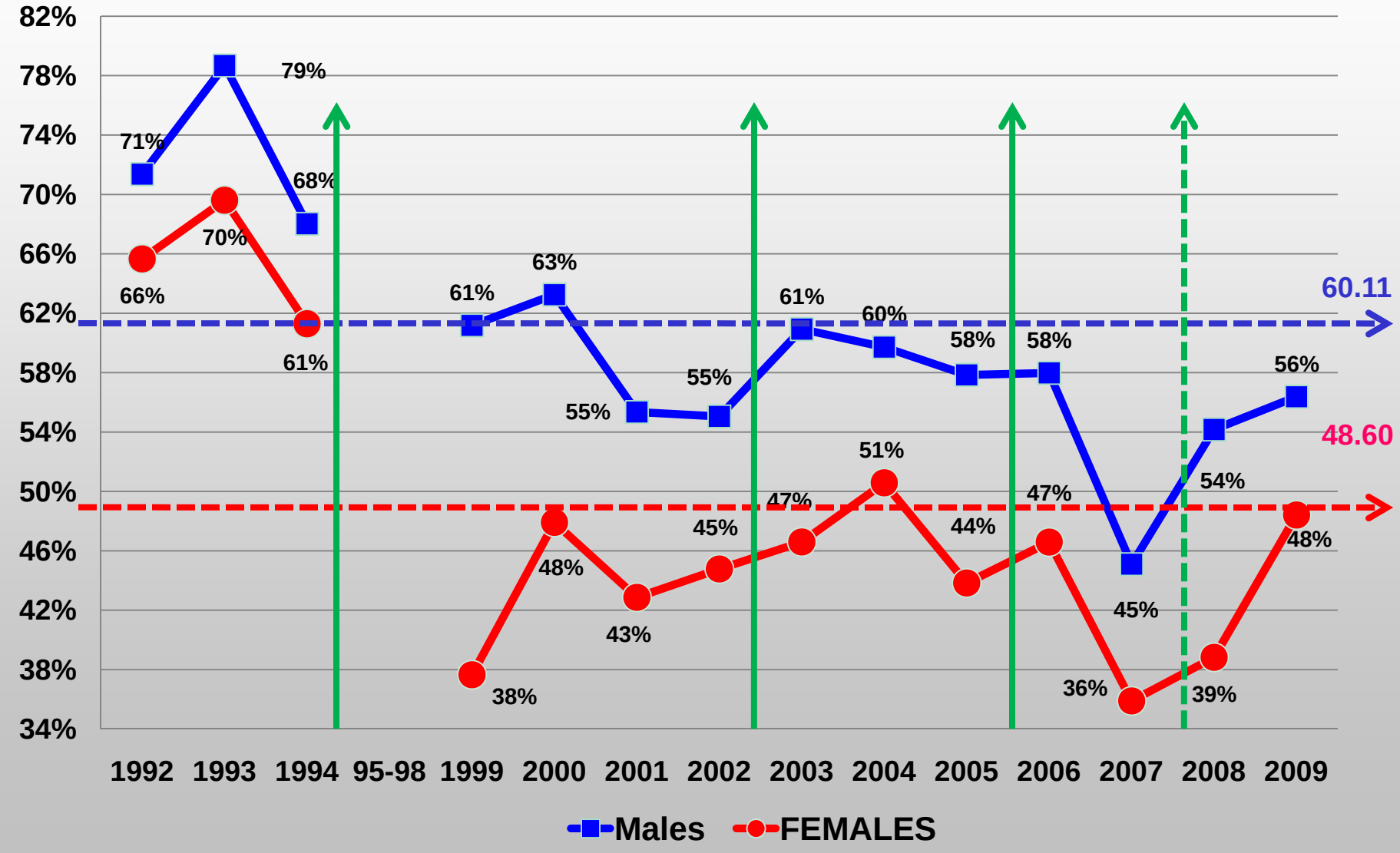
Event Failures B/A CFA



Changes in APFT Averages - All



APFT Pass Rates by Gender



“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)

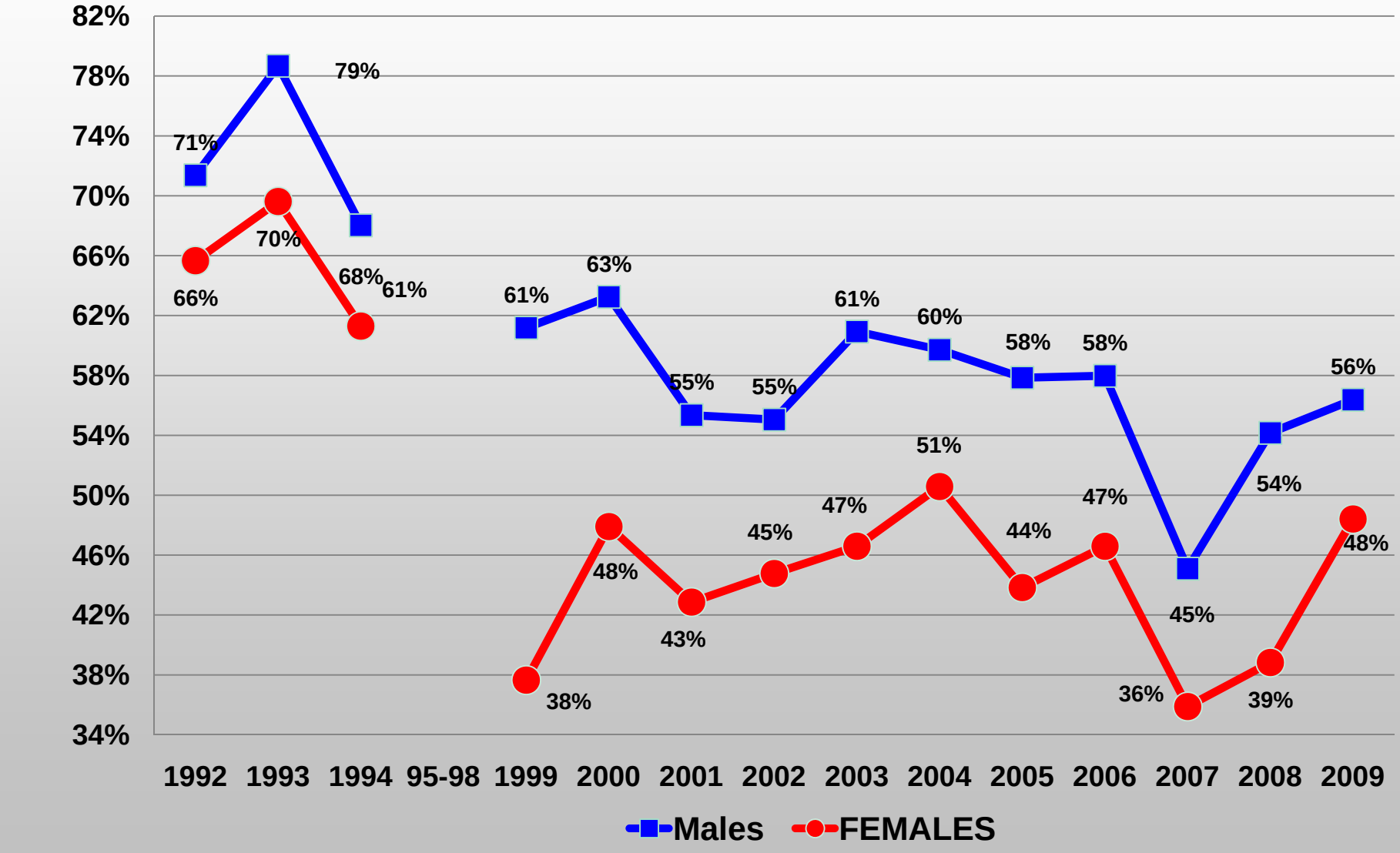
Historical Events Affecting Physical Performance Needs of the Army



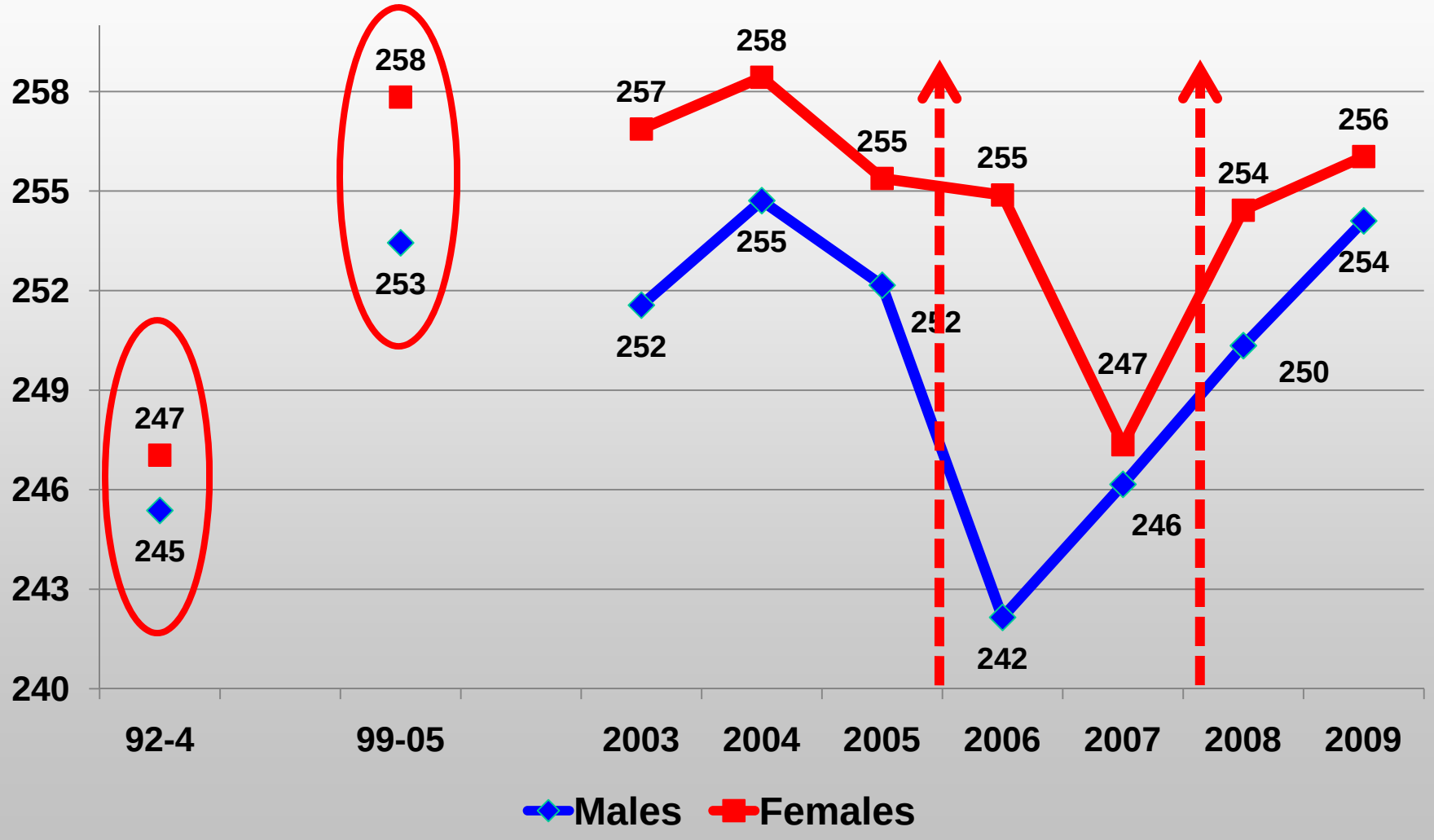
- 1827: Breech-loading firearms
- 1892: Manual of Calisthenics
- 1915: Intro of mechanized armor (“Little Willie”)
- 1939: German blitzkrieg tactics during the Invasion of Poland
- 1940: National Selection Service Draft (13-week basic training)
- 1944: Operation Cobra- Patton covered 600 miles in 2 weeks.
- 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

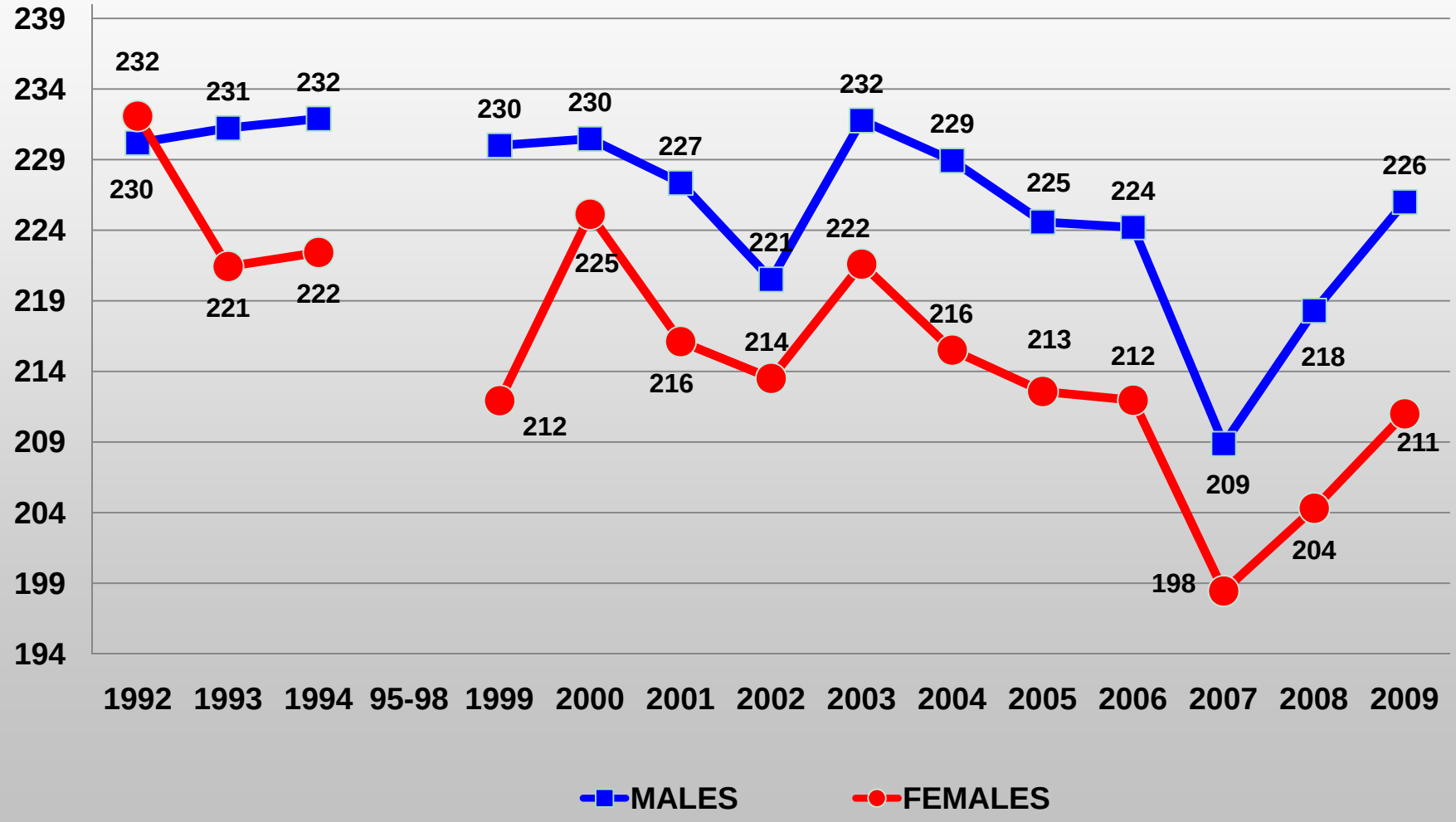
- 1892: Manual of Calisthenics
- 1912: Significant revision in Basic Combat Training
- 1942: Army Ground Forces Test
- 1944: Physical Efficiency Test Battery
- 1946: First publication of FM 21-20 (Eisenhower)
- 1956: President's Council on Physical Fitness and Sport
- 1957: Army Physical Fitness Test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


82%
78%
74%
70%
66%
62%
58%
54%
50%
46%
42%
38%
34%
71%
79%
66%
70%
68%
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2008
2009
Males
FEMALES

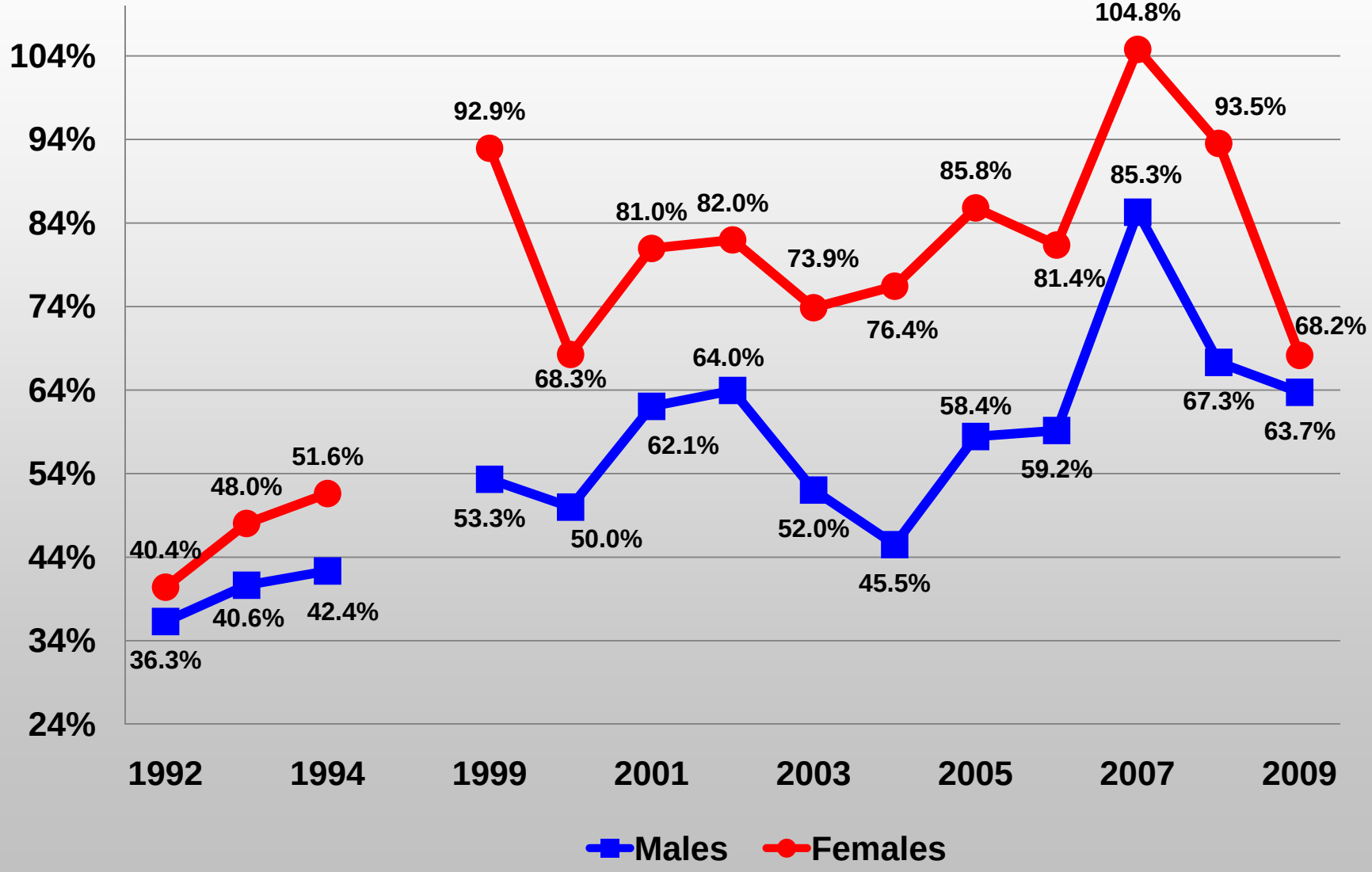
Changes in APFT Averages - Pass



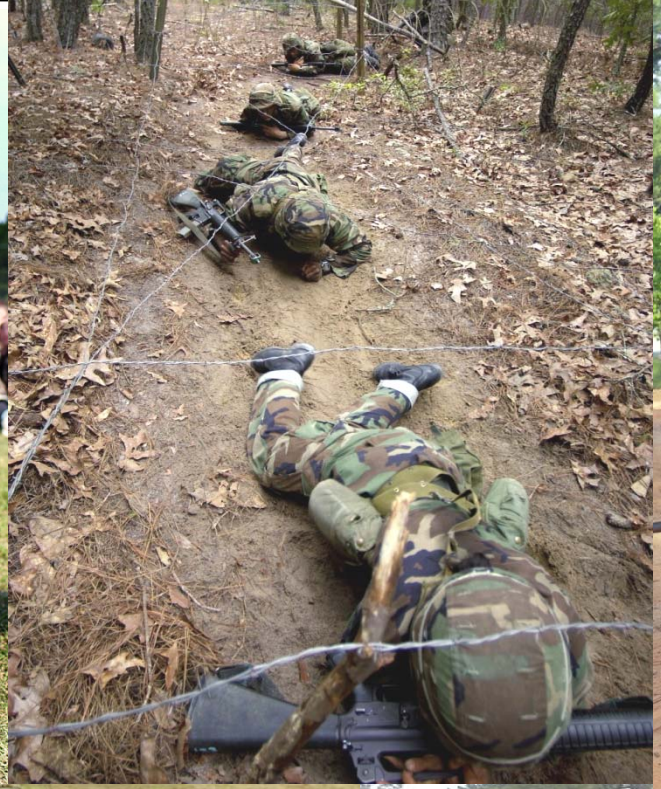
Total APFT - All



APFT Event Failure per Cadet













Basic Movement Skills















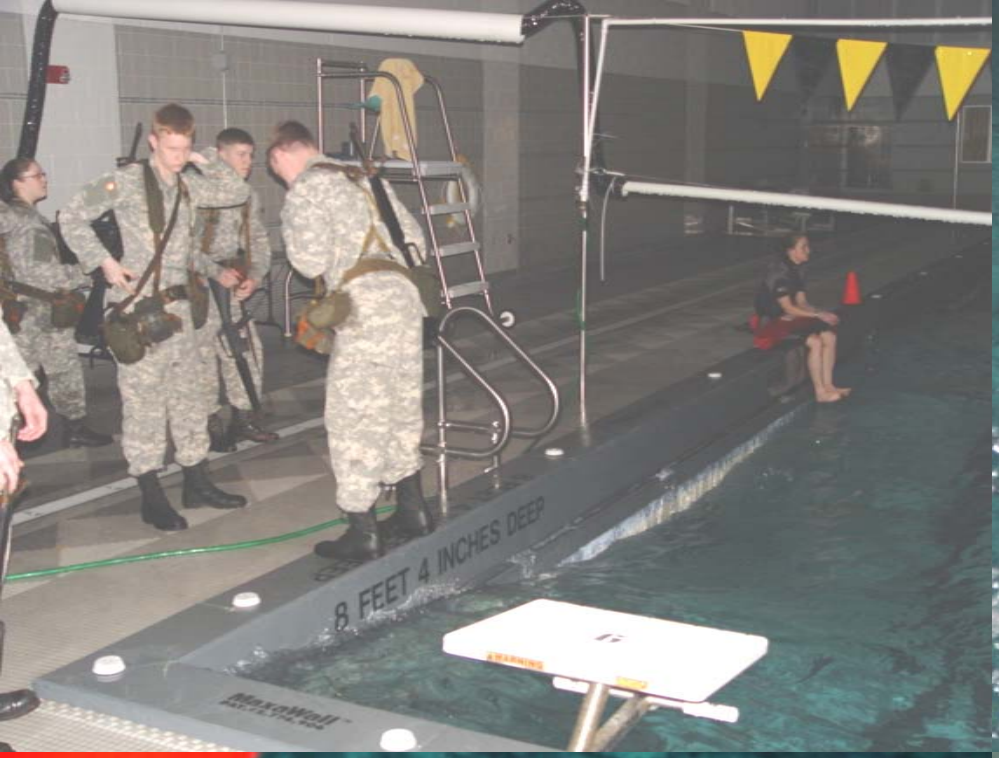



RINGSIDE


8 FEET 4 INCHES DEEP
KDI PARAGON
KDI PARAGON






8 FEET 4 INCHES DEEP



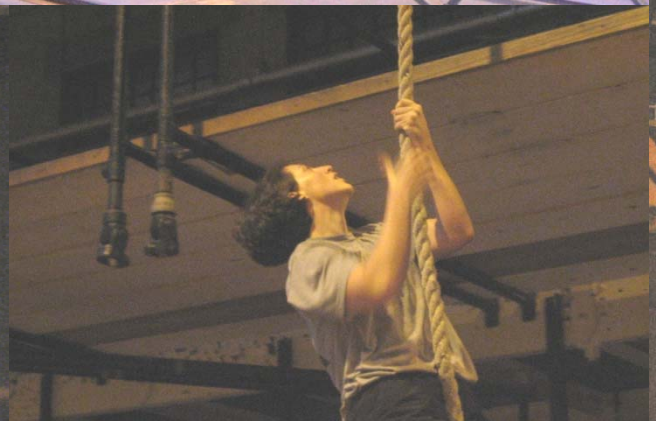
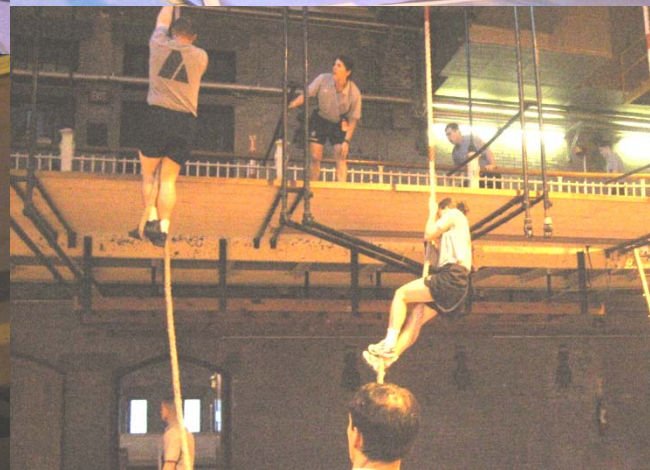












Company Overview

Tuesday, September 1, 2009

RECRUIT MILITARY®



Our Mission

We help military veterans achieve their dreams —

we connect them to employers, educational institutions, franchisors, and other organizations.

RECRUITMILITARY®



RecruitMilitary by the Numbers

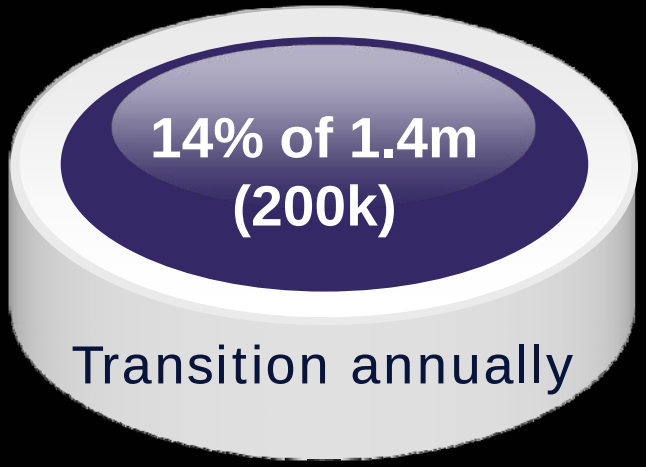
- 11 years in business – 2 acquisitions
- 65 Television news stories in past year

  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

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The Market





23 million veterans

RECRUITMILITARY®

Why Hire Former Military?



RECRUIT MILITARY®

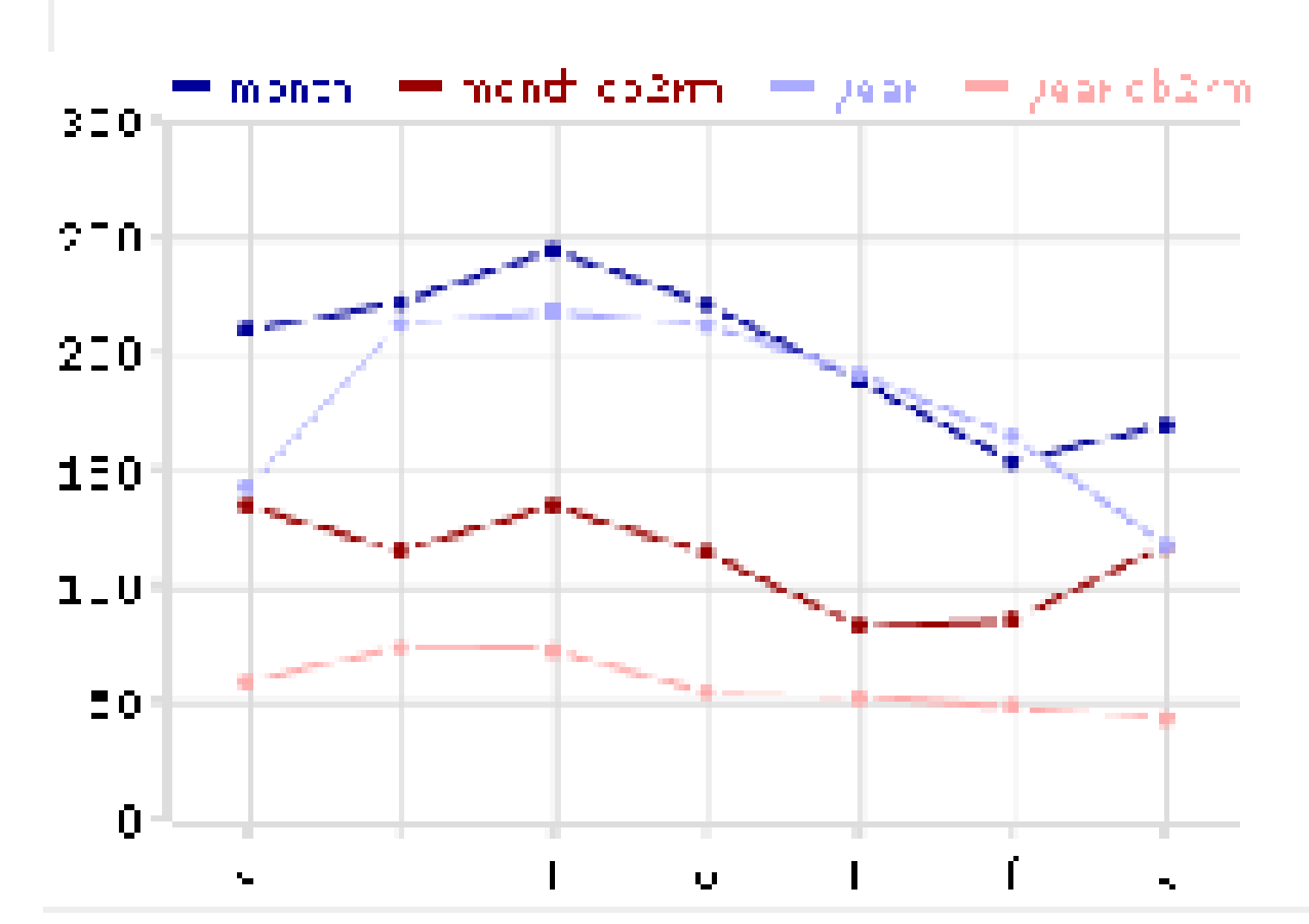
RecruitMilitary Product Innovation



- #1 in Career Fairs
- 500k Resume Database & Job Postings
- RecruitMilitaryInside
- Search & Employ Magazine
- Lead Generation

RECRUITMILITARY®

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%

RECRUITMILITARY®



Demographics

- 85.2% male / 14.8% female

- 22.7% African-American
- 9.4% Hispanic
- 62.5% Caucasian
- 5.4% Other

RECRUIT MILITARY®



Demonstration

- Lead Generation Demonstration

RECRUIT MILITARY®


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

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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**

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TECHNOLOGY

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.

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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”.

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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.

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EVENTS

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 then 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.

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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)

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WAIVERS

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)

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ADVERTISING

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.

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INCENTIVES

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).

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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.

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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.

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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.

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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.

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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.**

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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.**

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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.

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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.**

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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.

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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.**

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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

Navy Recruiter Quality of Life Study

- 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.
- Survey was administered in 1999, 2002, 2004, 2006 and most recently in February 2009.

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

Navy RQOL Survey Analysis

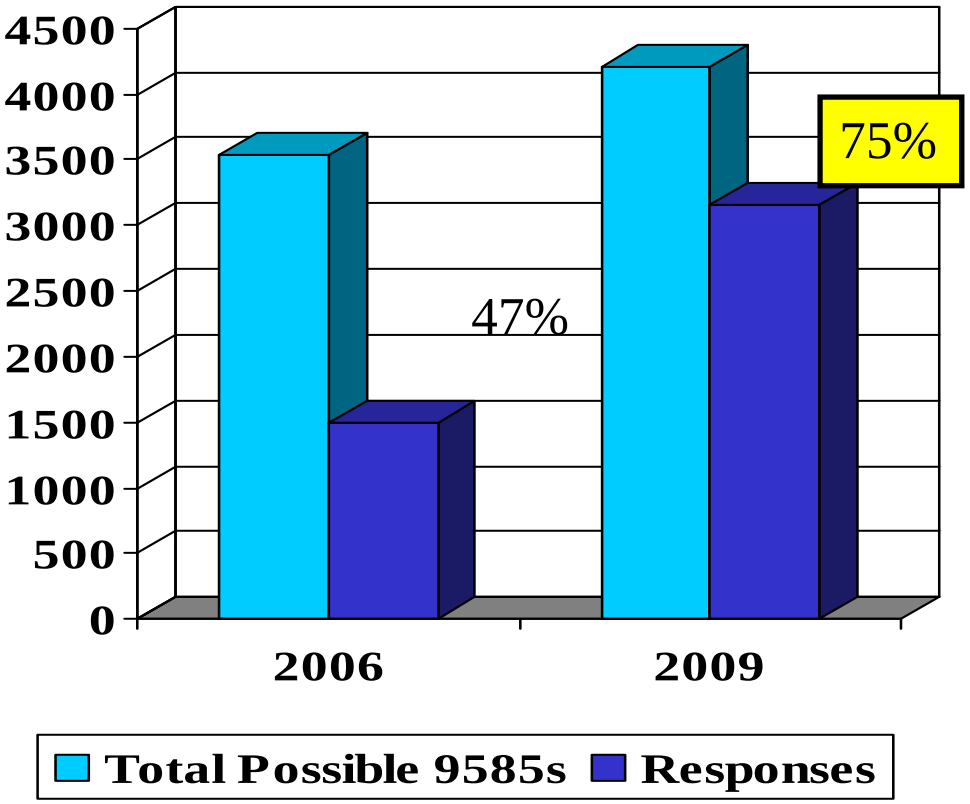
- With only a few minor changes, the core questions on the survey have remained constant enabling a longitudinal comparison of changes in quality of life.

- 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.

Survey Response Rates



With 3,163 responses, the 2009 RQOL Survey had an estimated response rate of 75%.

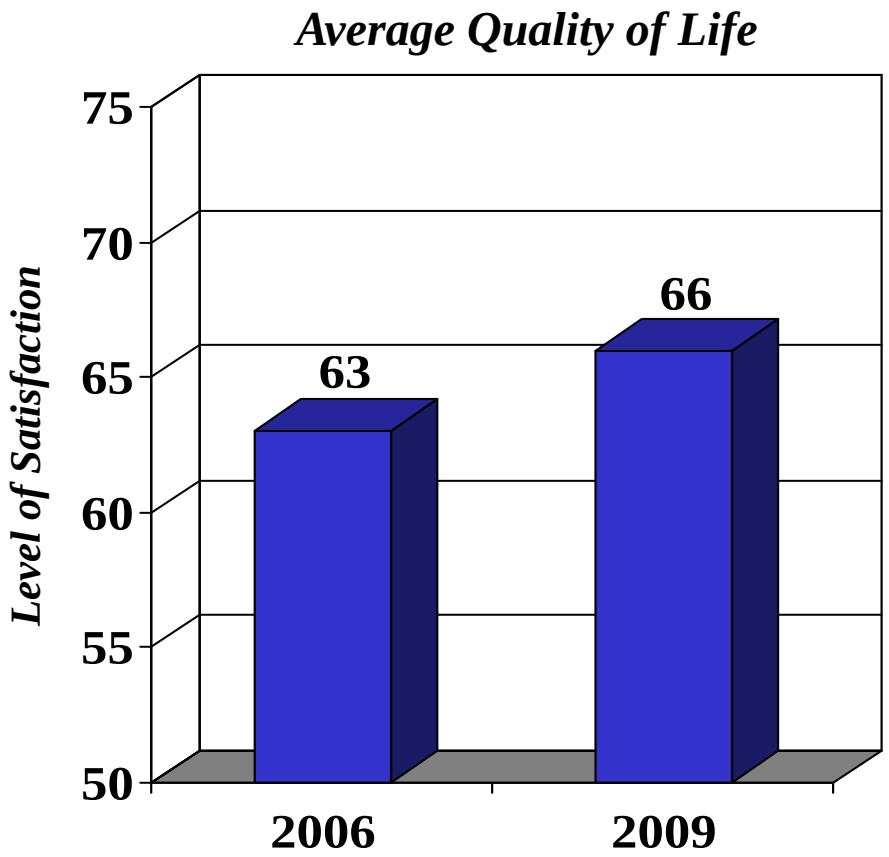
This is a significant improvement from the 1,502 responses and estimated 47% response rate in 2006.

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 Recruiter Quality of Life

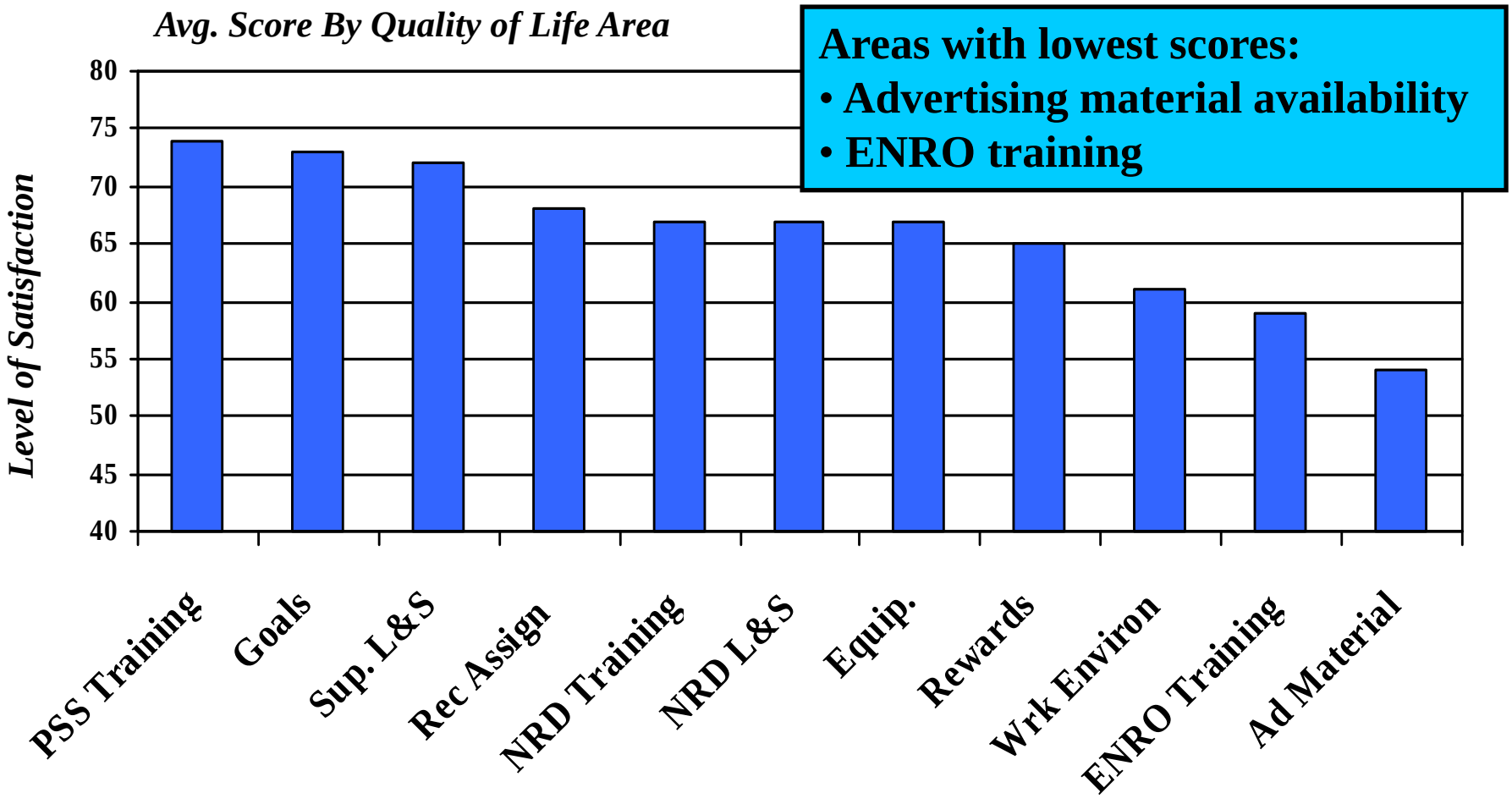
Overall quality of life is calculated by combining responses to the 63 core survey questions.

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



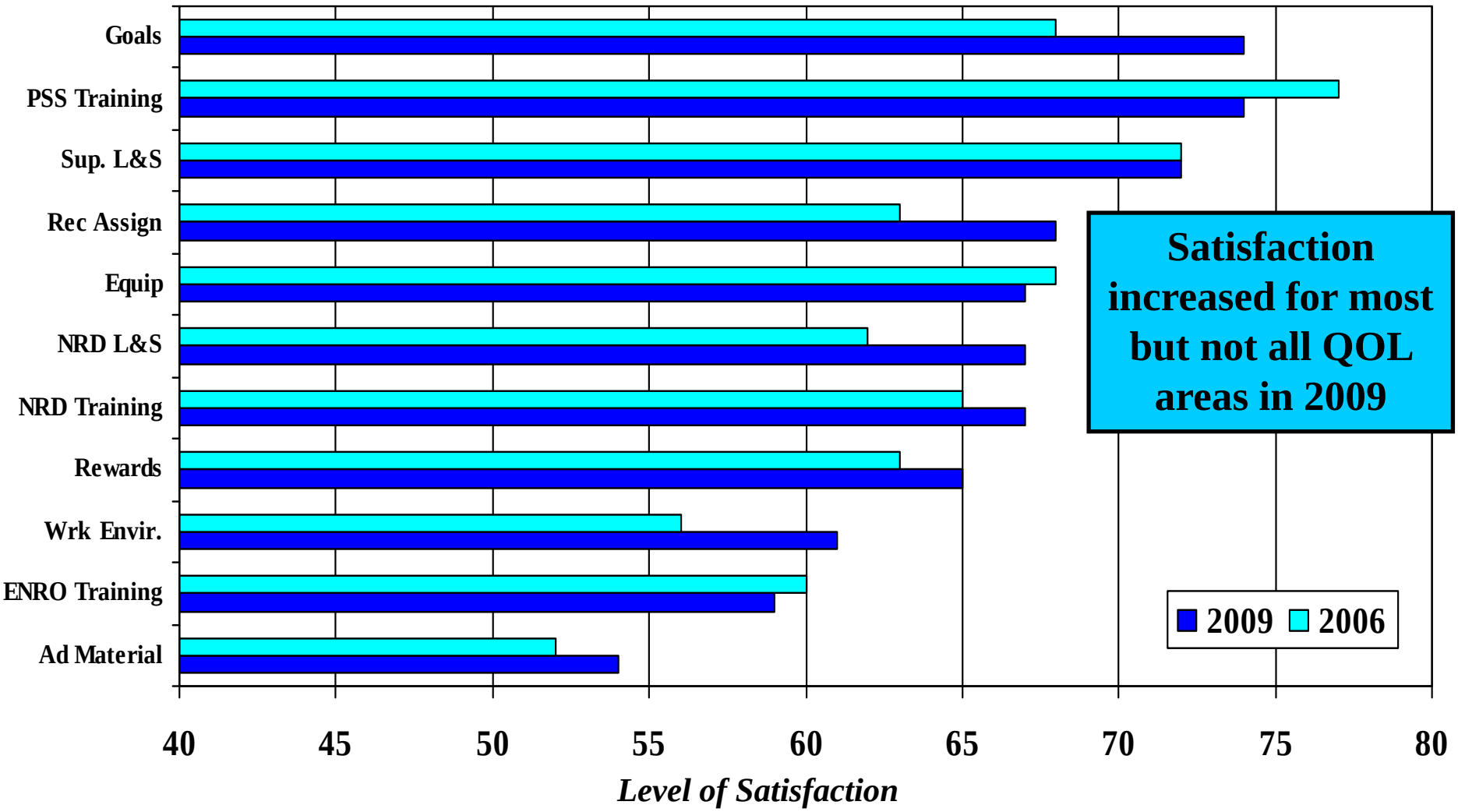
Compared to 2006, Navy recruiter QOL is better in 2009.

Quality of Life Area Measures in 2009

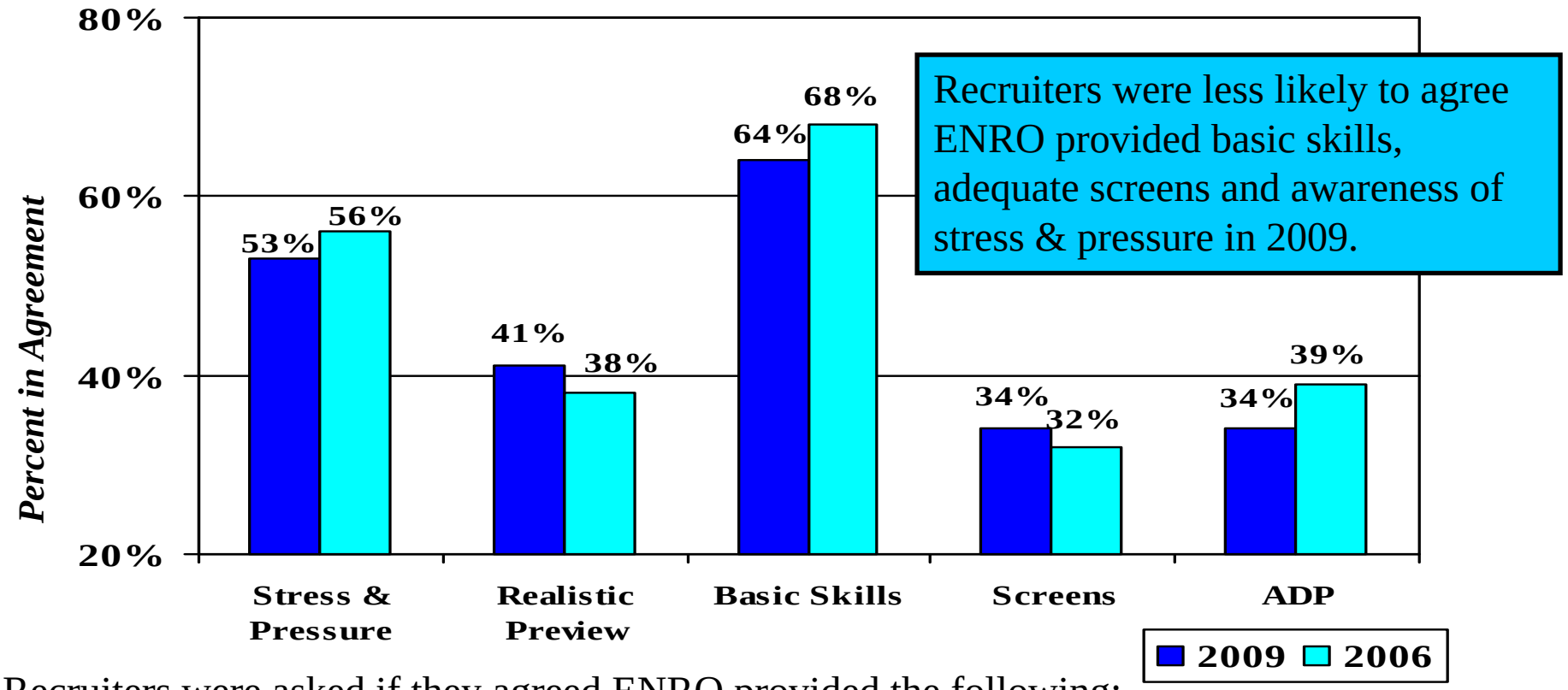


An aggregate measure of recruiter satisfaction with each QOL area was generated by combining survey questions relating to that area.

Changes in Average Scores by QOL Area



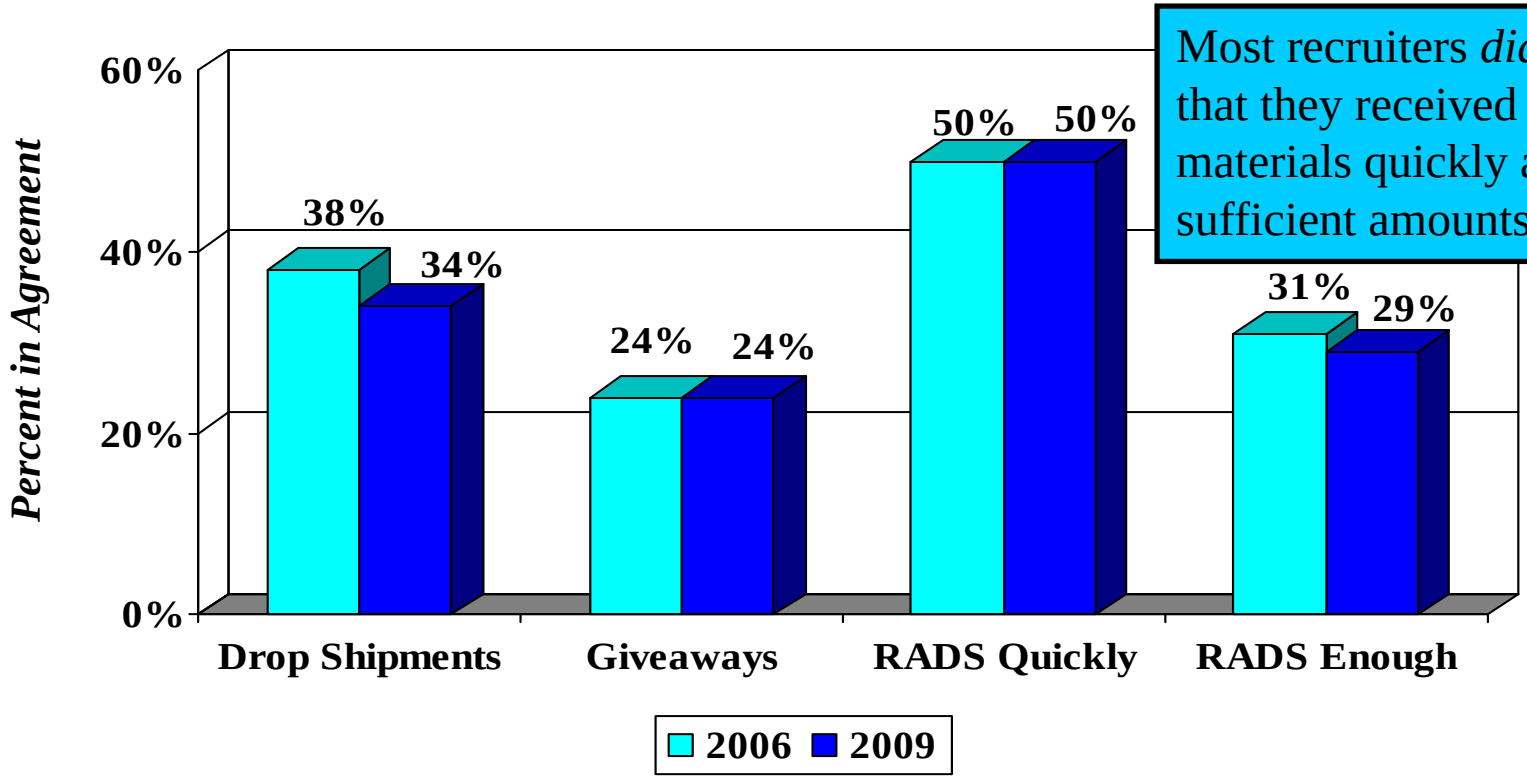
Enlisted Navy Recruiter Orientation Training



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

Trends in Survey Questions about Advertising Material Availability



Most recruiters *did not* agree that they received advertising materials quickly and in sufficient amounts.

Recruiters were asked if they agreed with the following statements about Navy Advertising Materials:

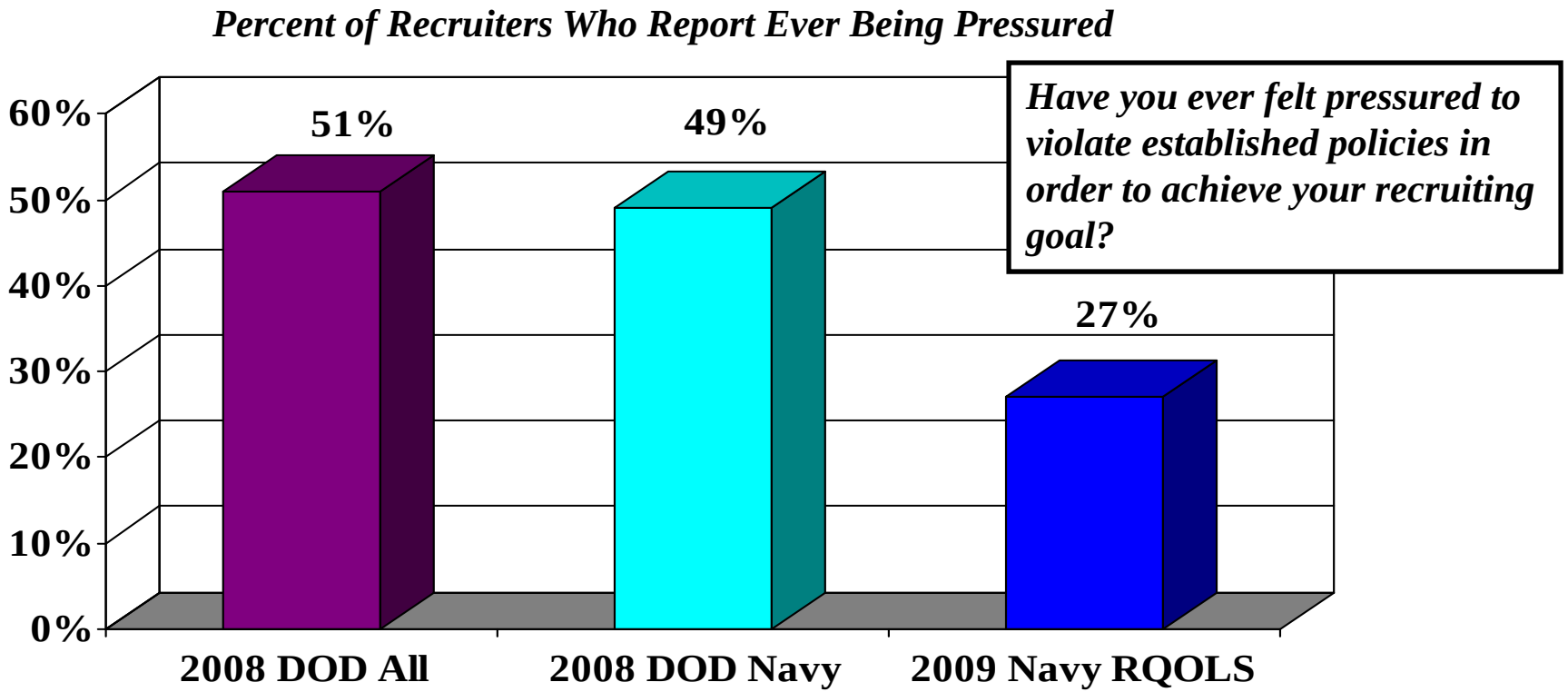
- My station receives drop shipments of giveaways quickly.
- My station receives enough giveaways.
- When I order RADS, station receives them quickly.
- I am able to order enough RADS for recruiters at my station.

Comparison of 2009 Navy and 2008 DOD Recruiter Quality of Life Surveys

- 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

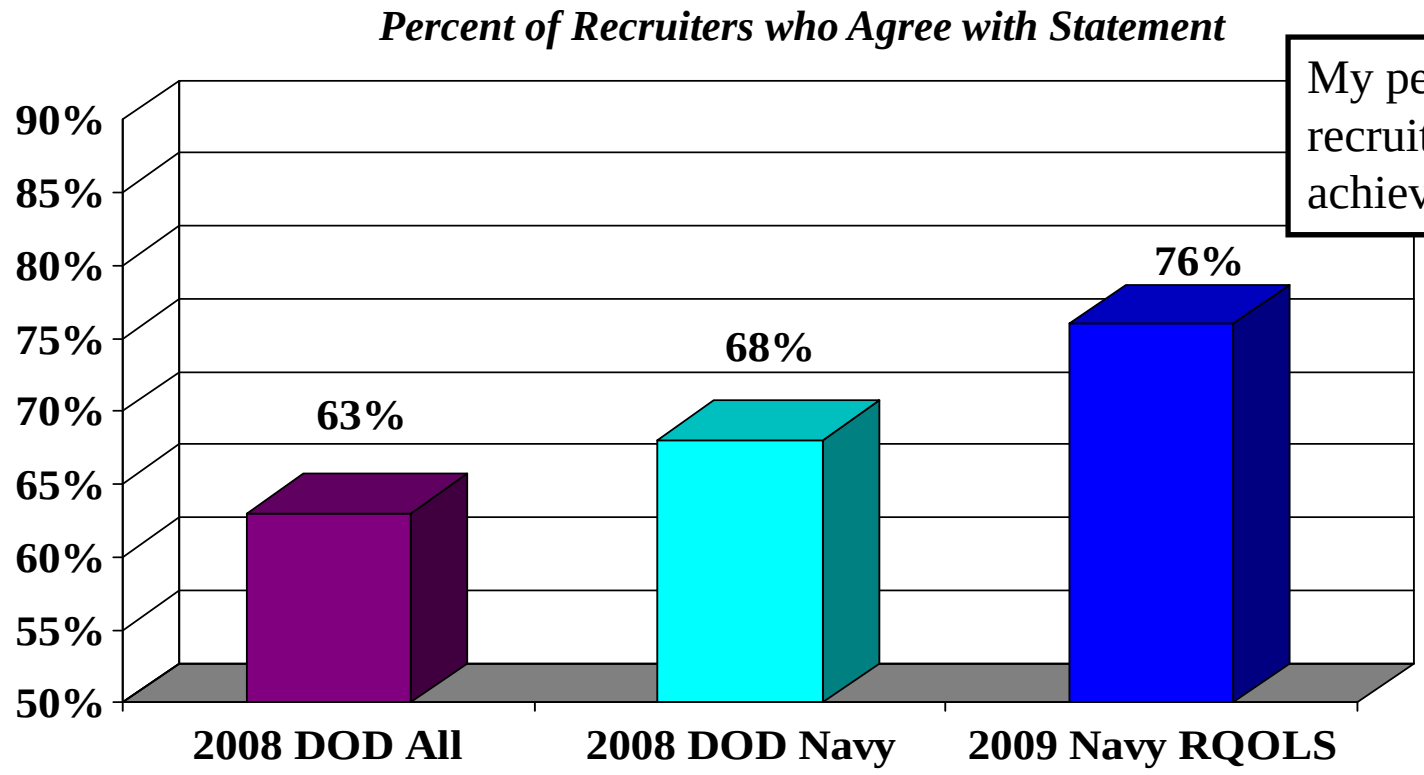
- Comparison of these questions revealed Navy recruiters' opinions in 2009 differed from those of all DOD recruiters and from the Navy recruiters surveyed in 2008.

Pressure to Violate Policy



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

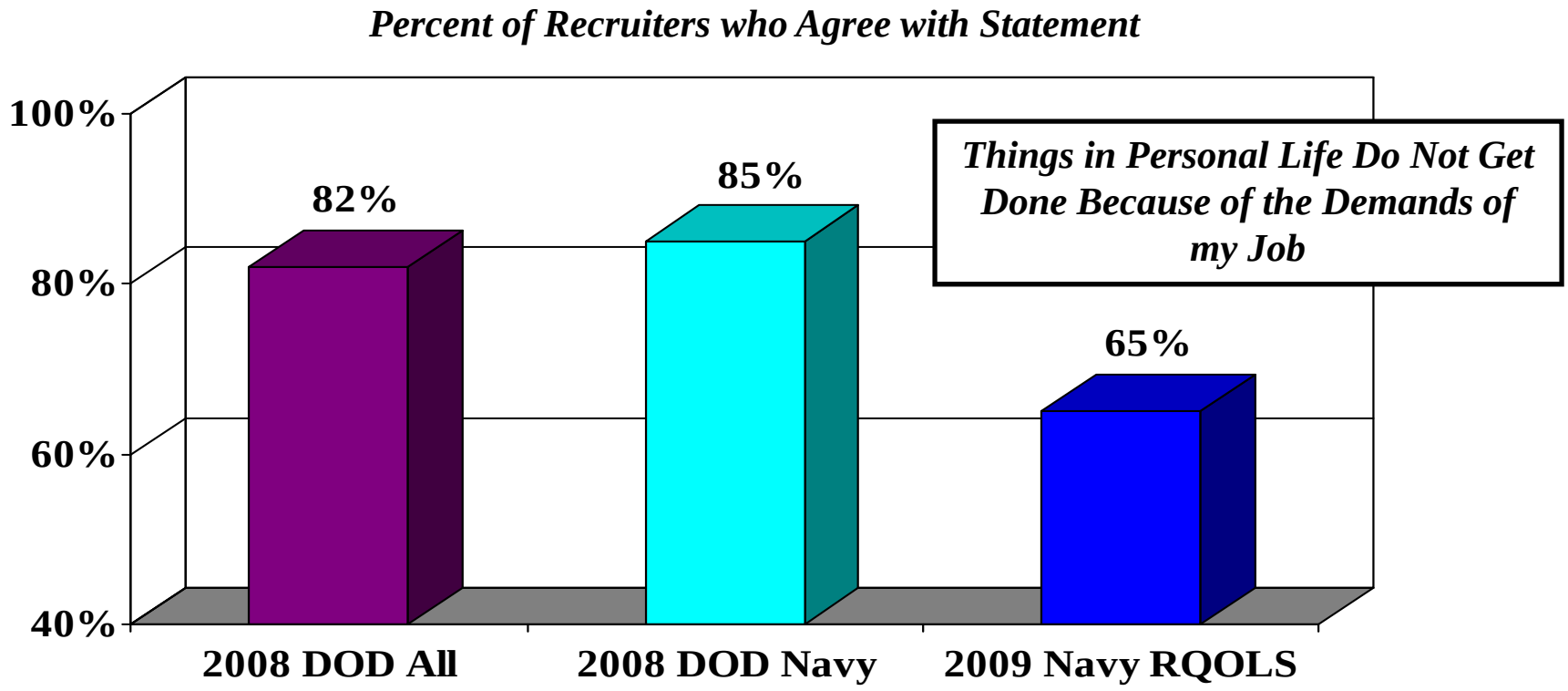
Achievable Recruiting Goals



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

** 2008 DOD RQOL Question: My monthly goals/missions are achievable.*

Work and Personal Life Balance



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.

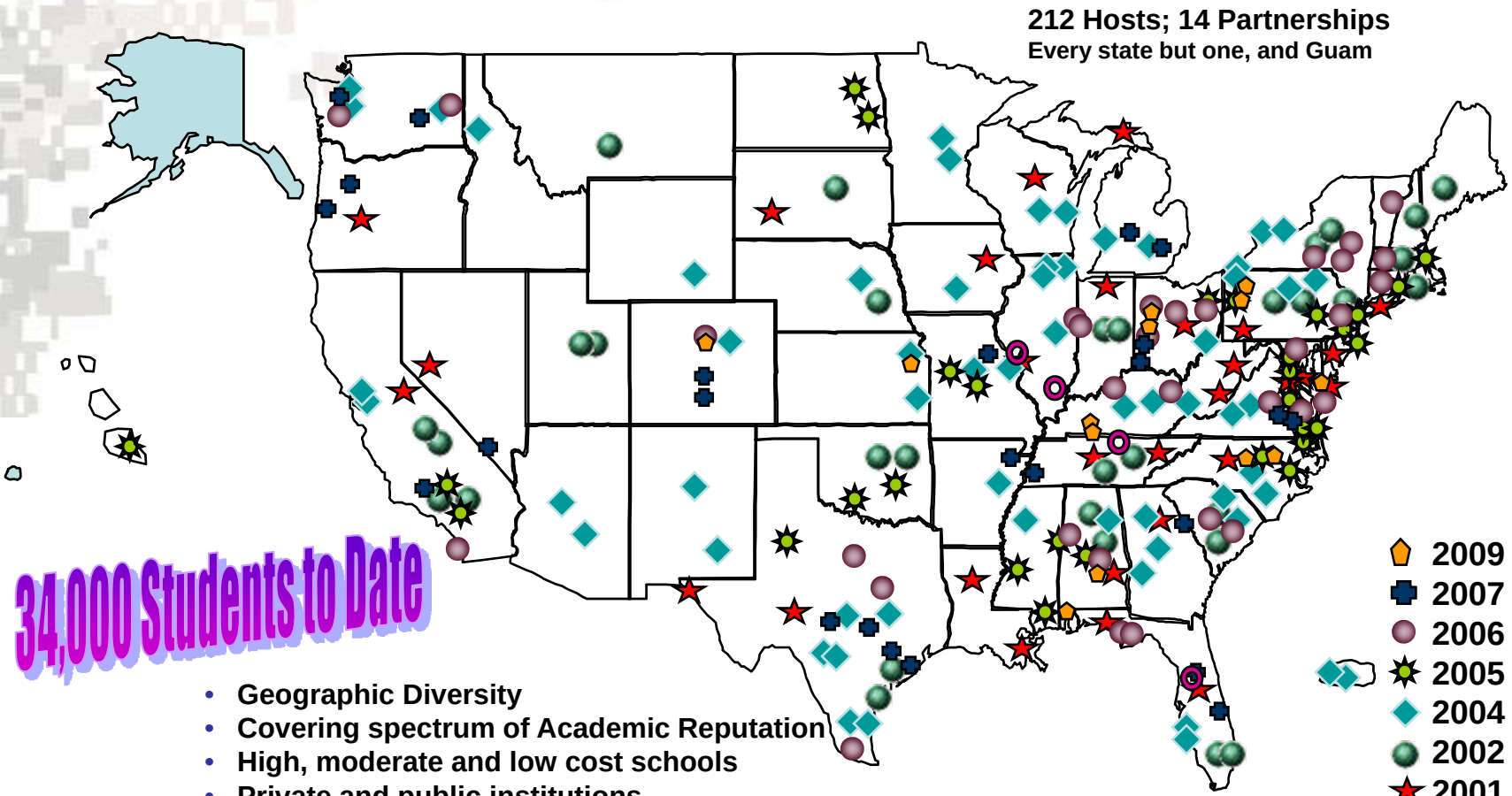
Questions and Comments



The 2009 On-Campus Market Potential Study

Dr. Bert Huggins

Total 226 Schools Studied



34,000 Students to Date

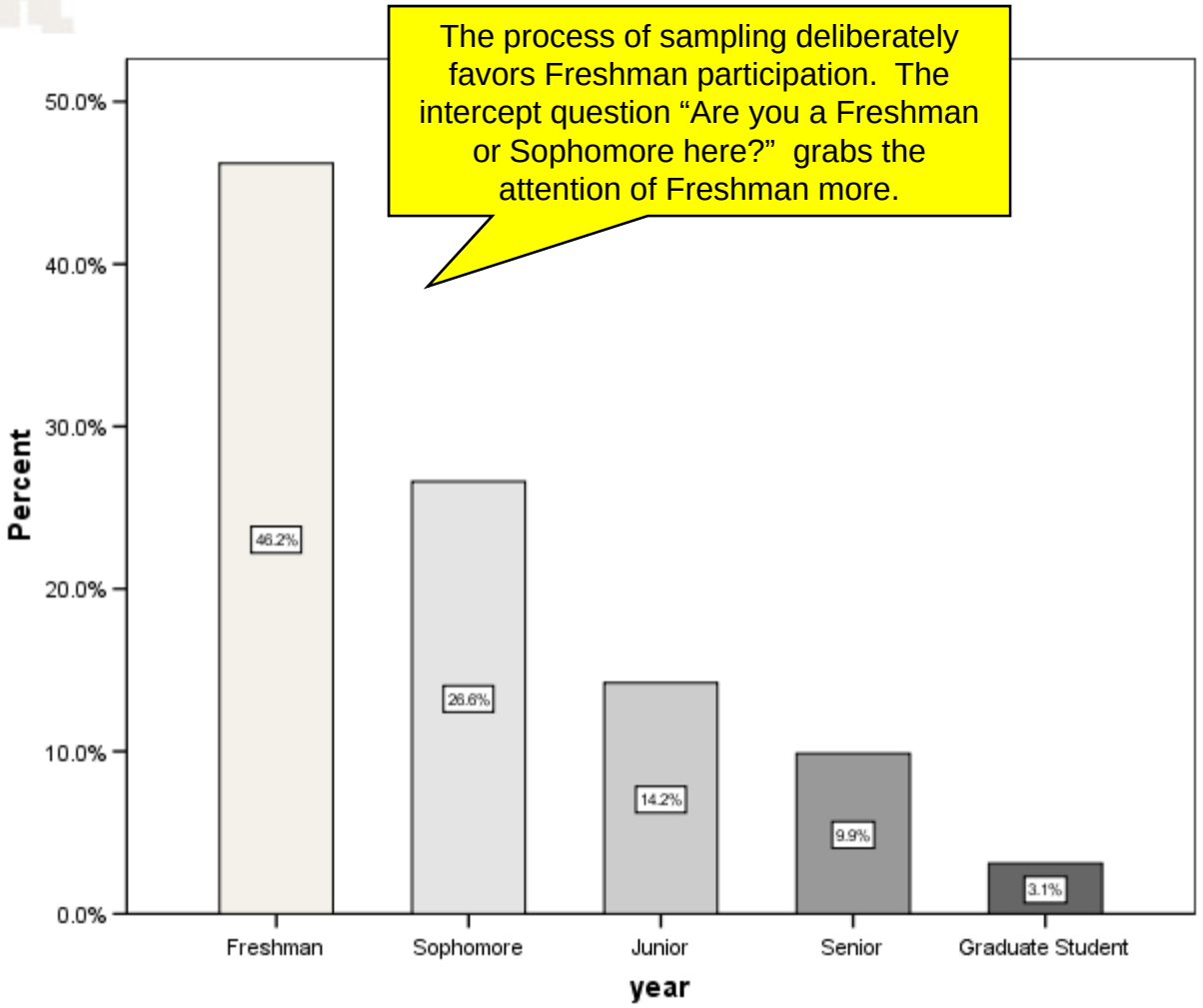
- Geographic Diversity
- Covering spectrum of Academic Reputation
- High, moderate and low cost schools
- Private and public institutions
- Prestigious, competitive and non-competitive schools
- Primarily residential and primarily commuter schools
- Representation of high & low military propensity

2008 Study

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Year in School Population Sampled



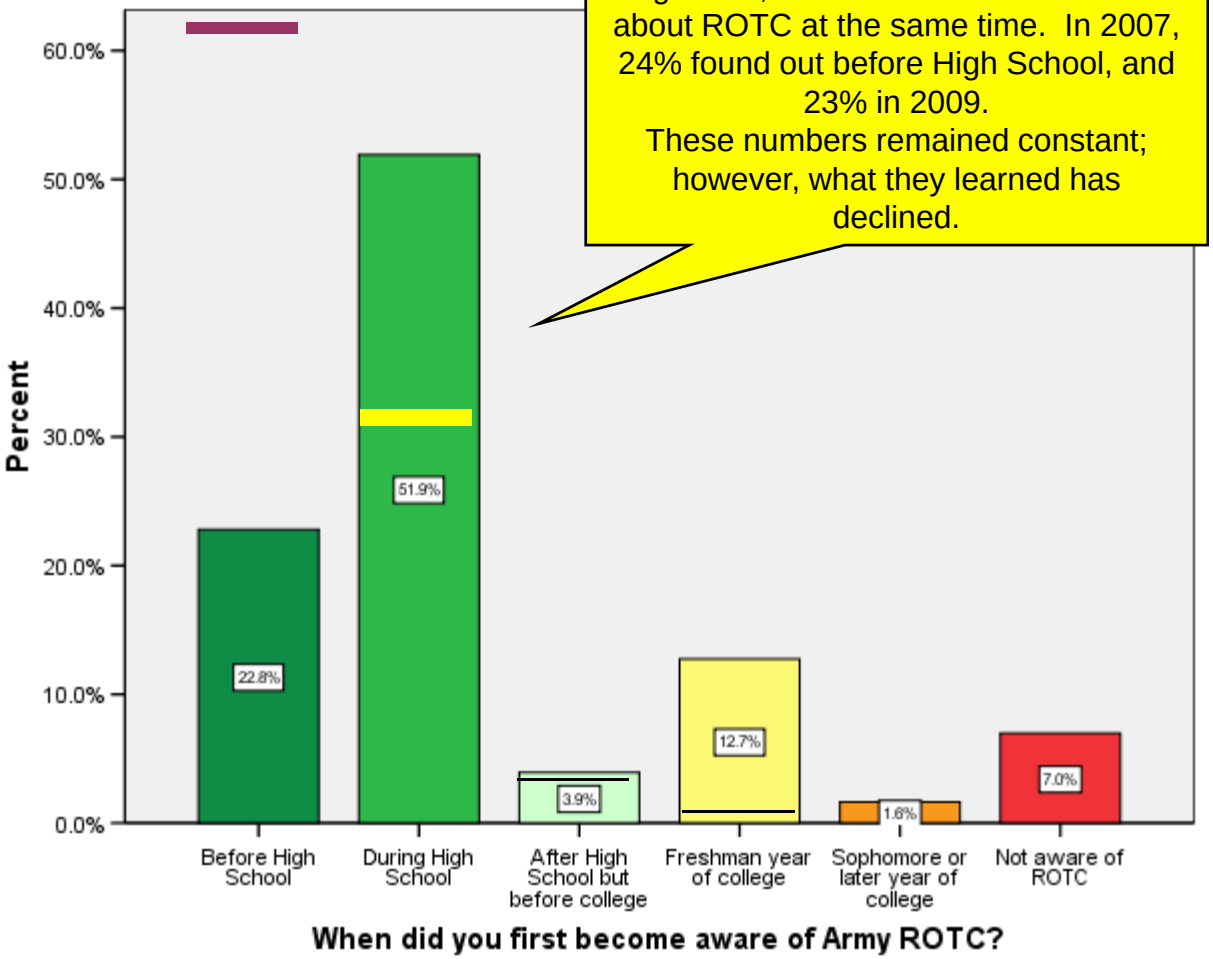
When Students Learned About ROTC

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.

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.

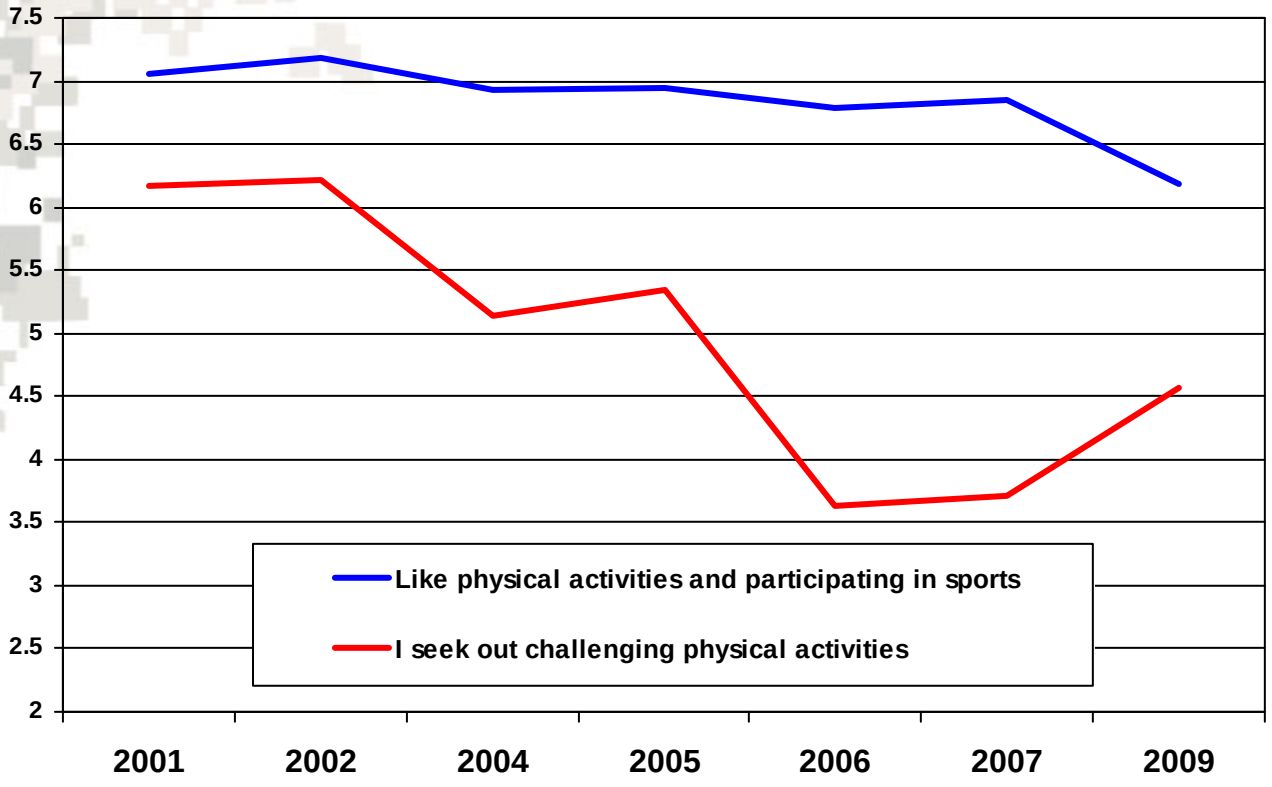


Indicates when Cadets learned about ROTC

Trends Analysis

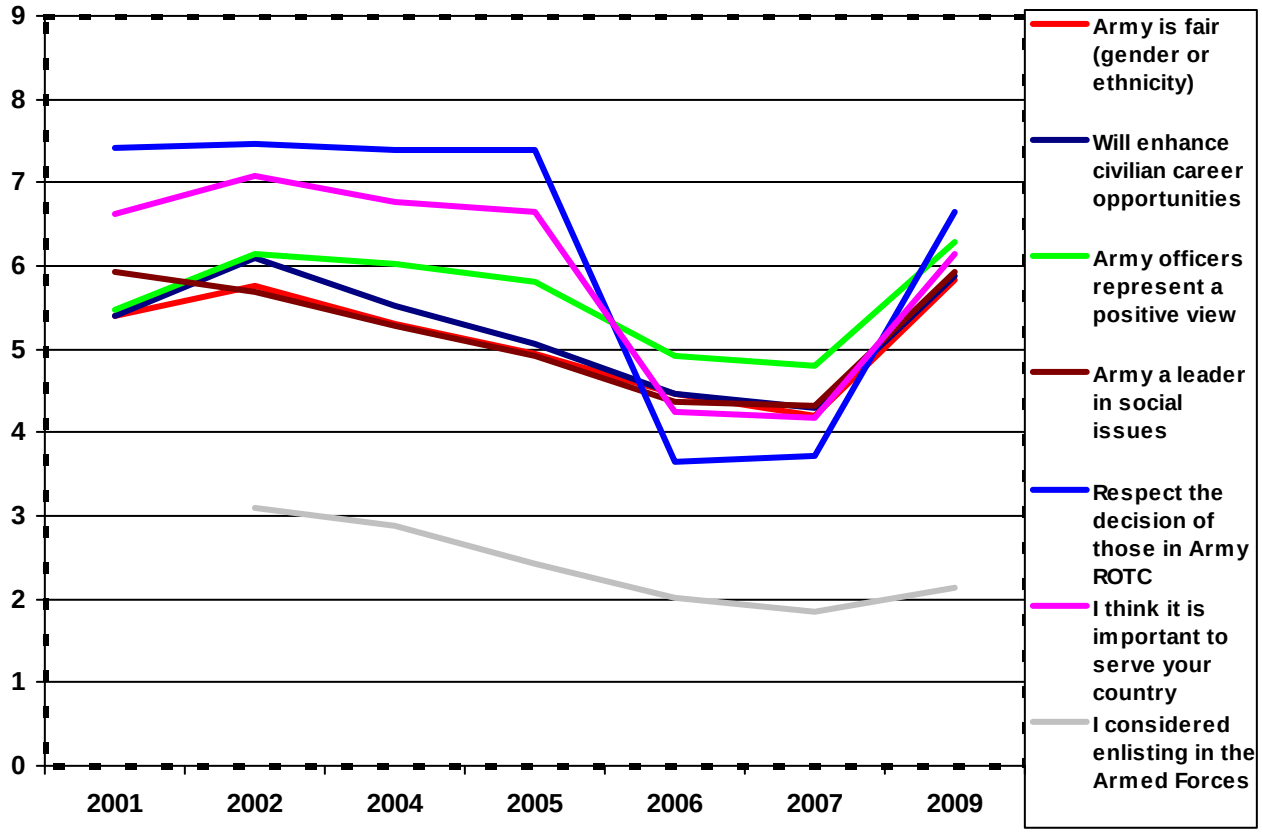
- Some of the downward trends from the 2006 and 2007 study years have checked, and appear to show signs of reversal.
- Students are more concerned about financing their education than in the past and they are starting to show real concern about finding a job and finding one that allows them to use their 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

Physically Fit?



- 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.

Trends Analysis



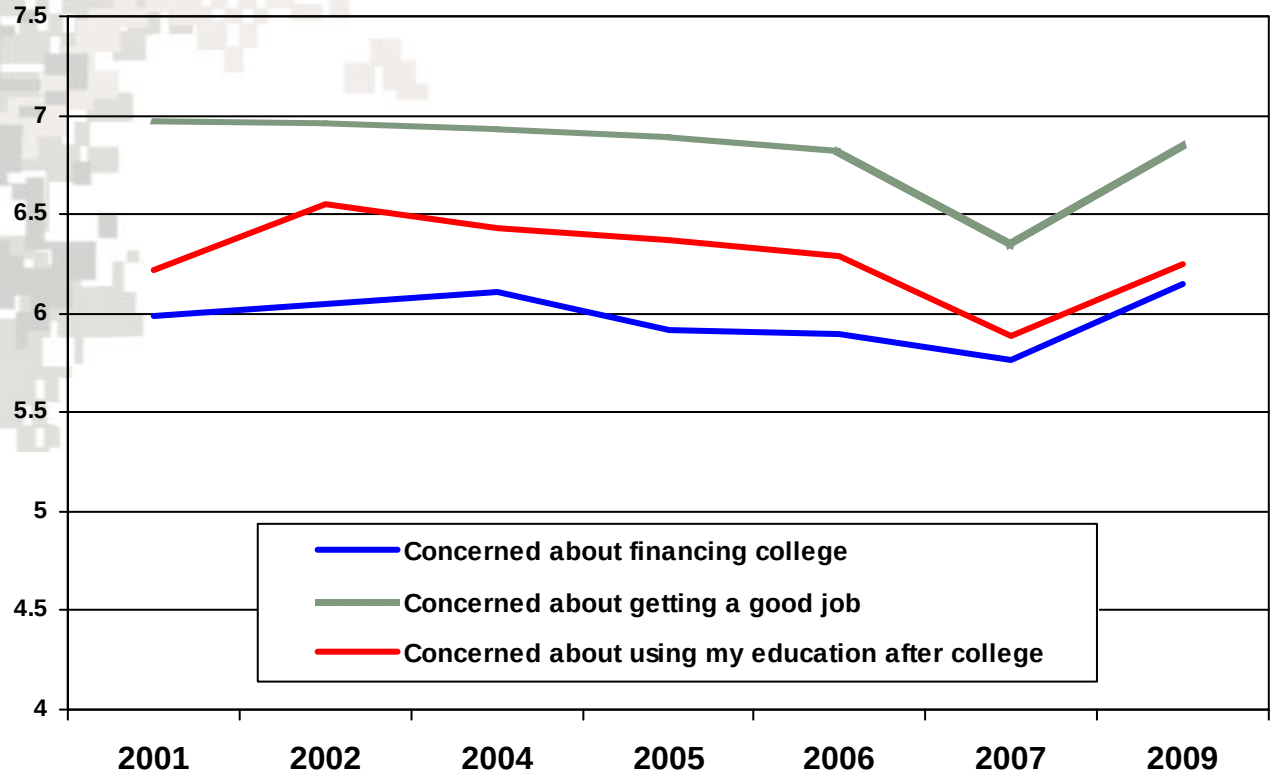
- Most of the attitudinal elements started sharply downward in 2006 and remained there in 2007.
- 2008 was only a validation study and could not be used in the trends analysis but did not show any signs of reversing the 2006/7 downturns.
- Something has happened that points to external factors changing 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

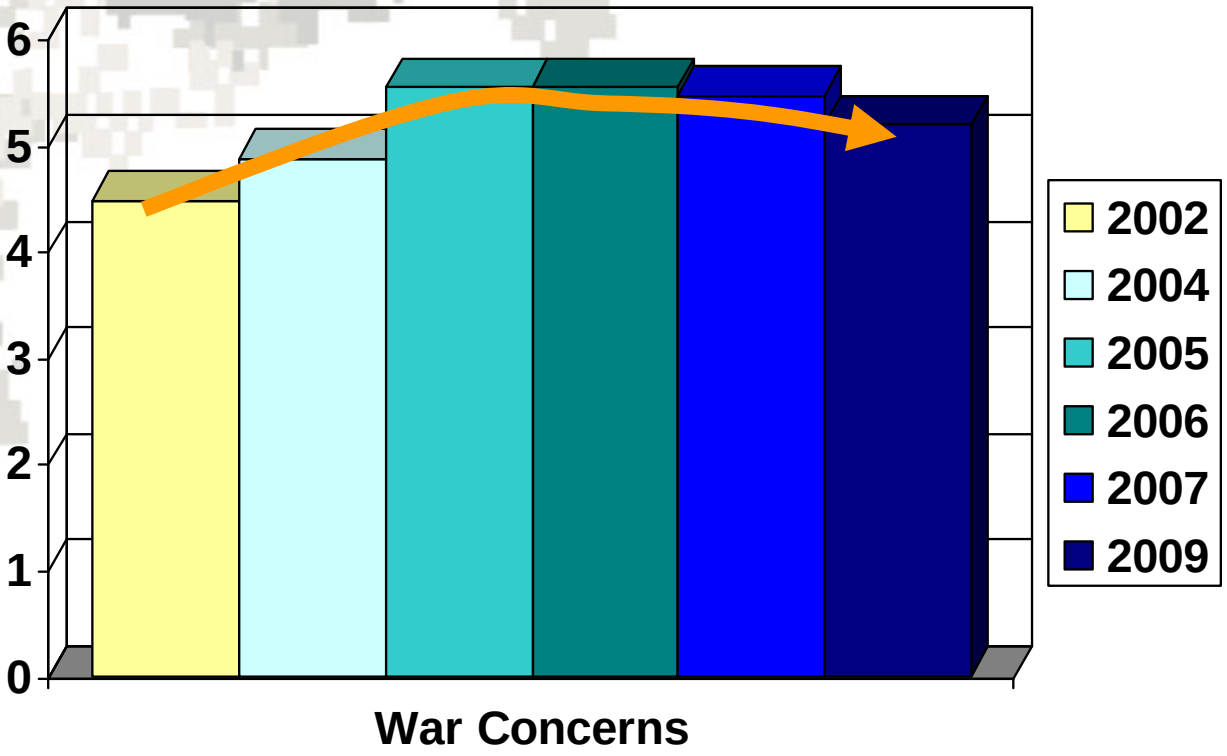
How these external effects are interacting or whether some other element is affecting student attitudes is not clear. But the above graph shows that attitudes are volatile and could easily go back to the 2006/7 levels.

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.

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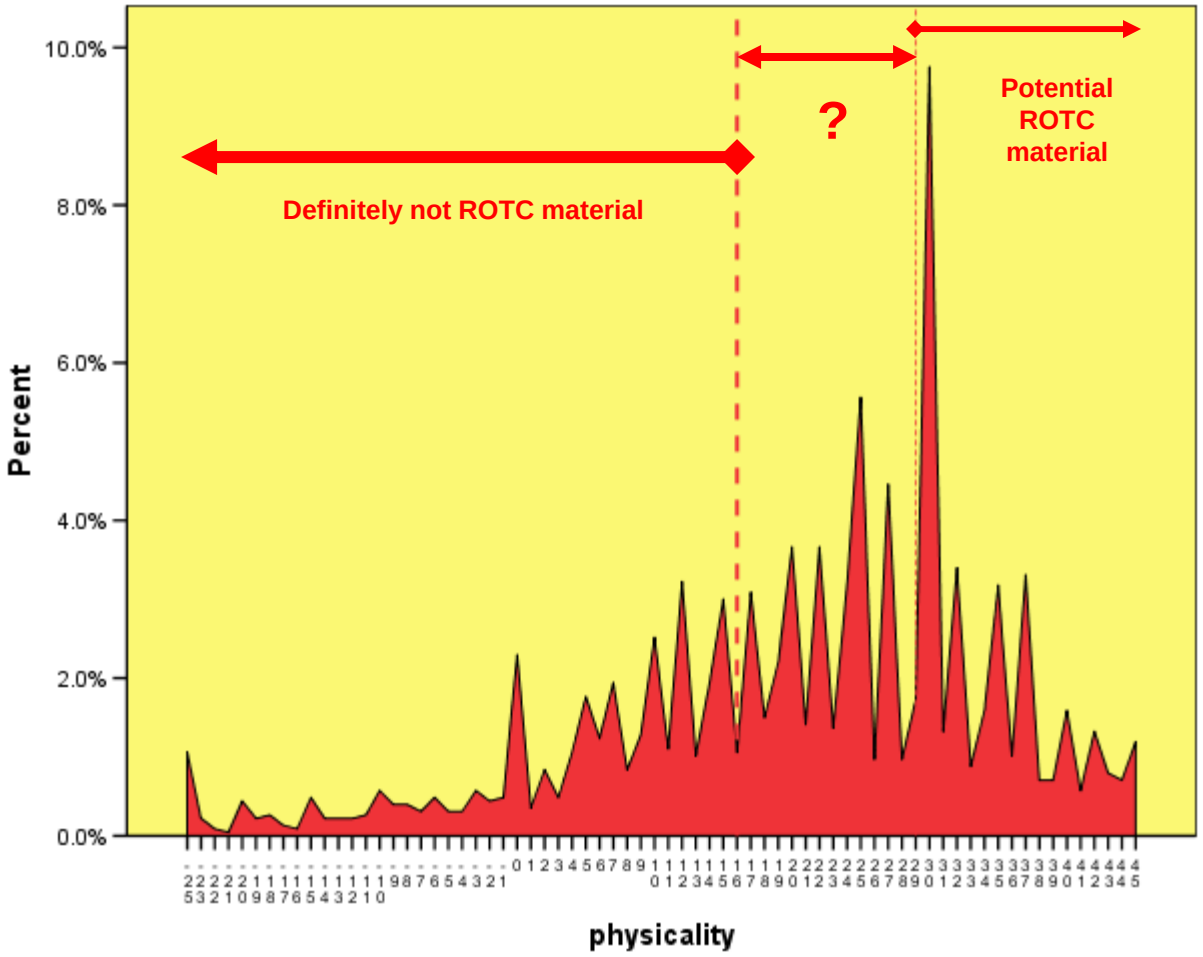
Domains

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.

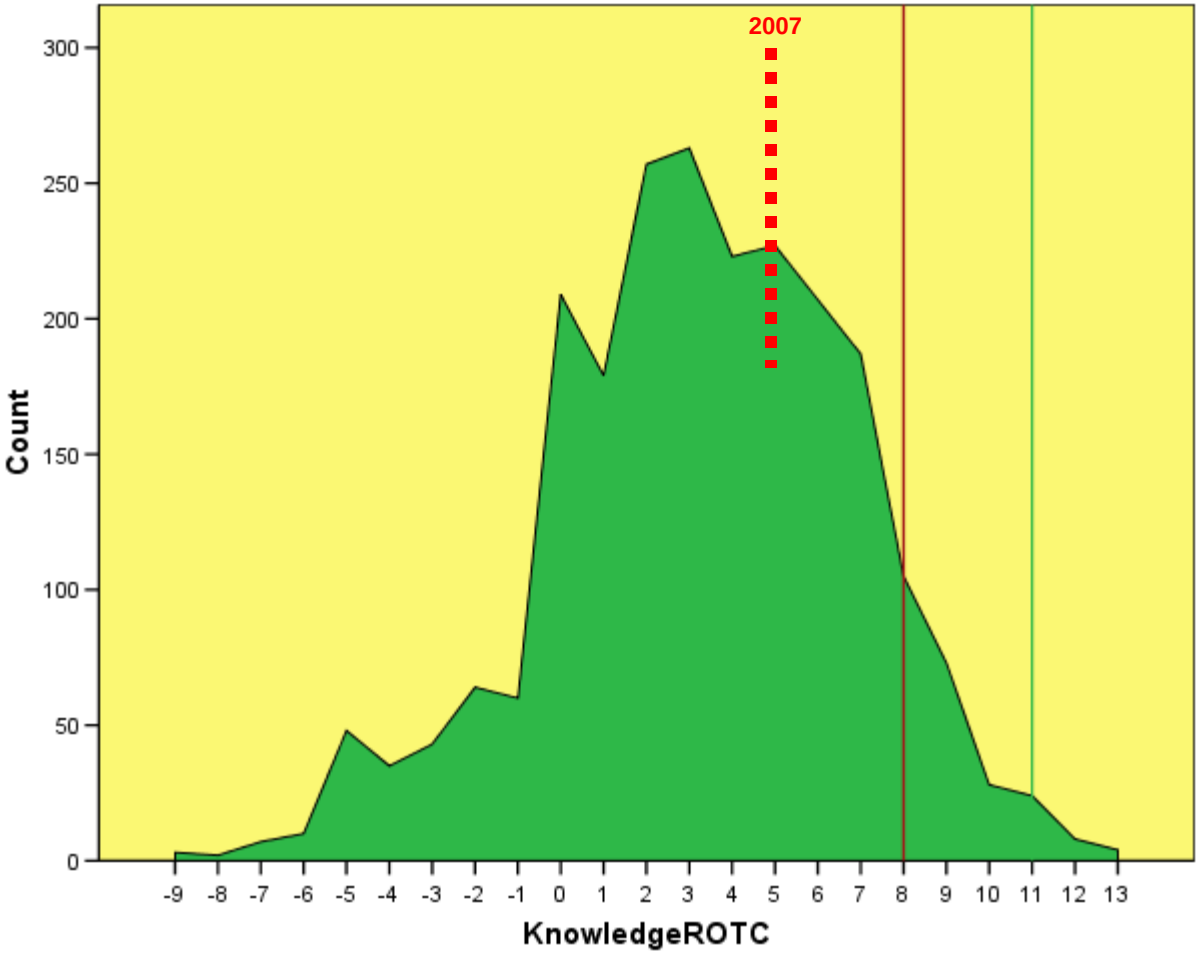
Questions can be ascribed to more than one domain, and not all questions are equal in power.

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.

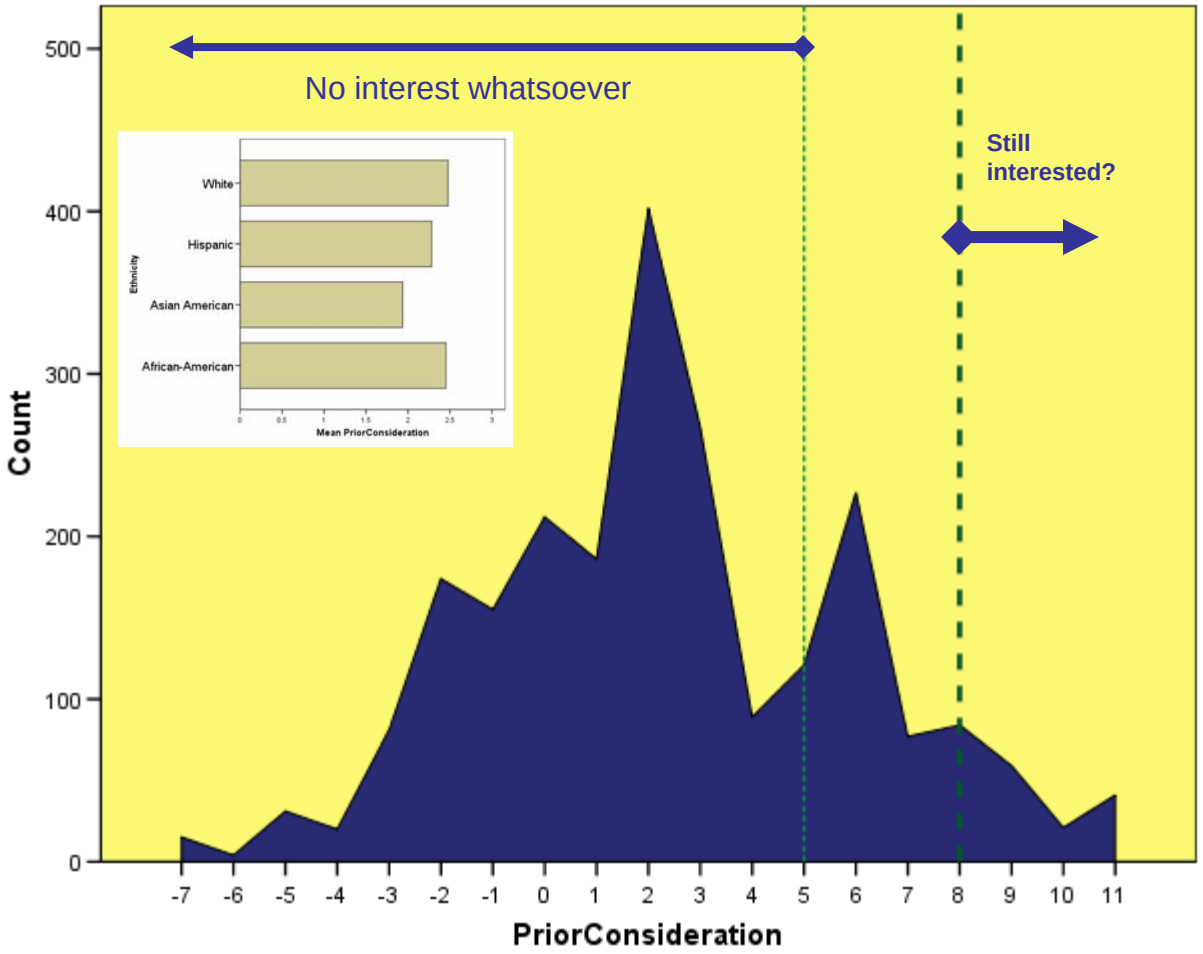
Domains - Knowledge About ROTC



- 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.
- Knowledge remained stable from 2001-2004, declined slightly from 2005-2007.

Information on ROTC elements, benefits, etc. are lower even than 2007. The scale theoretical limit is 18. No one scored over 13.

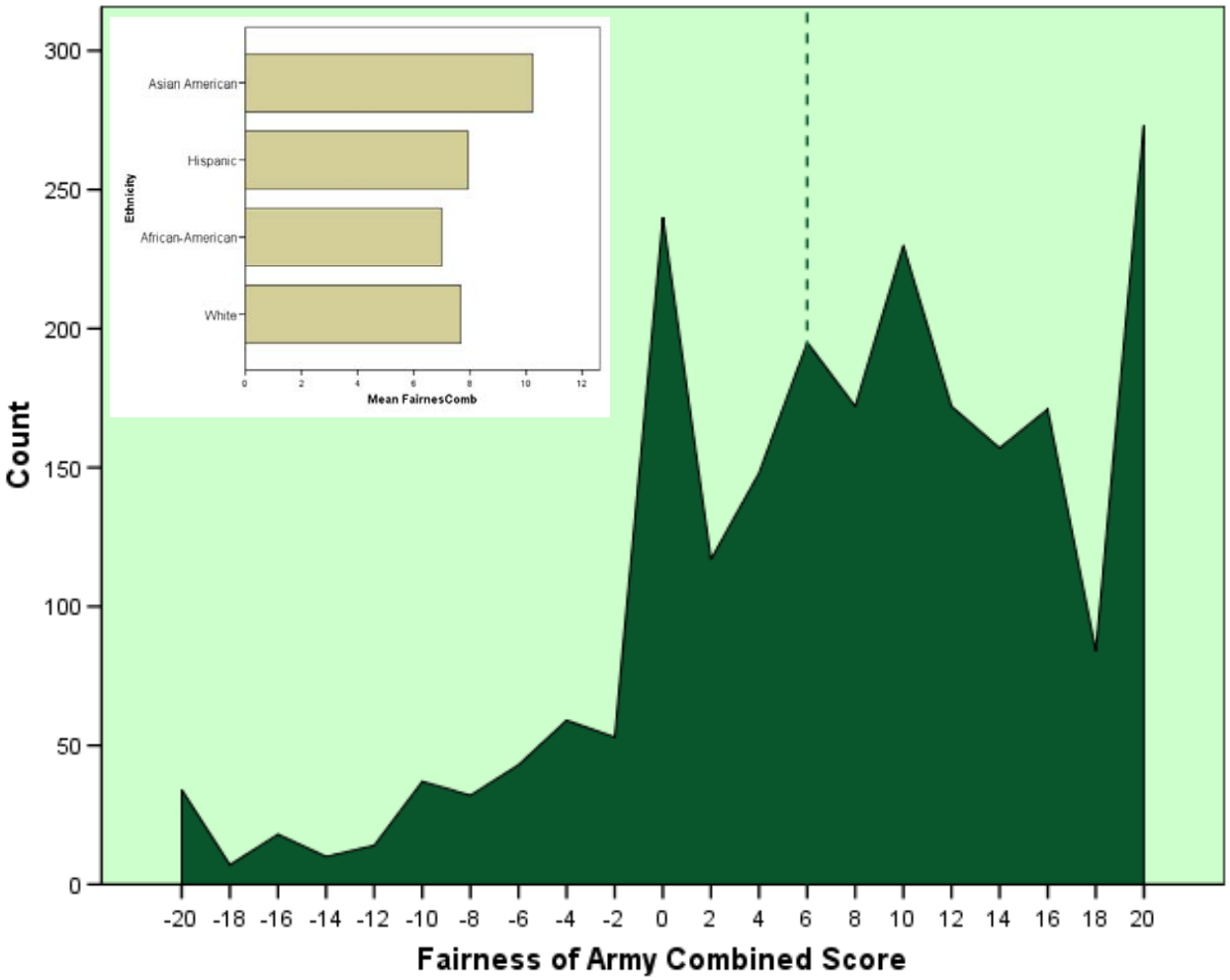
Prior Consideration (Ever Thought about ROTC)



- 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.

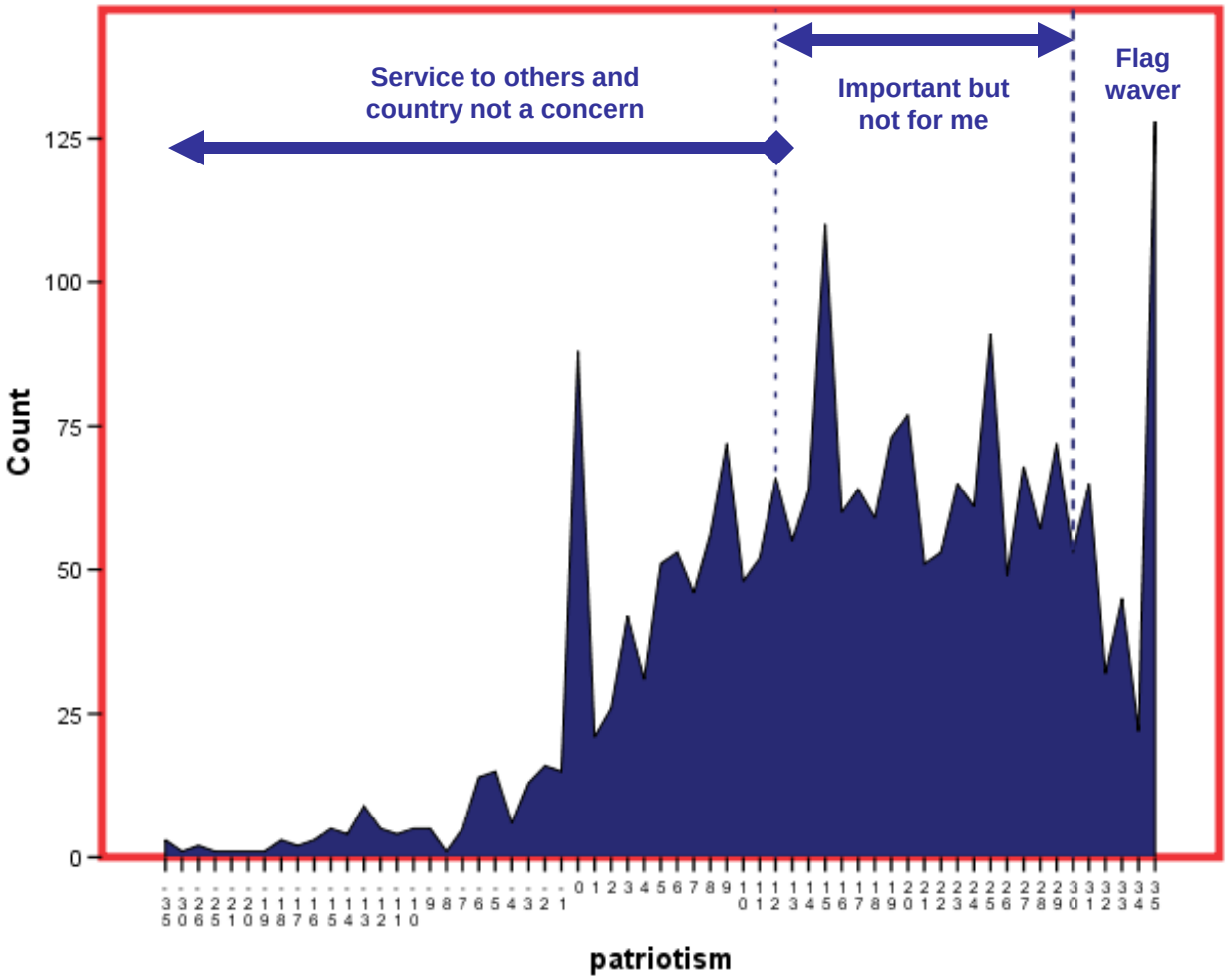
-1 and below indicate adamant refusal to even consider the possibility of ROTC, while those over 8 have considered or have lingering interest.

Domains - Perceived Fairness of the Army



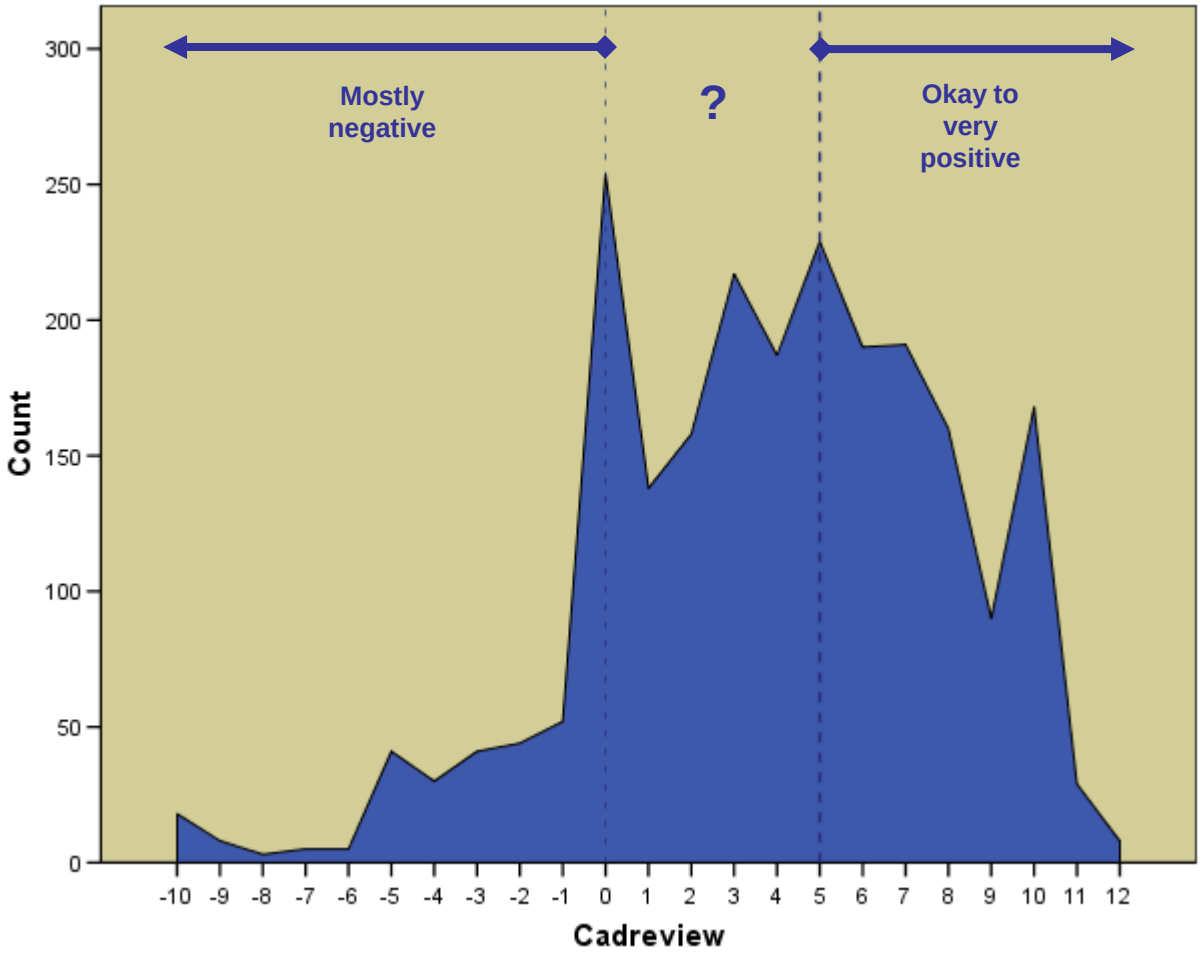
- Perceptions of fairness of the Army are higher than in 2007 or 2006.
- The insert at left shows that Asian Americans particularly see the Army as a fair institution and one that is a leader in social change.
- African-American views are also up, but still lag behind the major ethnic categories.
- Females are less likely to see the Army as fair.

Domains - Patriotism



- 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.

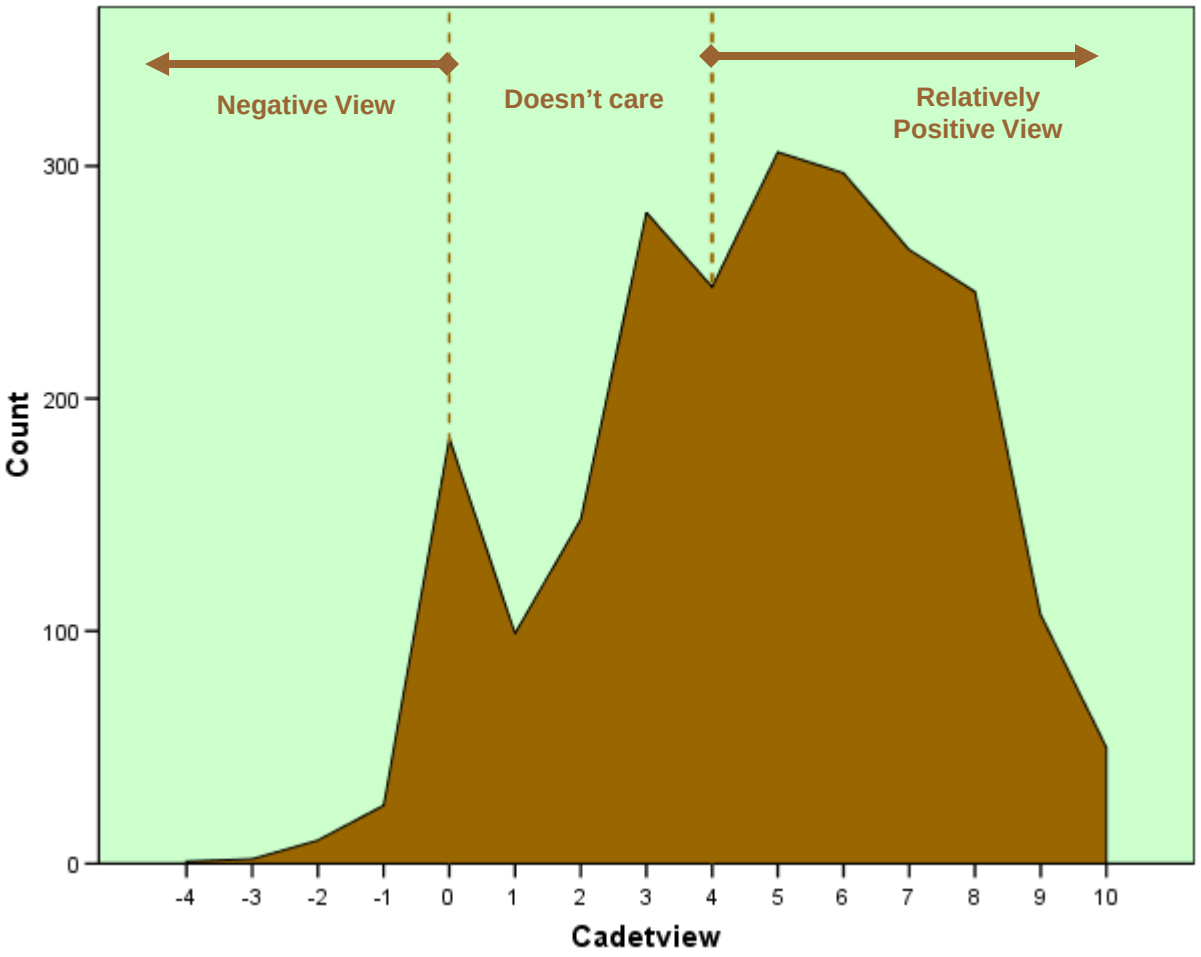
Domains - View of Cadre



- 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.

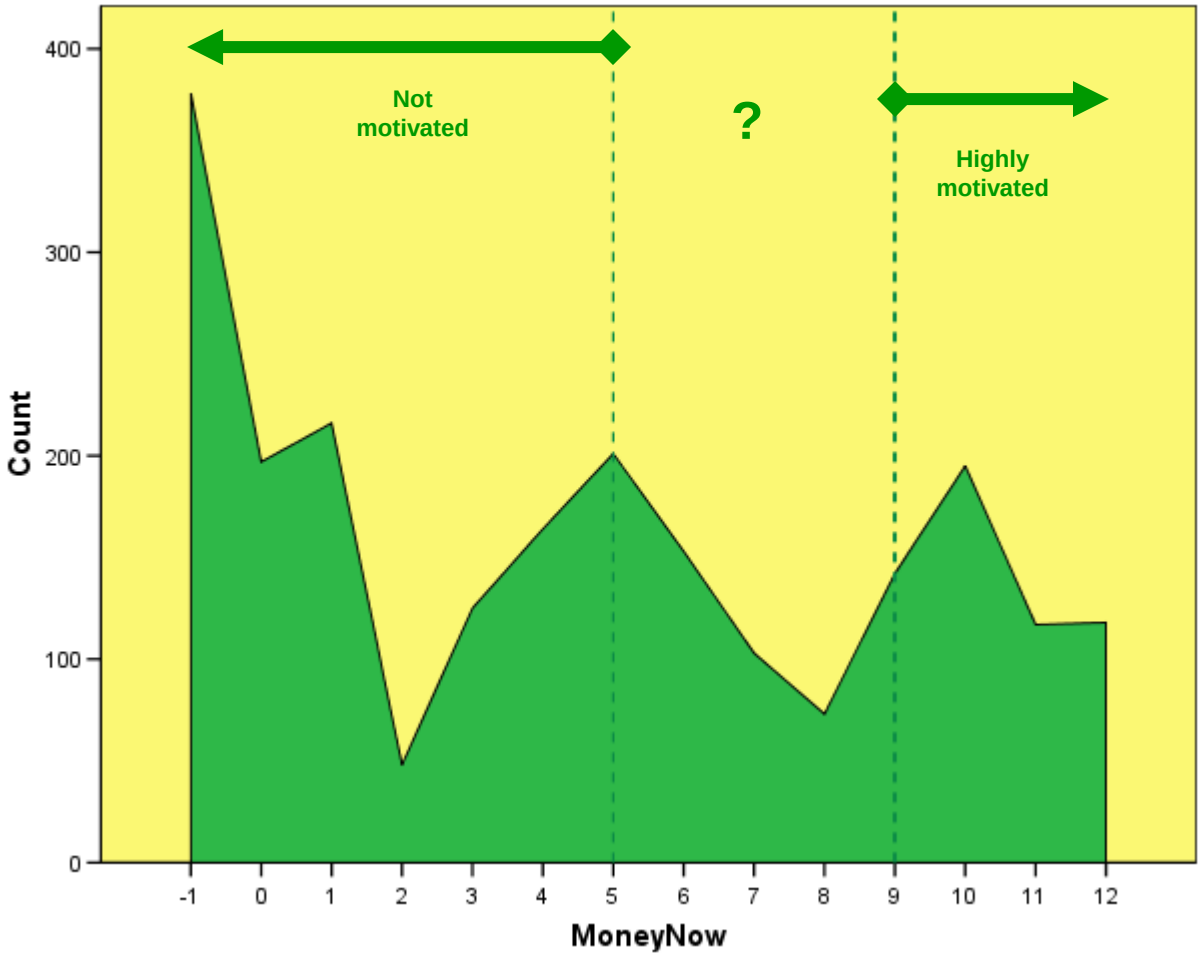
Some schools are outliers in Cadre View. University of Alabama is at the top and Hofstra is at the bottom.

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

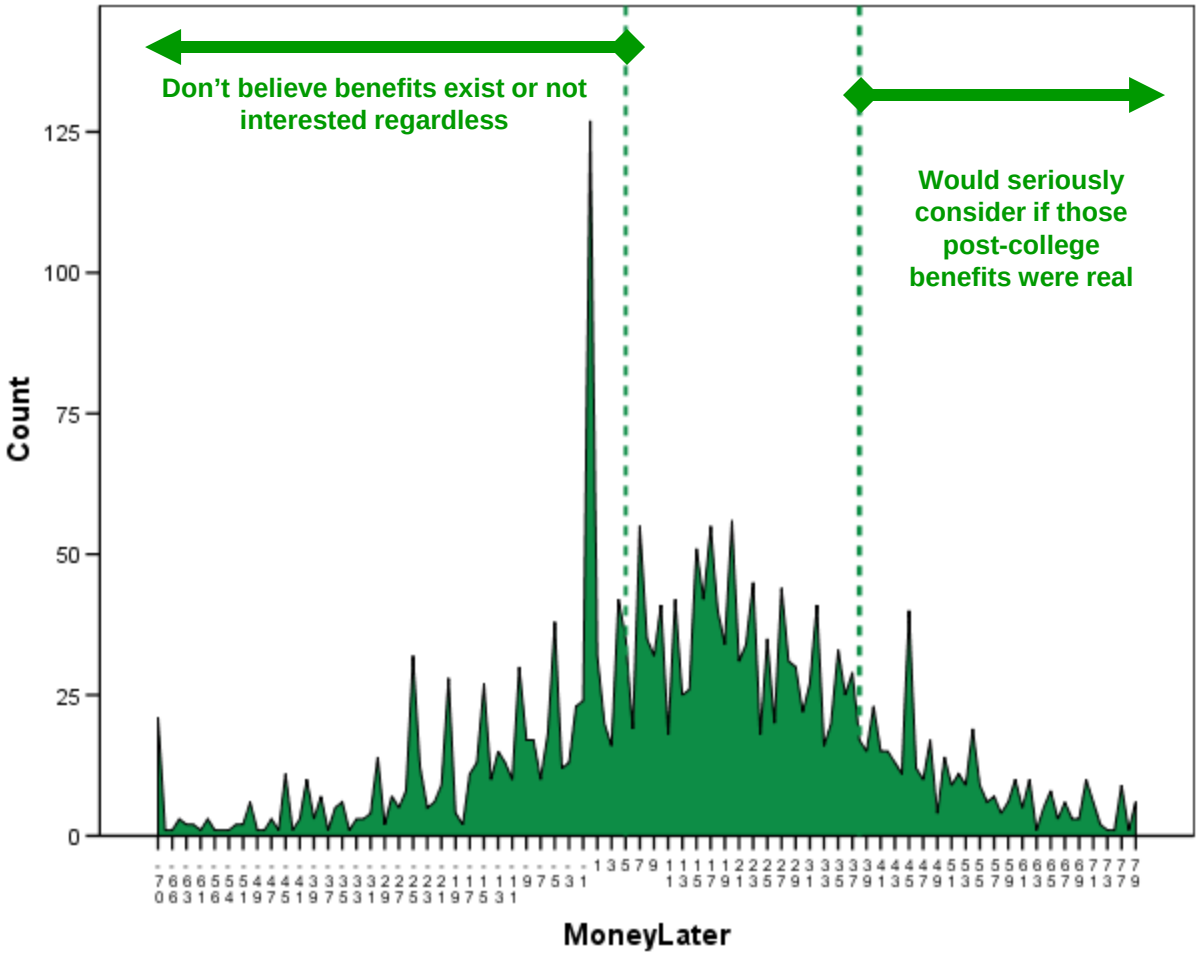


- **Money now is the degree that scholarships, stipends and other immediate benefits motivate the student to consider Army ROTC.**
- **This domain tends to measure the elements of immediate financial needs, not future financial considerations.**
- **This domain includes most of the incentives that ROTC 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.

Domains - Money Later

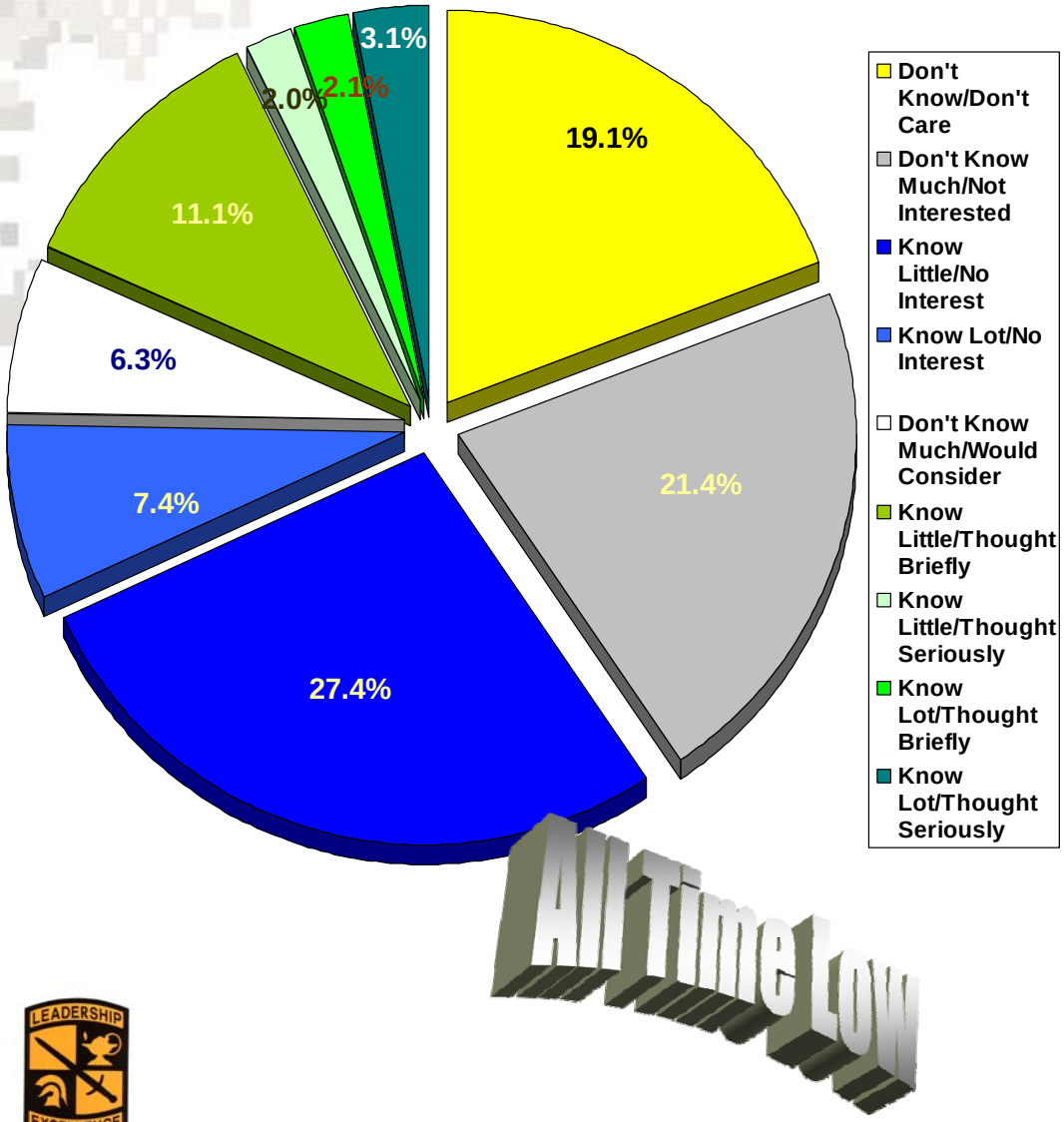
- **Money later measures how students respond to future earnings, future benefits, and future civilian opportunities after serving as a commissioned officer.**
- **This domain is more complex in that it measures beliefs about officership and its benefits as well as delayed gratification (future civilian 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.

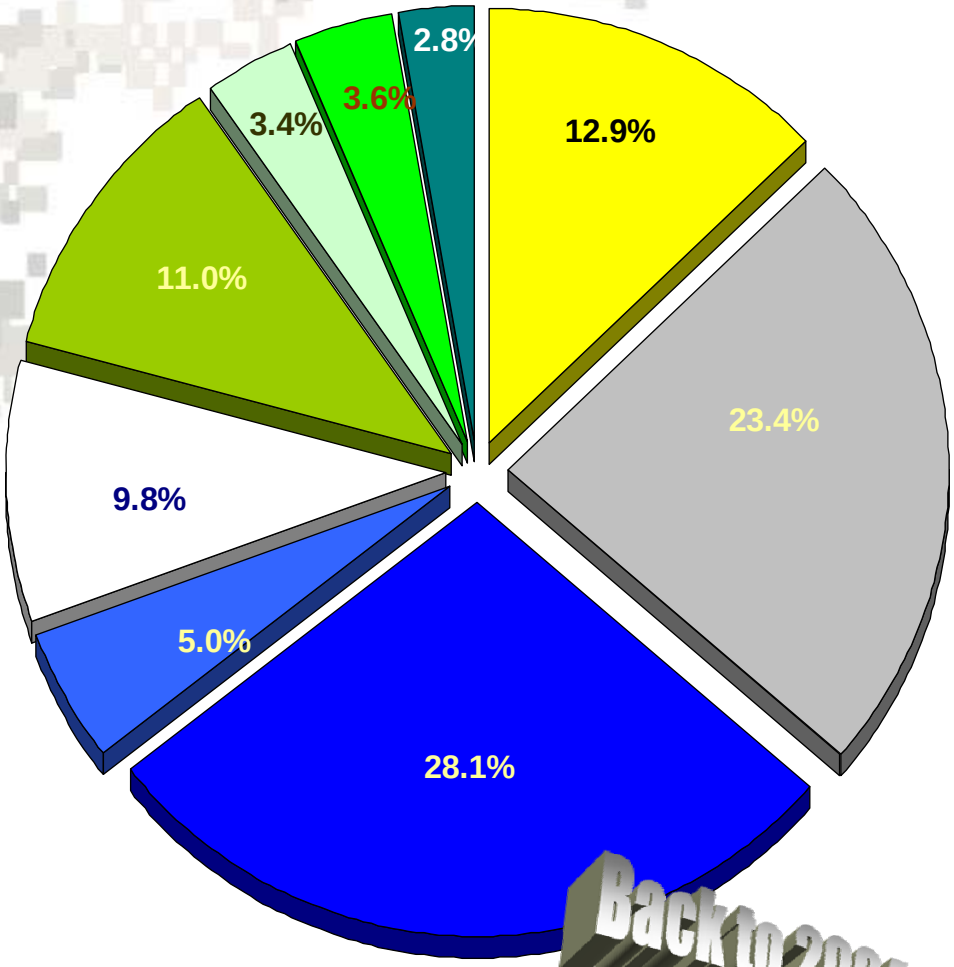
How Students Find Out About ROTC and What They Have Considered in the Past

2007 Knowledge and Interest



- 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 3/4rds of the population.

2009 Knowledge and Interest

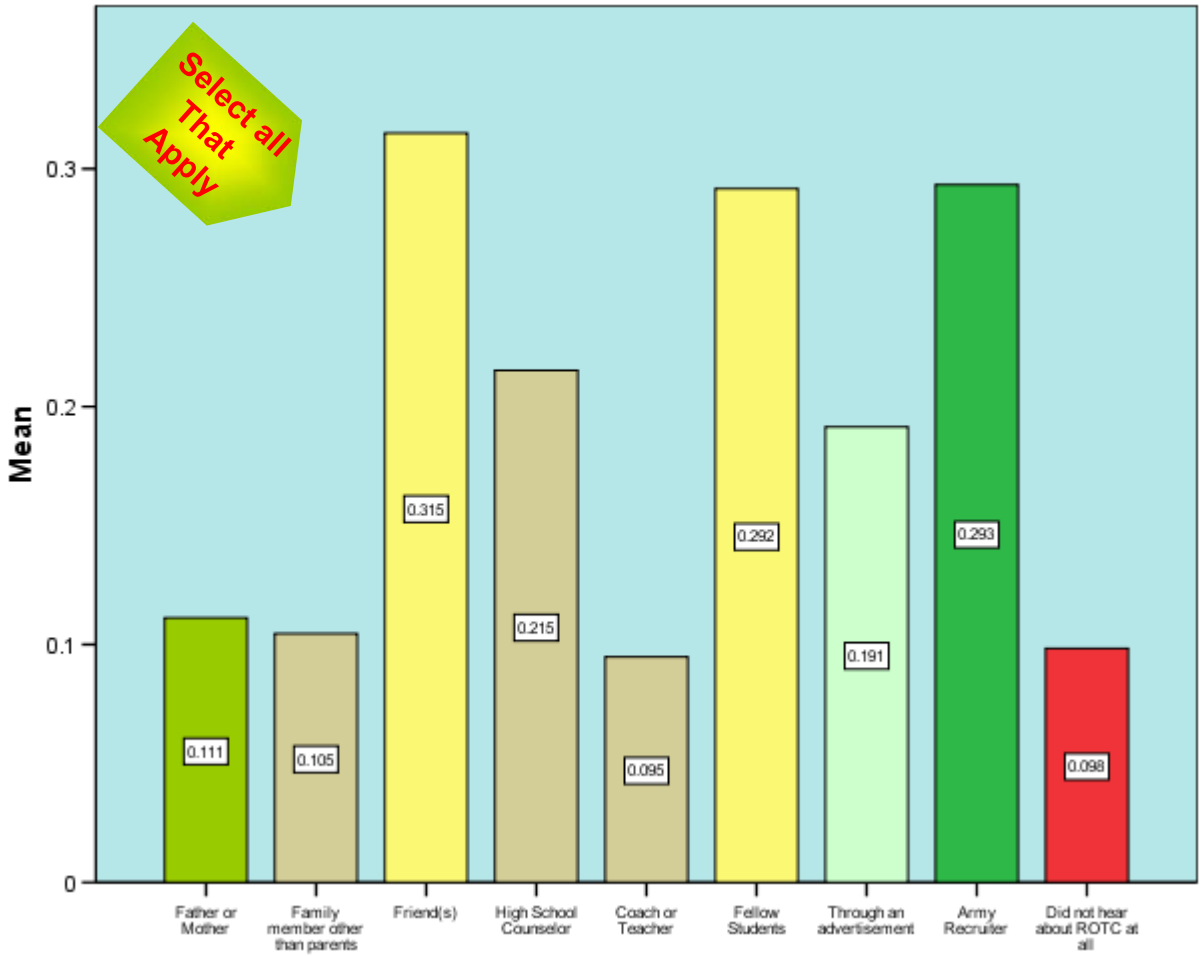


Back to 2004 levels of interest

- 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.

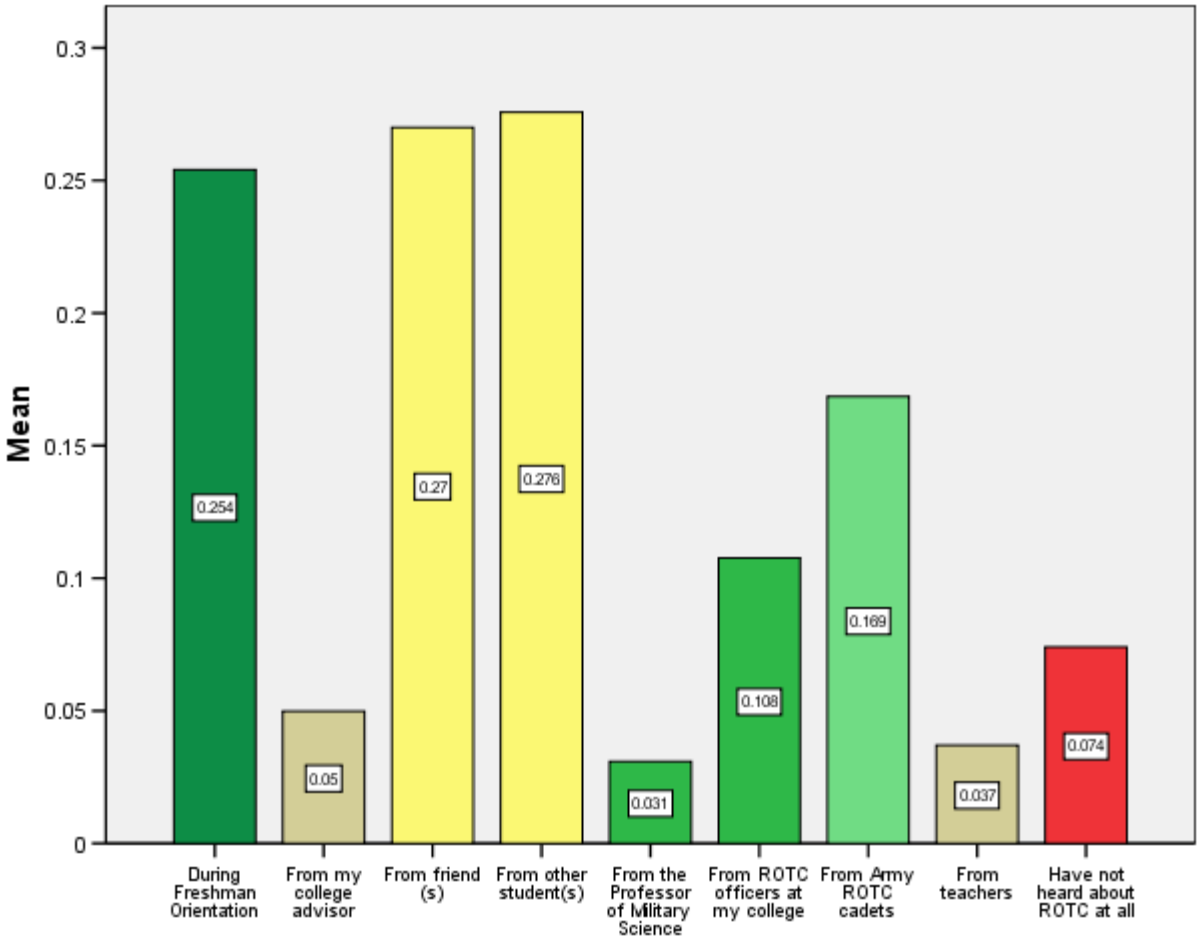
How Students Learned About ROTC

- 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%.

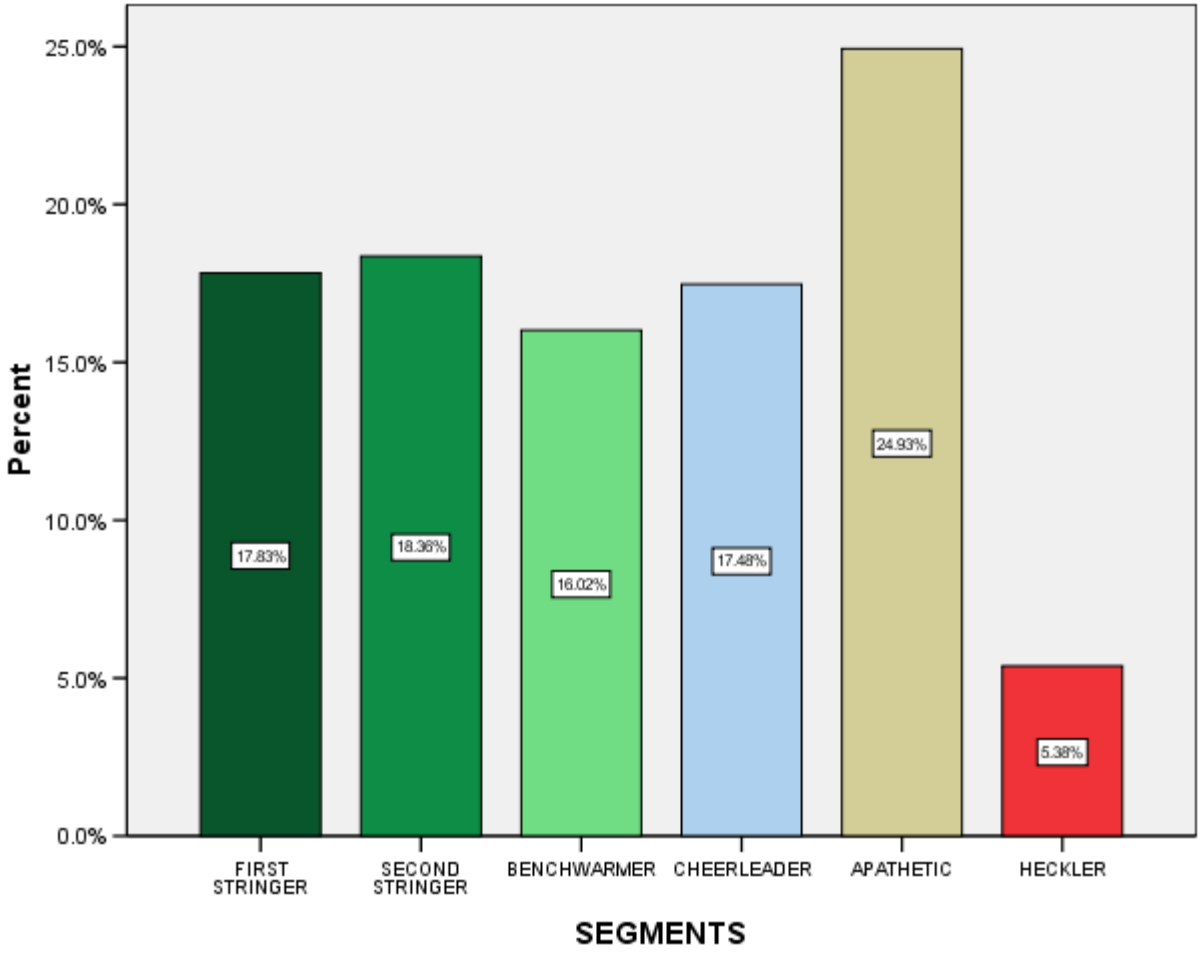


How Students Learned About ROTC On Campus

- 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.



Segmentation - 2009



- 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**

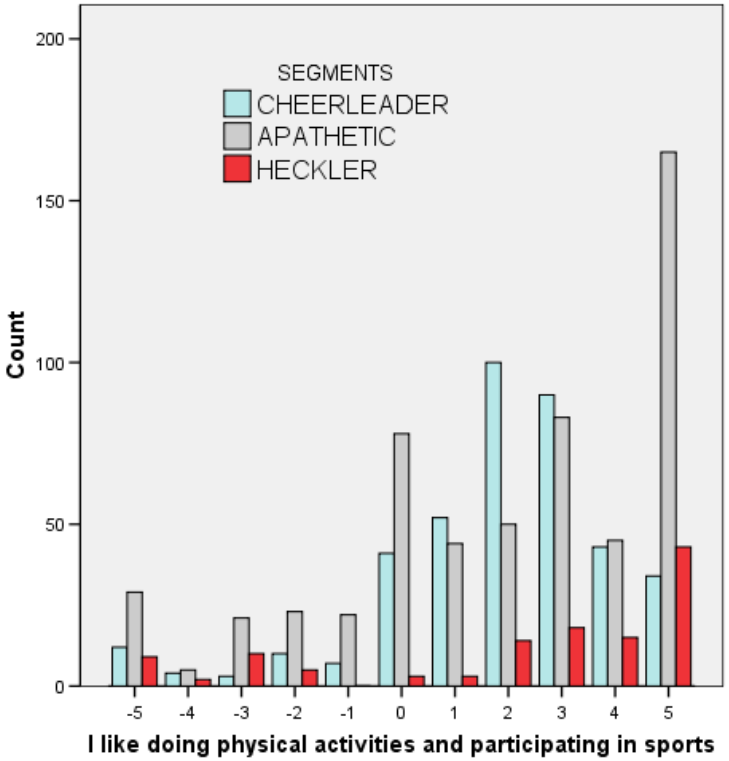
Benchwarmers and Cheerleaders

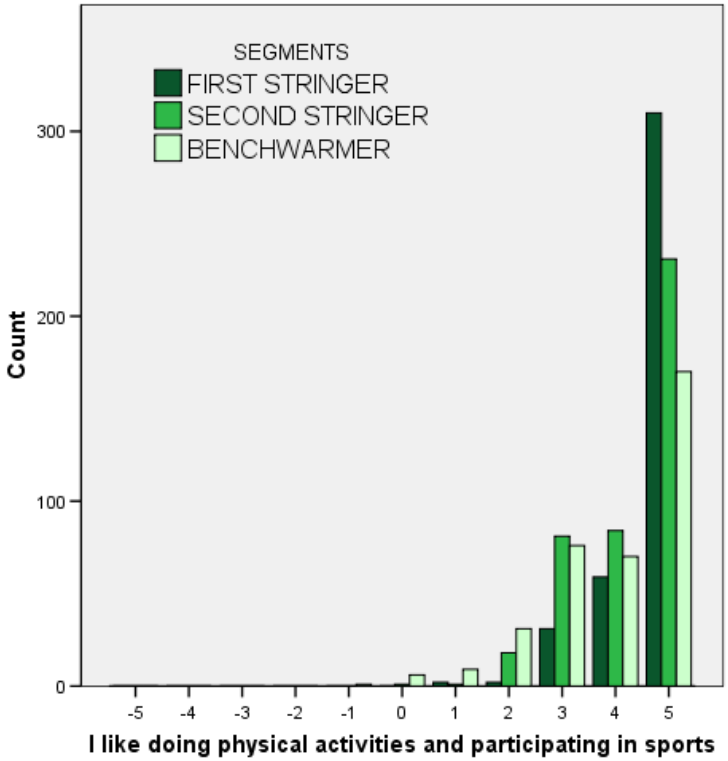
- **Benchwarmers – high scholarship, low in belief that being an officer will increase opportunities in future civilian career.**
  - **While still in the prime market, Benchwarmers tend to go for scholarships and not for the idea of future benefit of officership**
  - **Past analysis with Cadets show 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**

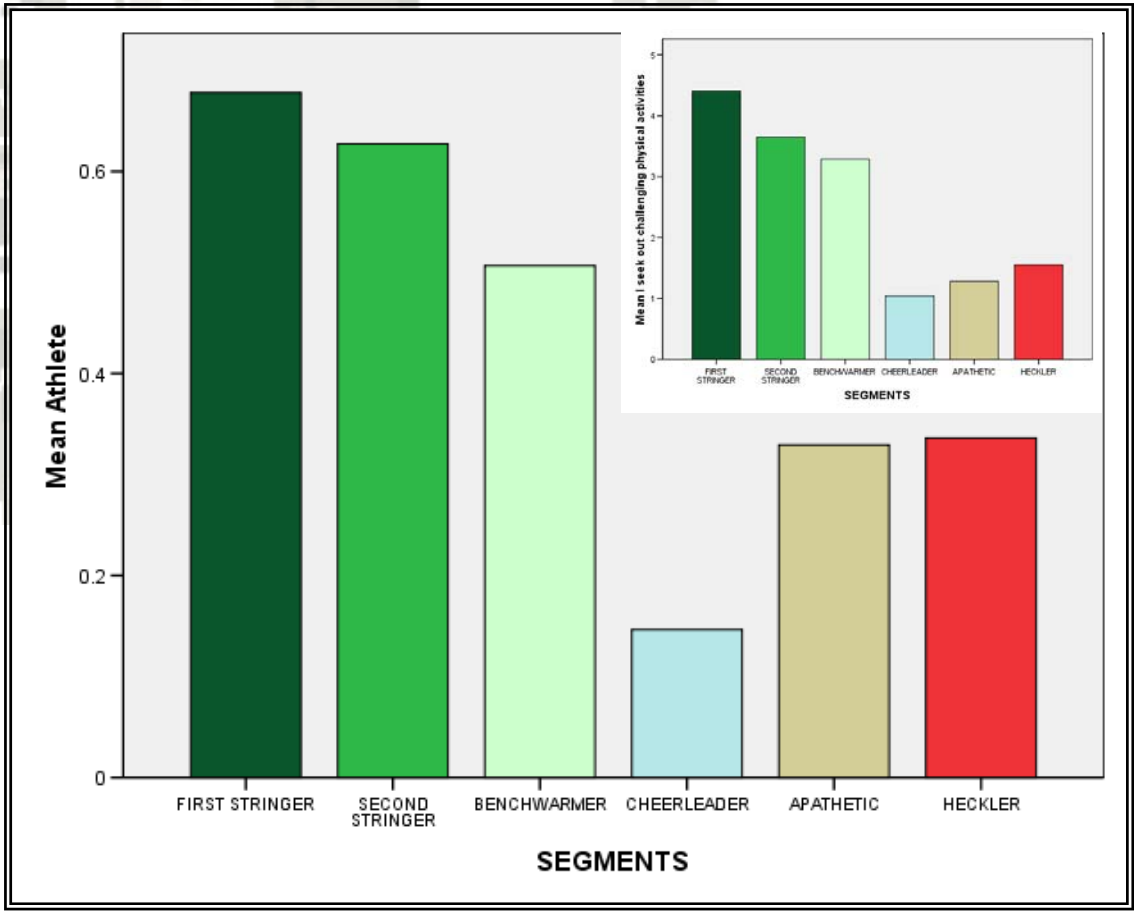
Clear Divide - physicality



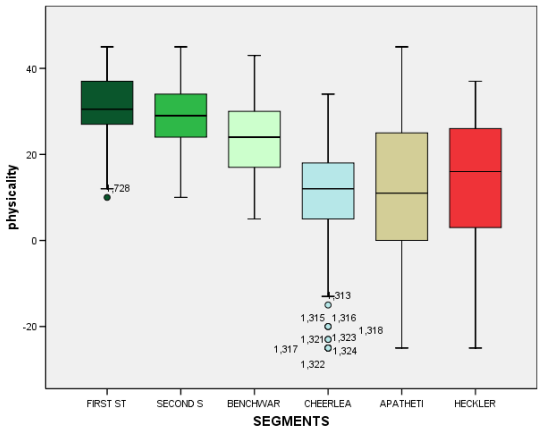


What separates those who might have an interest in doing what ROTC does from those who do not is more often interest in physicality. Apathetics are more physical than Cheerleaders and slightly more than Hecklers, but compared to First Stringers, Second Stringers and Benchwarmers, the interest in sports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

Athleticism and First Stringers

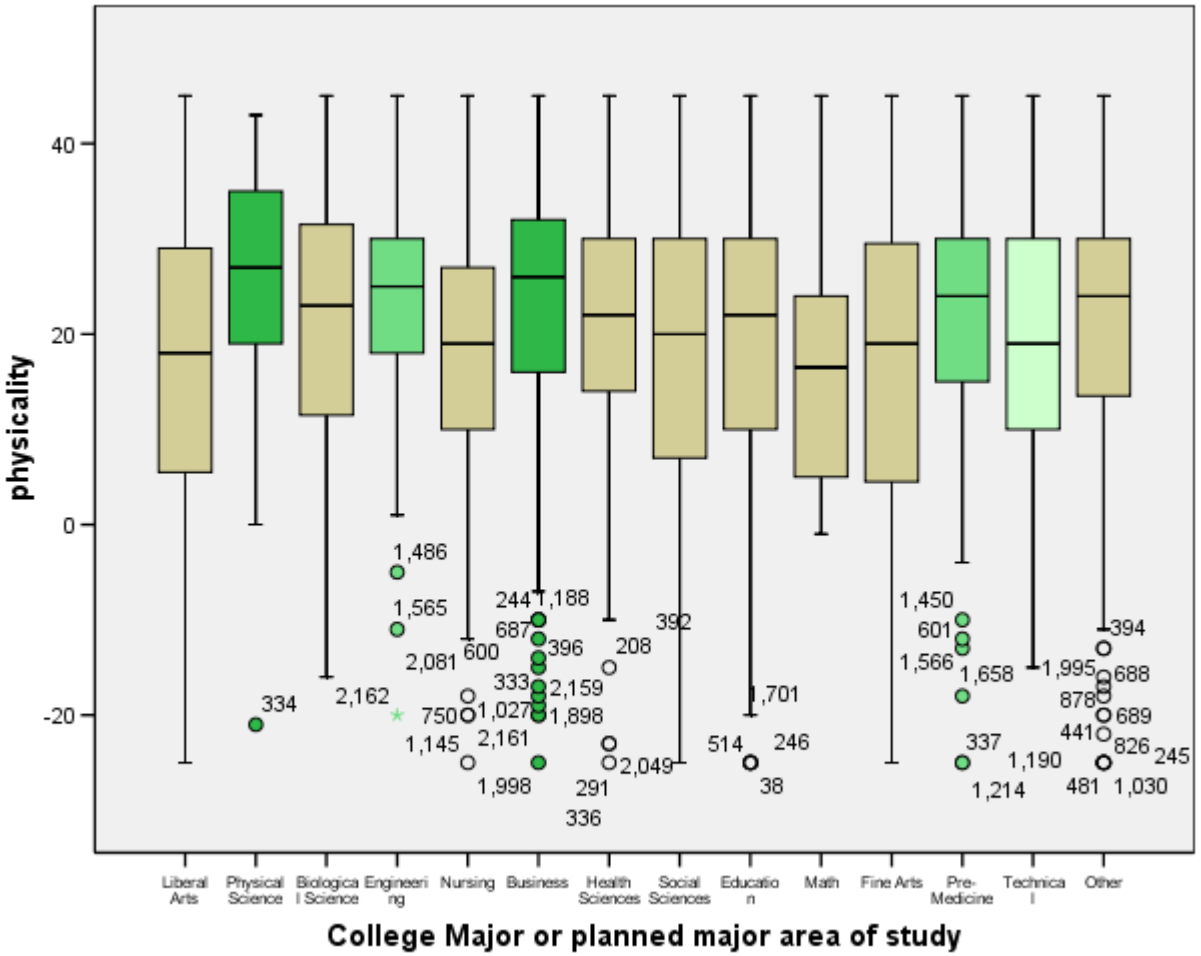


- Since the beginning of the study in 2001, those who seemed drawn to the types of activities that ROTC does also consider themselves as athletes.
- First Stringers not only see themselves as athletes, but they are more interested in challenging activities than other segments.
- Apathetics and Hecklers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



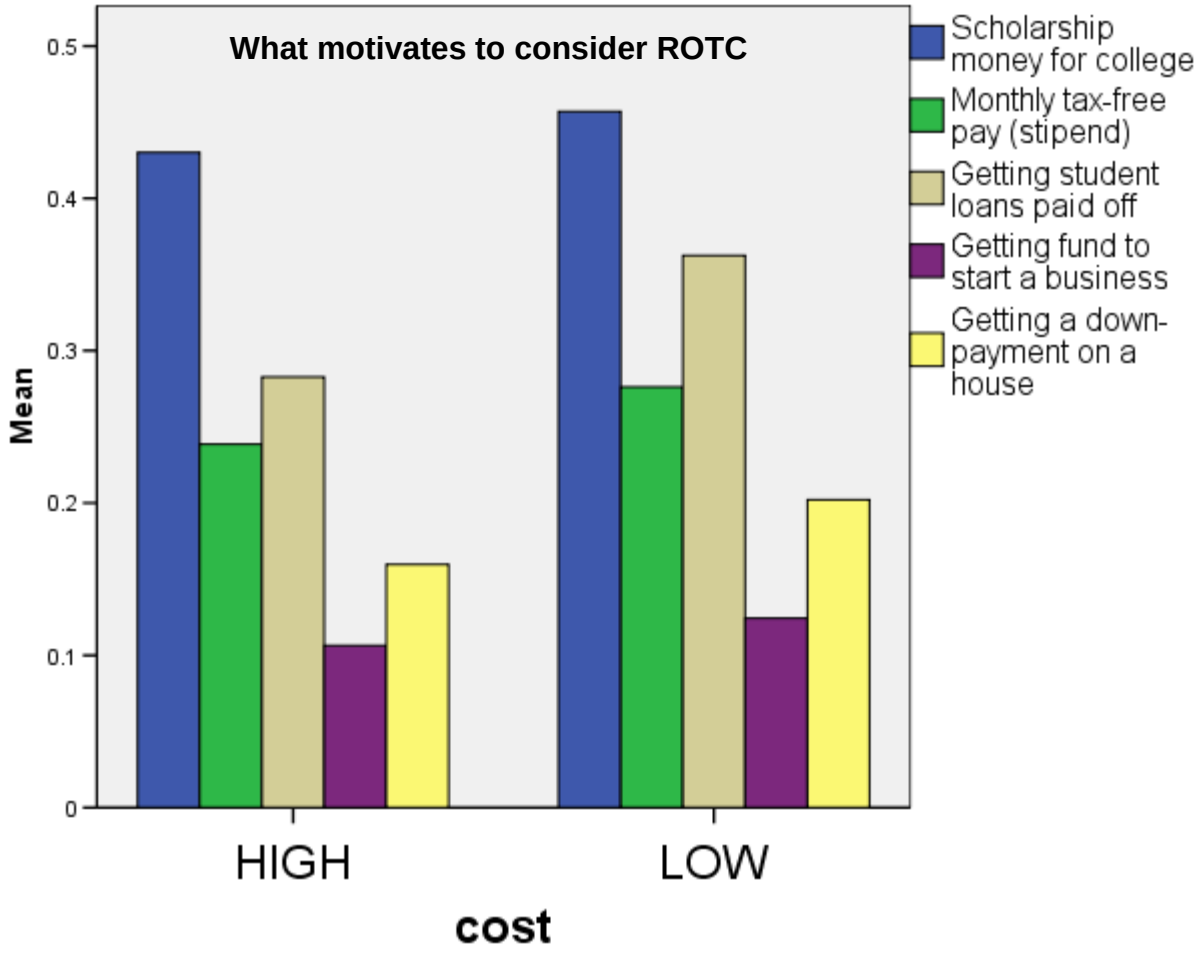
- The boxplot at right shows the tighter shot group on the entirety of the physicality domain for First Stringers.
- Apathetics, on the other hand are the most broadly dispersed and Cheerleaders have significant numbers of outliers.

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

Coefficients[a]

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	.601	.098		6.164	.000
Show what the Army has done in humanitarian aid	-.271	.177	-.030	-1.535	.125
Do adventure training (rafting, rappelling, climbing)	**.814**	**.166**	**.110**	**4.920**	**.000**
Let cadets learn how to parachute from an airplane	**.767**	**.196**	**.086**	**3.915**	**.000**
Let ROTC cadets do internships in industry or government	**1.320**	**.187**	**.146**	**7.045**	**.000**
Teach survival training	.460	.182	.056	2.533	.011
Provide tutorial assistance to help increase study skills	.720	.217	.075	3.326	.001
Give $400-600 a month extra money to students who commit to being an Army officer	**1.377**	**.152**	**.194**	**9.046**	**.000**
Teach writing and other communications skills that are useful outside the Army	.283	.228	.028	1.238	.216
Give scholarship money to those who agree to stay in the program for all four years	**.589**	**.167**	**.080**	**3.534**	**.000**
Conduct displays of military equipment	.117	.230	.011	.509	.611

a. Dependent Variable: PriorConsideration

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.

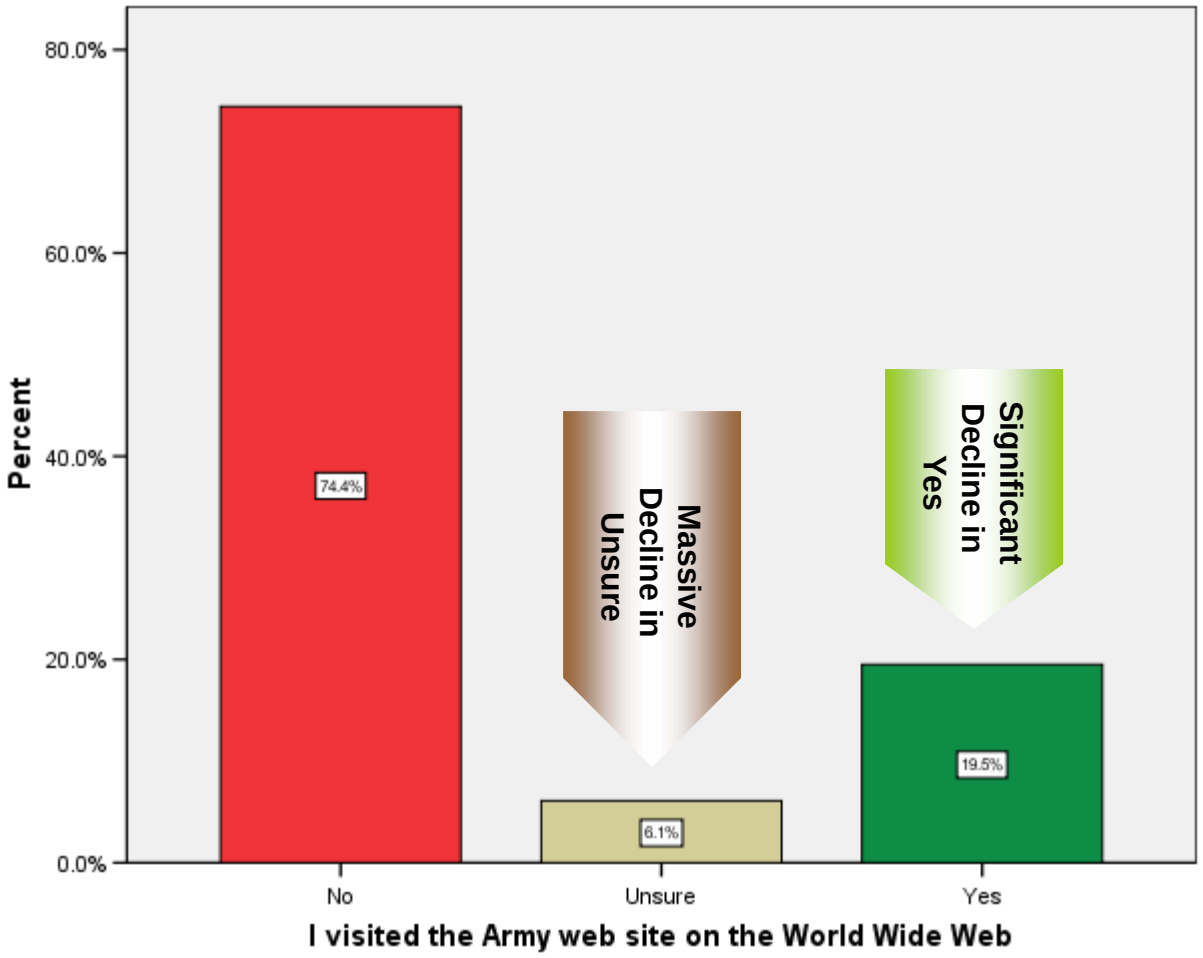
Internships and stipends were very strong motivators. Both of these elements should be in on-campus information packets.

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

Positives:	Negatives:
➢Internships ➢Adventure and challenge ➢Money for college (scholarships and stipends)	➢Humanitarian aid

Backup

Army Web Site Use Way Down



- Since beginning to ask the question about the Army Web Site in 2002, the percent saying that the 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”.

Students More Cautionary About Finances

From 2001 - 2007

Finances may affect my going to school until I complete a bachelor's degree

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		3563	13.5	13.5	13.5
	No	11892	45.0	45.0	58.4
	Unsure	4759	18.0	18.0	76.4
	Yes	6230	23.6	23.6	100.0
	Total	26444	100.0	100.0	

2009

Finances may affect my going to school until I complete a bachelor's degree

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	976	43.1	43.6	43.6
	Unsure	524	23.1	23.4	67.0
	Yes	739	32.6	33.0	100.0
	Total	2239	98.8	100.0	
Missing	System	27	1.2		
Total		2266	100.0		

- **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.**

RAND ARROYO CENTER

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 waivered 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 waivered 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

Waiver	N	% of Enlistees	% of Waivers	IET GRAD 1ST TIME		GA:ENTRY LEVEL PERFORMANCE AND CONDUCT	
	N=258413		N=39335	N=254005		N=75345	
				69.3%	69.3%	15.3%	15.3%
BA:Dependency of military spouse	302	0.1%	0.8%	63.7%	78.8%	13.6%	12.0%
BB:Dependency number of dependents	519	0.2%	1.3%	59.5%	67.5%	20.3%	16.6%
CY:Mental qualification - meets ASVAB	818	0.3%	2.1%	66.1%	69.4%	19.2%	17.5%
HB:Medical disqualification weight	977	0.4%	2.5%	64.3%	65.7%	15.5%	15.2%
HC:Medical disqualification disease	14690	5.7%	37.3%	67.9%	67.7%	15.1%	15.0%

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

Waiver	N	% of Enlistees	% of Waivers	N=258413 36-Month Loss		N=75345 DF:PREGNANCY OR CHILD BIRTH		N=75345 FV:CONDITION: NOT A DISABILITY		N=75345 FW:FAILED MEDICAL / PHYSICAL STANDARDS	
				26.6%	26.6%	6.8%	6.8%	13.1%	13.1%	19.9%	19.9%
BA:Dependency of military spouse	302	0.1%	0.8%	37.6%	21.9%	18.2%	6.4%	8.3%	7.1%	15.3%	18.6%
BB:Dependency number of dependents	519	0.2%	1.3%	29.7%	32.6%	2.0%	1.7%	13.6%	9.5%	20.5%	15.6%
CY:Mental qualification - meets ASVAB	818	0.3%	2.1%	34.1%	27.2%	12.9%	6.6%	12.8%	13.1%	13.0%	15.2%
HB:Medical disqualification weight	977	0.4%	2.5%	30.7%	28.6%	8.5%	5.9%	16.4%	16.0%	21.9%	23.2%
HC:Medical disqualification disease	14690	5.7%	37.3%	26.7%	28.5%	5.0%	5.8%	13.7%	13.4%	29.5%	28.4%

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.

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

Waiver	N	% of Enlistees	% of Waivers	N=258413 N=39335 FS:IN LIEU OF TRIAL BY COURT MARTIAL		N=75345 KA:PATTERN OF MISCONDUCT		N=75345 KK:MISCON-DUCT: DRUG ABUSE		N=75345 KQ:COMMIS-SION OF A SERIOUS OFFENSE	
				7.7%	7.7%	5.1%	5.1%	7.9%	7.9%	4.8%	4.8%
BA:Dependency of military spouse	302	0.1%	0.8%	3.7%	8.3%	0.9%	3.3%	1.1%	5.8%	0.9%	3.8%
BB:Dependency number of dependents	519	0.2%	1.3%	5.4%	7.4%	0.0%	0.0%	3.3%	8.5%	2.6%	5.9%
CY:Mental qualification - meets ASVAB	818	0.3%	2.1%	6.0%	8.2%	4.9%	5.2%	4.0%	5.2%	3.2%	4.0%
HB:Medical disqualification weight	977	0.4%	2.5%	5.4%	5.9%	4.0%	4.3%	4.1%	4.5%	2.7%	2.9%
HC:Medical disqualification disease	14690	5.7%	37.3%	6.0%	6.1%	4.4%	4.6%	6.2%	6.1%	3.5%	3.6%

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.

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

Waiver	N=258413 N	% of Enlistees	N=39335 % of Waivers	N=178301 Good Conduct Medal		N=178301 No Negative Rank Change		N=178301 No Reenlistment Bar		N=178301 No Suspension Favorable Person Status		N=133713 Made E5 by 48 months	
				54.1%	54.1%	88.1%	88.1%	87.3%	87.3%	55.6%	55.6%	37.3%	37.3%
BA:Dependency of military spouse	302	0.1%	0.8%	45.1%	52.0%	90.9%	84.1%	92.2%	91.2%	60.9%	61.2%	54.3%	45.8%
BB:Dependency number of dependents	519	0.2%	1.3%	52.5%	56.3%	95.5%	88.9%	93.1%	90.5%	67.5%	54.6%	54.7%	43.9%
CY:Mental qualification - meets ASVAB	818	0.3%	2.1%	58.2%	58.1%	88.7%	89.9%	84.5%	86.8%	51.4%	56.7%	31.4%	38.3%
HB:Medical disqualification weight	977	0.4%	2.5%	59.2%	59.4%	87.8%	88.0%	82.8%	82.9%	41.2%	41.9%	29.3%	28.6%
HC:Medical disqualification disease	14690	5.7%	37.3%	56.4%	56.7%	88.6%	87.8%	86.3%	85.7%	56.2%	54.7%	36.8%	35.2%

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.

Recruits with Conduct or Drug Waivers Train and Perform Better Than Those without Waivers Initially

Waiver	N	N=258413 % of Enlistees	N=39335 % of Waivers	N=254005 IET GRAD 1ST TIME		N=75345 GA:ENTRY LEVEL PERFORMANCE AND CONDUCT	
				69.3%	69.3%	15.3%	15.3%
DB:Law violations serious traffic	1906	0.7%	4.8%	78.1%	77.3%	10.8%	10.8%
DC:Law violations minor non-traffic	531	0.2%	1.3%	76.8%	75.6%	9.5%	9.9%
DD:Law violations serious non-traffic	11809	4.6%	30.0%	74.0%	73.1%	11.2%	11.3%
DE:Law violations felony adult	2126	0.8%	5.4%	76.6%	76.2%	11.2%	11.3%
DF:Law violations felony juvenile	1304	0.5%	3.3%	77.7%	75.6%	8.5%	8.9%
DRUG WAIVERS	3925	1.5%	10.0%	74.1%	72.7%	9.3%	9.5%

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.

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

Waiver	N	% of Enlistees	% of Waivers	N=258413 36-Month Loss		N=75345 DF:PREGNANCY OR CHILD BIRTH		N=75345 FV:CONDITION: NOT A DISABILITY		N=75345 FW:FAILED MEDICAL / PHYSICAL STANDARDS	
				26.6%	26.6%	6.8%	6.8%	13.1%	13.1%	19.9%	19.9%
DB:Law violations serious traffic	1906	0.7%	4.8%	22.5%	27.6%	1.9%	5.8%	14.3%	14.1%	18.2%	15.2%
DC:Law violations minor non-traffic	531	0.2%	1.3%	28.9%	30.5%	2.7%	9.3%	11.4%	12.2%	17.4%	15.9%
DD:Law violations serious non-traffic	11809	4.6%	30.0%	29.4%	32.9%	2.2%	5.7%	9.8%	9.9%	17.8%	15.7%
DE:Law violations felony adult	2126	0.8%	5.4%	25.3%	28.6%	1.4%	4.3%	10.8%	11.0%	16.2%	13.7%
DF:Law violations felony juvenile	1304	0.5%	3.3%	26.4%	29.6%	4.2%	12.8%	7.6%	7.9%	17.9%	16.7%
DRUG WAIVERS	3925	1.5%	10.0%	35.1%	38.6%	1.8%	4.5%	7.5%	7.7%	14.0%	12.6%

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.

Greater Rate of Serious Separation-Related Problems for Recruits with Conduct or Drug Waivers

Waiver	N	% of Enlistees	% of Waivers	N=75345 FS:IN LIEU OF TRIAL BY COURT MARTIAL		N=75345 KA:PATTERN OF MISCONDUCT		N=75345 KK:MISCON-DUCT: DRUG ABUSE		N=75345 KQ:COMMIS-SION OF A SERIOUS OFFENSE	
	N=258413		N=39335								
				7.7%	7.7%	5.1%	5.1%	7.9%	7.9%	4.8%	4.8%
DB:Law violations serious traffic	1906	0.7%	4.8%	9.3%	8.9%	5.2%	6.3%	15.3%	14.6%	8.5%	8.8%
DC:Law violations minor non-traffic	531	0.2%	1.3%	10.7%	8.6%	10.1%	9.0%	17.6%	14.8%	7.7%	6.5%
DD:Law violations serious non-traffic	11809	4.6%	30.0%	10.1%	9.1%	8.1%	8.6%	17.4%	15.9%	8.2%	7.9%
DE:Law violations felony adult	2126	0.8%	5.4%	11.5%	10.4%	5.8%	6.7%	17.3%	16.4%	7.3%	7.3%
DF:Law violations felony juvenile	1304	0.5%	3.3%	11.8%	10.8%	6.2%	5.5%	14.8%	12.6%	8.3%	7.1%
DRUG WAIVERS	3925	1.5%	10.0%	11.8%	10.6%	7.1%	6.9%	28.3%	25.4%	10.7%	9.8%

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.

Recruits with Conduct Waivers Show Early Success, Subsequent Problems, Followed, Absent Attrition, By Success at 4 Years; Drug Waiver Recruits Fare Worse

Waiver	N	% of Enlistees	% of Waivers	N=178301 Good Conduct Medal		N=178301 No Negative Rank Change		N=178301 No Reenlistment Bar		N=178301 No Suspension Favorable Person		N=133713 Made E5 by 48 months	
	N=258413	N=39335		54.1%	54.1%	88.1%	88.1%	87.3%	87.3%	55.6%	55.6%	37.3%	37.3%
DB:Law violations serious traffic	1906	0.7%	4.8%	56.6%	57.4%	86.1%	82.2%	87.4%	86.0%	58.1%	53.0%	47.2%	42.3%
DC:Law violations minor non-traffic	531	0.2%	1.3%	63.0%	62.5%	83.9%	84.0%	85.9%	86.1%	51.3%	50.7%	44.3%	43.7%
DD:Law violations serious non-traffic	11809	4.6%	30.0%	58.5%	58.7%	82.2%	79.9%	85.0%	84.4%	51.8%	49.0%	39.5%	37.0%
DE:Law violations felony adult	2126	0.8%	5.4%	59.3%	59.9%	83.0%	79.3%	85.9%	84.9%	54.1%	50.1%	40.3%	36.2%
DF:Law violations felony juvenile	1304	0.5%	3.3%	59.9%	59.4%	84.1%	84.0%	86.7%	86.7%	56.2%	55.5%	35.4%	35.2%
DRUG WAIVERS	3925	1.5%	10.0%	58.9%	58.8%	76.3%	74.8%	81.9%	81.5%	41.5%	39.8%	35.3%	34.0%

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.

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 waivered 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

HumRRO
Human Resources Research Organization

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

	Sample			Sample			Sample 3: SWPT-Screened AO Sample		
Sample/Criterion	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
Full Sample									
Post-ESL AFQT Score	765	32.05	13.80	388	32.30	14.72	409	32.97	11.70
AFQT Score Change	765	6.92	13.85	388	7.29	14.81	407	7.85	11.72
								.58	.49
								.88	.33
DLIELC Only									
Post-ESL AFQT Score	649	30.10	12.65	277	28.03	12.46	199	29.63	10.27
AFQT Score Change	649	4.87	12.59	277	2.84	12.32	199	4.49	10.19
AFQT Category Change	649	.58	.49	277	.48	.50	199	.50	.50
ESL Graduation	709	.92	.28	303	.91	.28	228	.87	.33
Ft. Allen Only									
Post-ESL AFQT Score	116	43.01	14.86	111	42.96	14.57	210	36.13	12.10
AFQT Score Change	116	18.41	14.97	111	18.40	14.73	208	11.06	12.20
AFQT Category Change	116	.79	.41	111	.79	.41	208	.66	.48
ESL Graduation	125	.94	.25	119	.94	.24	244	.88	.33

Large differences between schools in AFQT changes

ESL graduation rates are uniformly high

Bivariate Relations: Screening Tests and Outcomes

		Post-ESL AFQT Score			AFQT Score Change			AFQT Category Change				ESL Graduation			
Sample	Test	*N*	*r*	r_c	*N*	*r*	r_c	*N*	*r*	*d*	d_c	*N*	*r*	*d*	d_c
1	AO	765	**.07**	**.14**	765	.07	.14	765	**.07**	.13	.26	834	.00	.02	.04
2	AO	388	.08	**.16**	388	.09	.17	388	.09	.19	.38	422	.04	.16	.32
2	RPM	388	**.15**	.18	388	**.15**	.18	388	**.14**	**.28**	.36	422	-.06	-.21	-.12
3	AO	407	**.15**	.17	407	**.17**	.19	407	**.12**	**.25**	.30	472	.00	.00	.13
3	SWPT	407	**.23**	**.41**	407	**.23**	.27	407	**.18**	**.36**	.69	472	.01	.03	.06

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

	Sample 1: Full AO-Screened Sample				Sample 2: AO-Screened RPM Sample				Sample 3: SWPT-Screened AO Sample			
Sample	*N*	Lower than Cat IV-A	Cat IV-A	Higher than Cat IV-A	*N*	Lower than Cat IV-A	Cat IV-A	Higher than Cat IV-A	*N*	Lower than Cat IV-A	Cat IV-A	Higher than Cat IV-A
Overall	765	24.2	14.9	60.9	388	26.5	16.2	57.2	407	13.8	28.0	58.2
DLIELC Only	649	27.3	15.1	57.6	277	34.7	17.0	48.4	199	19.6	30.2	50.3
Fort Allen Only	116	6.9	13.8	79.3	111	6.3	14.4	79.3	208	8.2	26.0	65.9

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 . . .

	Post-ESL AFQT Score				AFQT Score Change			
School	*N*	*M*	*SD*	*d*	*N*	*M*	*SD*	*d*
DLIELC	649	30.10	12.65	**-0.90**	649	4.87	12.59	**-1.04**
No GT Prep	299	26.11	12.11	**-1.31**	299	0.93	12.11	**-1.35**
GT Prep	350	33.50	12.12	**-0.74**	350	8.23	12.02	**-0.79**
Fort Allen	116	43.01	14.86	-	116	18.41	14.97	-

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

School	*N*	Lower than Cat IV-A	Cat IV-A	Higher than Cat IV-A
DLIELC	649	27.3	15.1	57.6
No GT Prep	299	38.5	22.4	39.1
GT Prep	350	17.7	8.9	73.4
Fort Allen	116	6.9	13.8	79.3

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.)

Initial DLIELC-MEPS ECLT Difference	Percentile of ECLT Difference	AO *OR*
-8	5	1.561
-1	10	1.407
0	15	1.386
0	20	1.386
2	25	1.345
5	30	1.287
8	35	1.230
11	40	1.177
13	45	1.142
16	50	1.092
18.2	55	1.057
19	-	1.045
20	-	1.029
21	60	1.014
22	-	0.999
23	-	0.984
24	65	0.970
26	70	0.941
29	75	0.900
32	80	0.861
34	85	0.836
37	90	0.799
42	95	0.742

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.

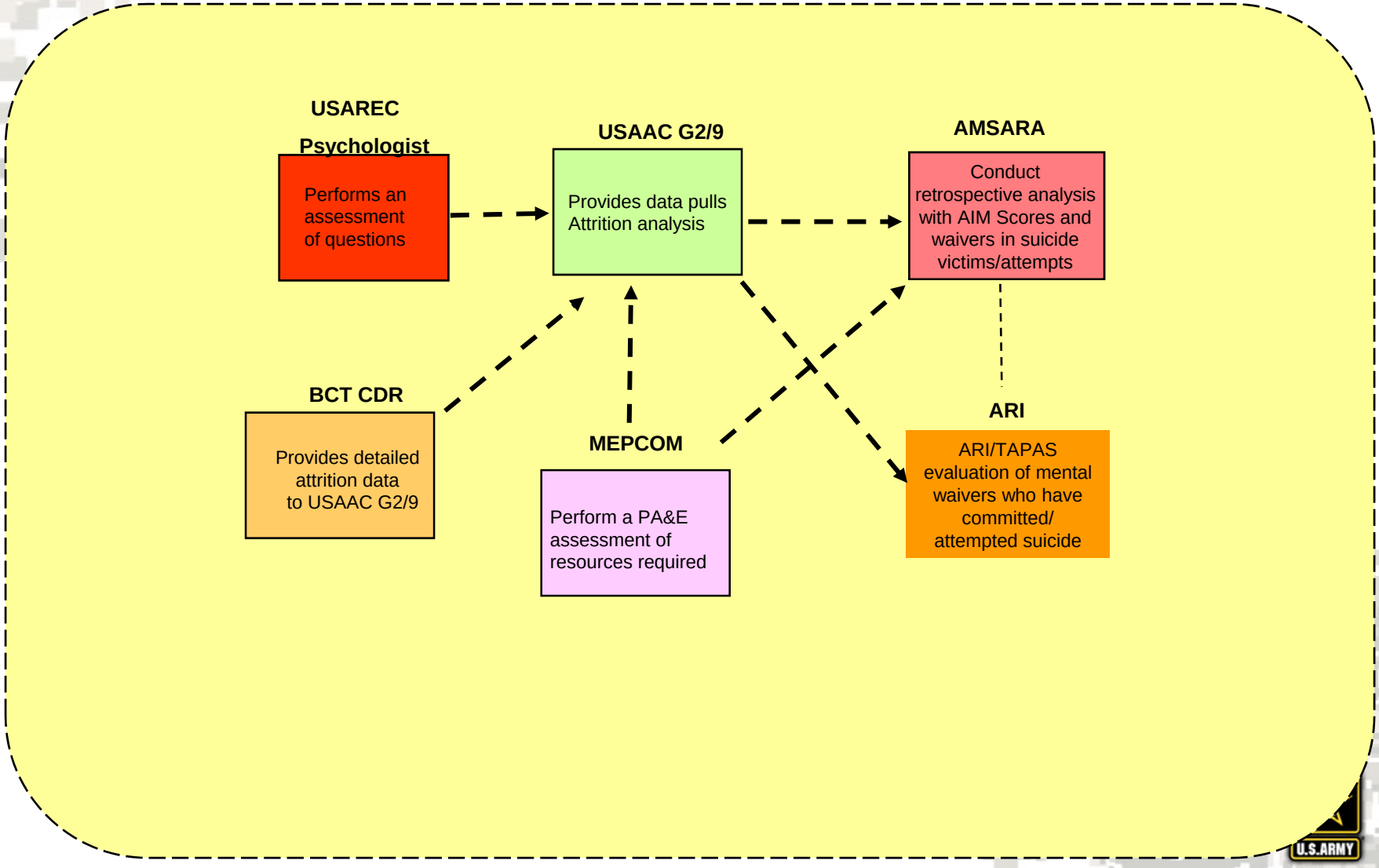
Initial Approach

- 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)

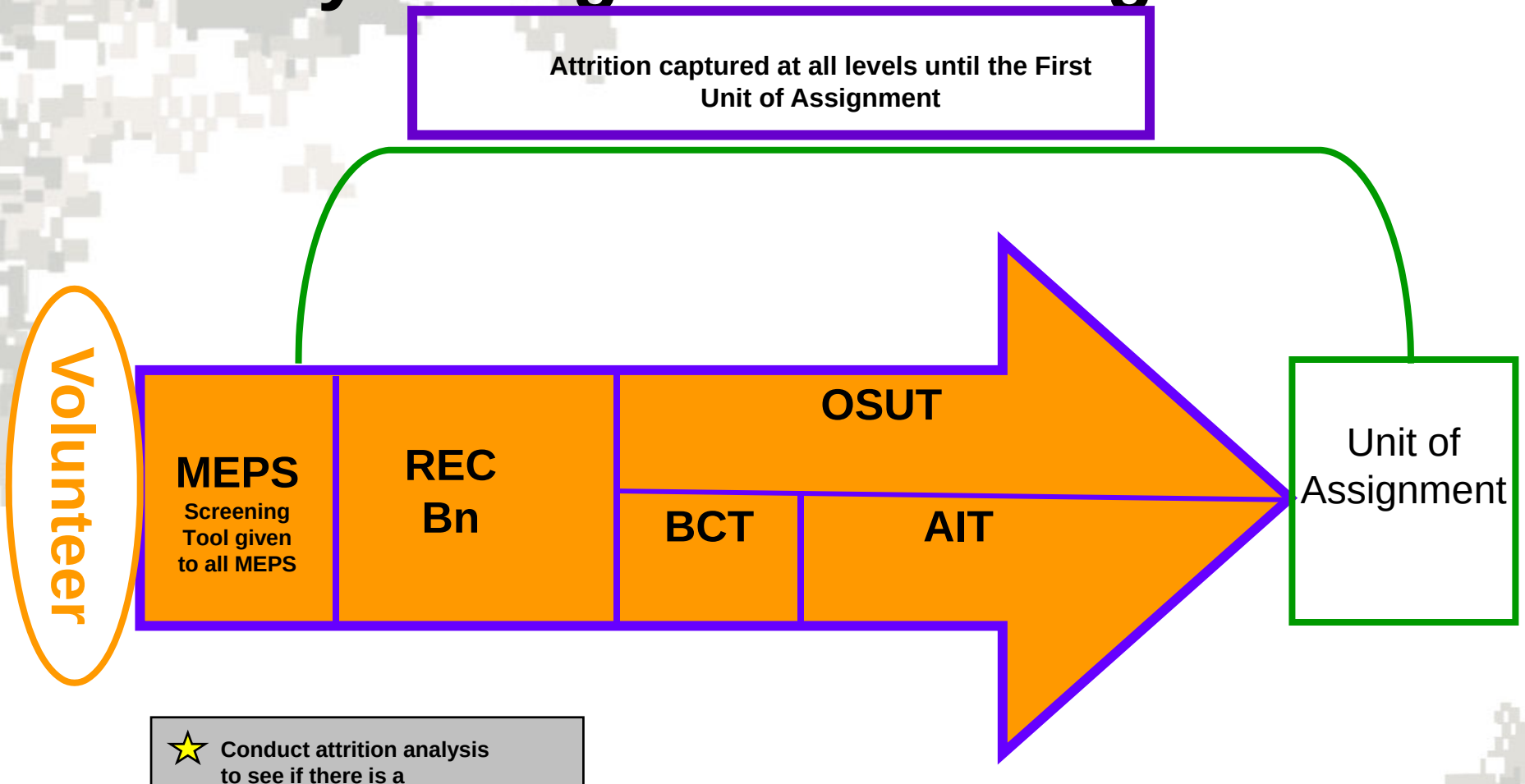
Interim Approach

- 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

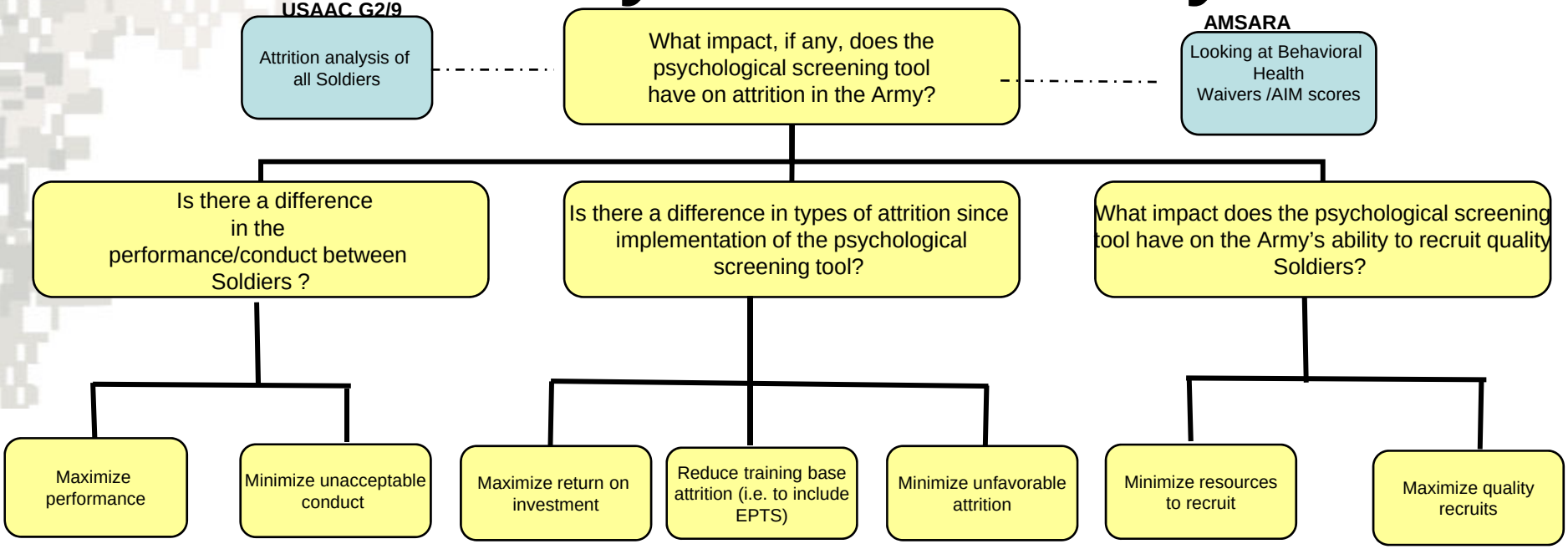


Psychological Screening Tool



- 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



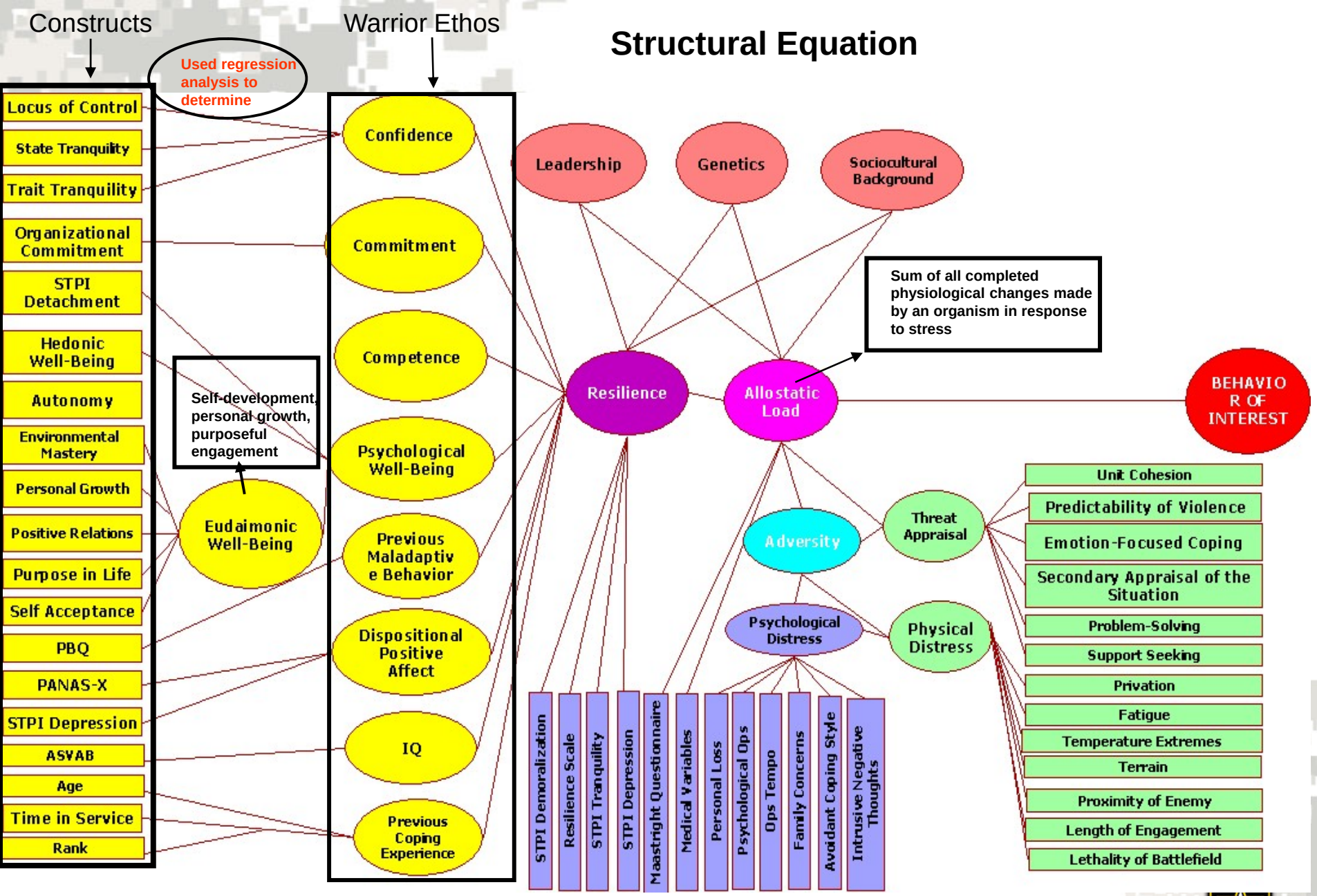
A holistic analysis approach will be taken to determine the impact of the screening tool on the Army. AMSARA will focus on retrospective analysis to assess if there is a significant difference in the ARI's Assessment of Individual Motivation scores and accession mental/health conduct waiver in individuals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

Experiment Development Approach

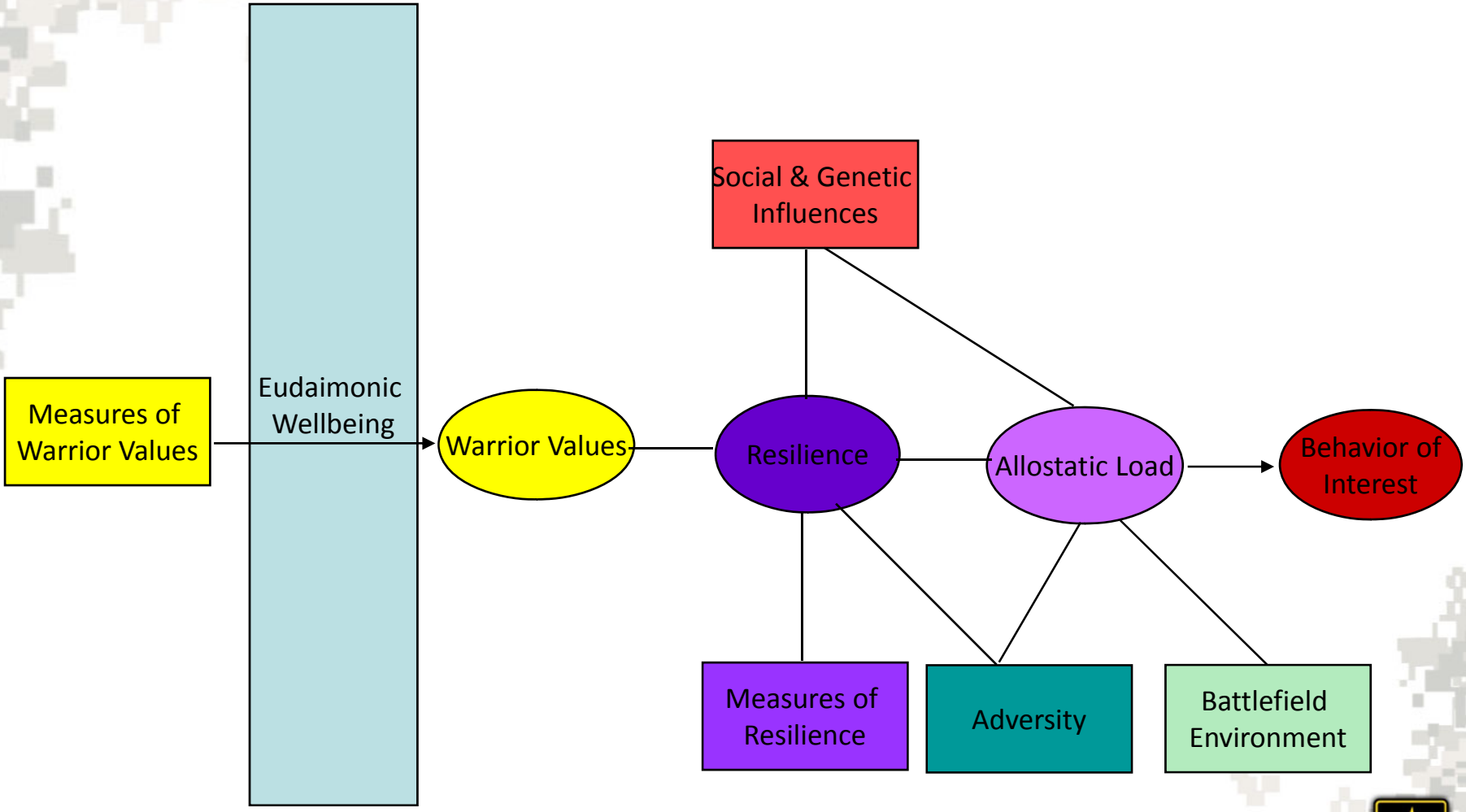
- Phase I – Develop the questions
- Phase II – Data Collection Plan
  - Data elements will be provided in the Concept Experimentation Plan.
  - Data will be collected over a one-year period at the MEPS and TRADOC training bases.
  - Data reduction and analysis will be conducted by AMSARA and USAAC G2/9.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

Way Ahead

Structural Equation



SIMPLIFICATION OF INITIAL STRUCTURAL MODEL



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

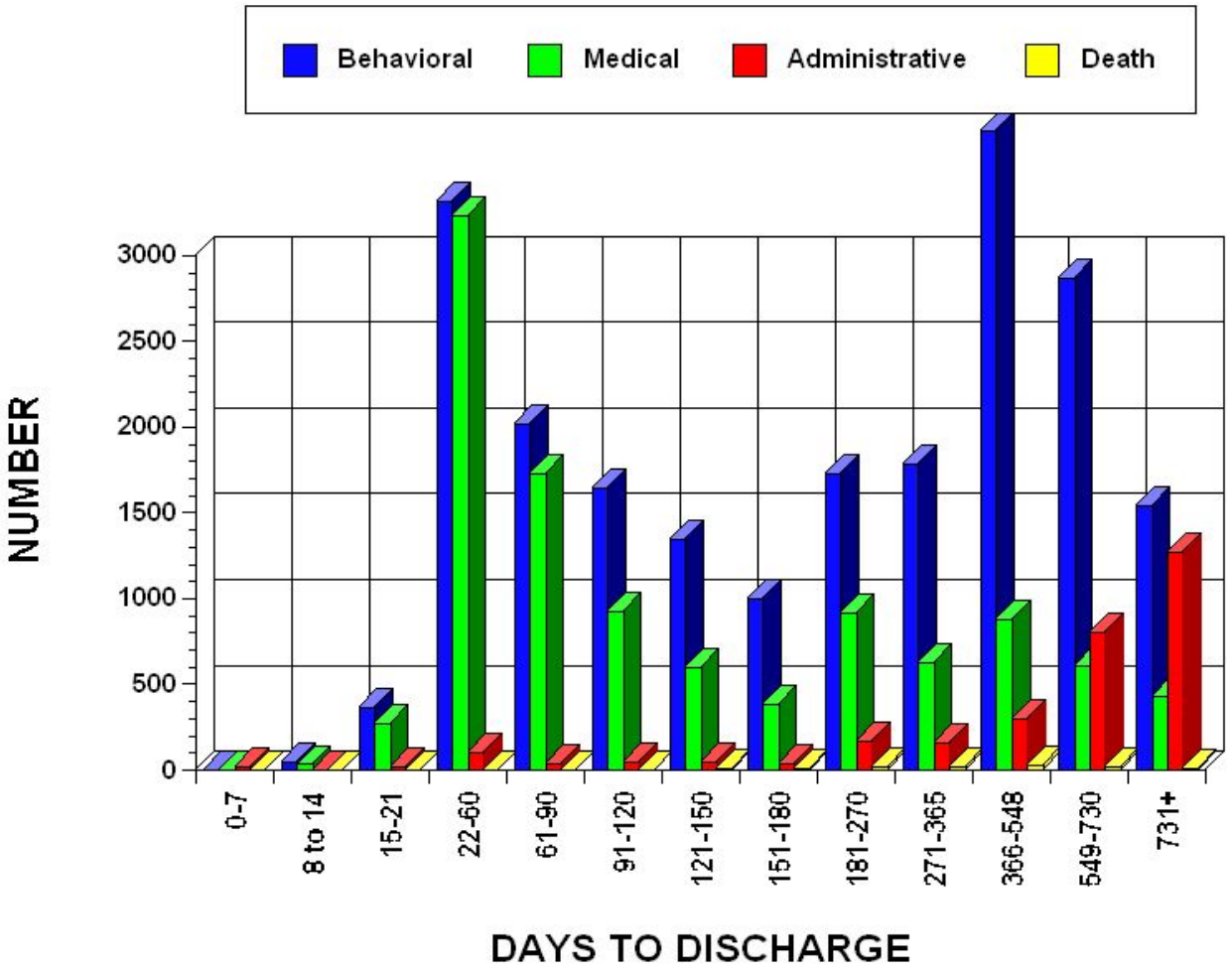
- Model of behavioral reliability will be tested
  - Structural equation modeling will be used and tested after data is collected.
  - Results correlated with early adverse attrition.
  - Metrics will be refined.
  - Method for evaluating psychological fitness will be developed allowing accurate prediction 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.

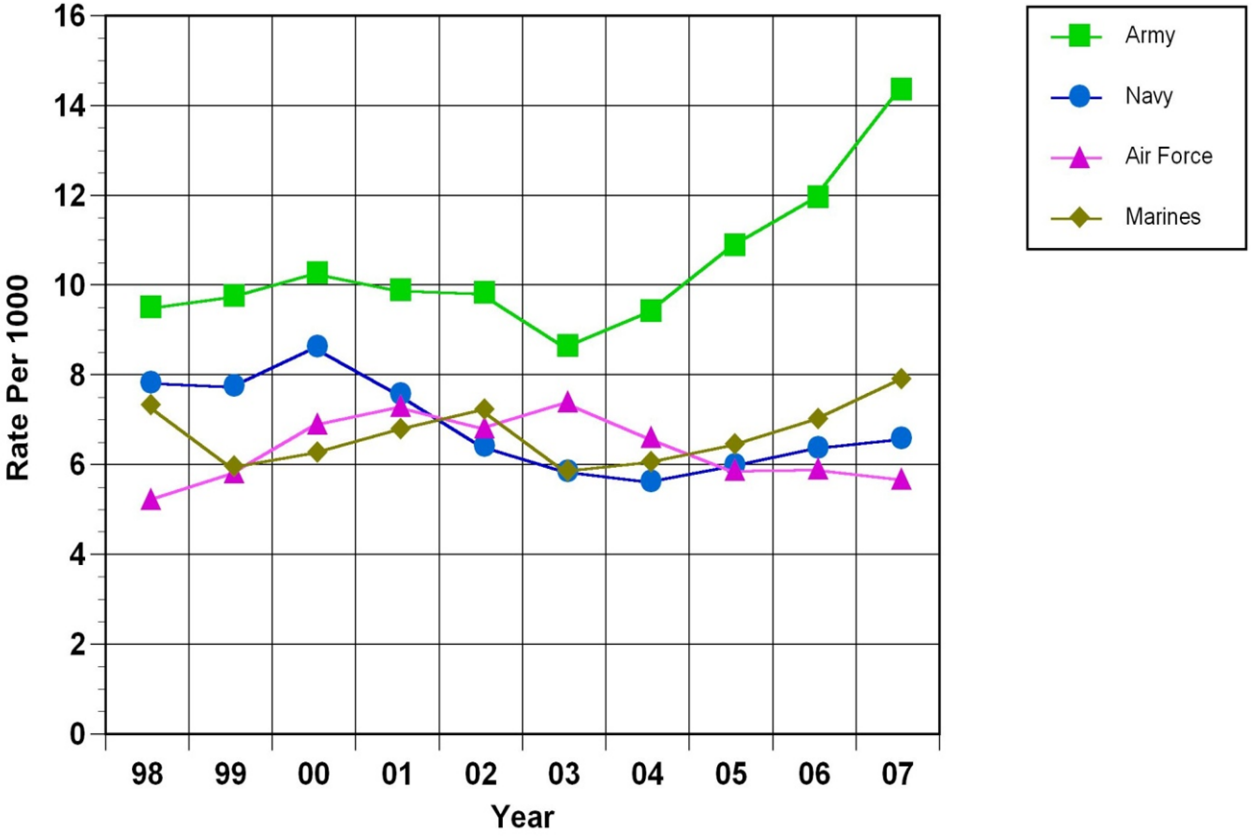
Purpose: Examine the hypothesized relationships between variable/constructs in the preliminary model.

TYPE OF EARLY ADVERSE ATTRITION BY TIME IN SERVICE - FY00 COHORT

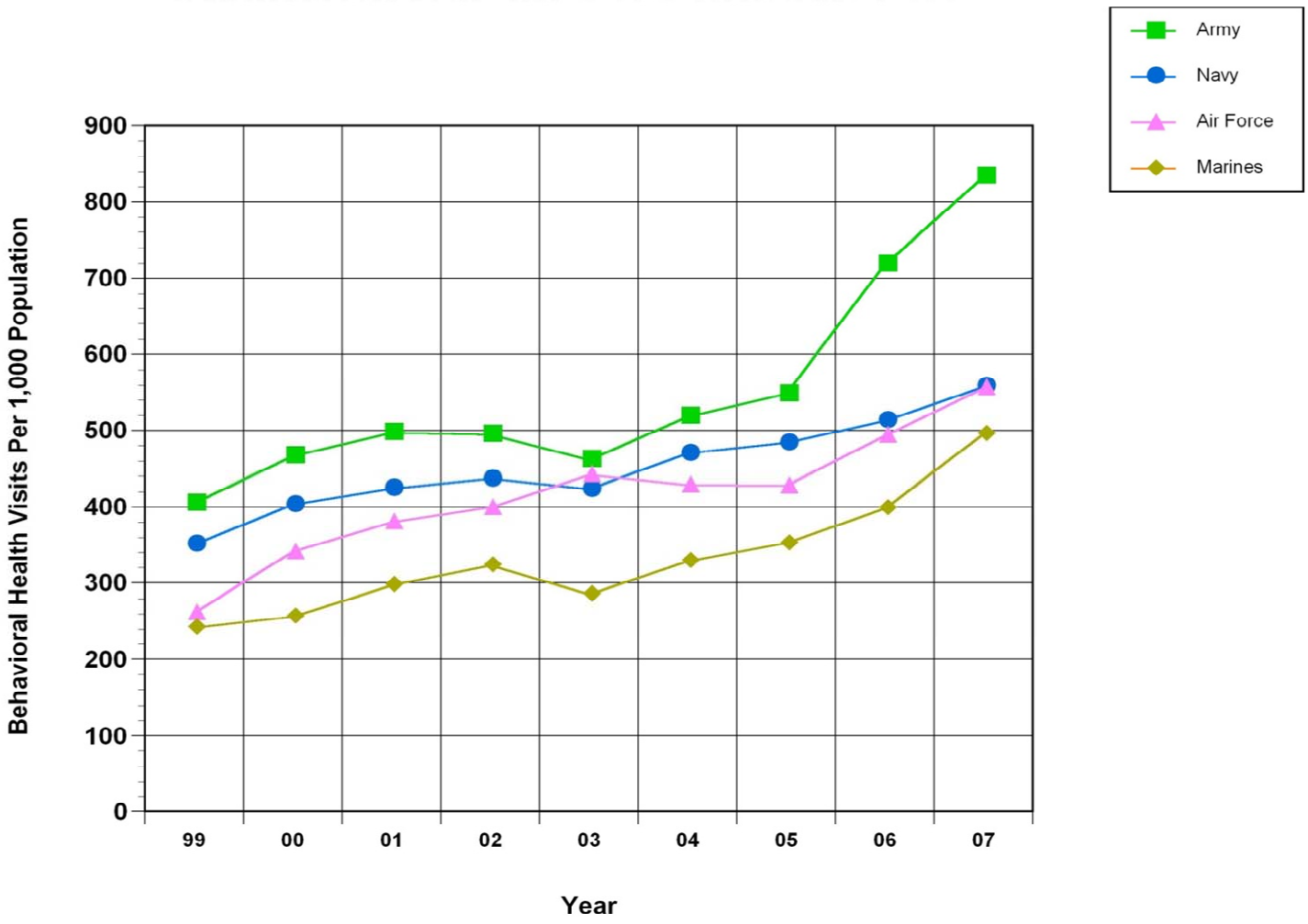


Data Source: MEDCOM

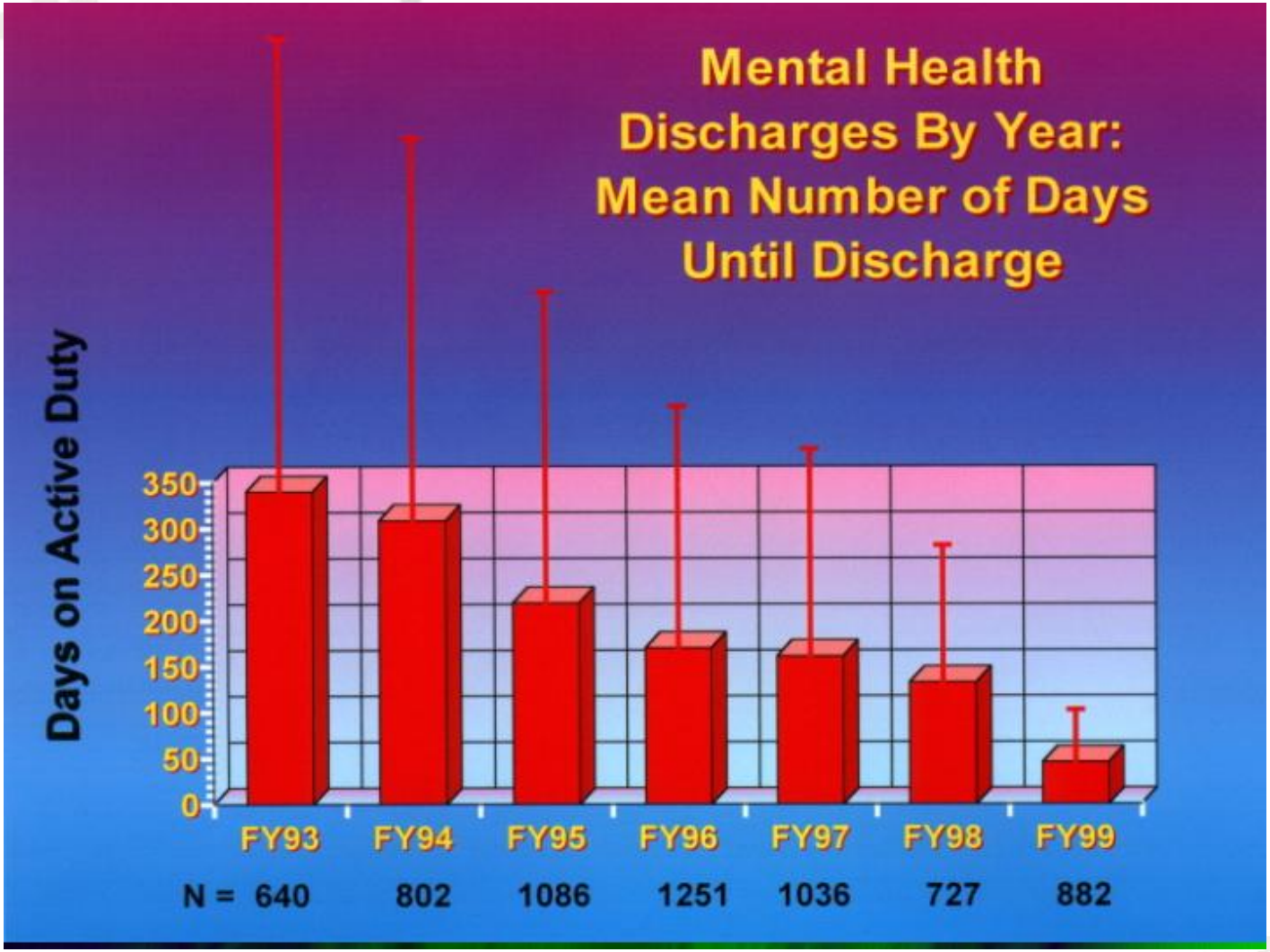
RATES OF PSYCHIATRIC HOSPITALIZATIONS BY SERVICE AND YEAR



BEHAVIORAL HEALTH VISITS BY SERVICE AND YEAR



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

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

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

<u>Fear of Overwhelming New Soldiers</u>:

- **DSs "Hold back"**
- **Lower Standards**
- **Fewer Consequences**
- **Lower Intensity**
- **Relaxed Training Environment**

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



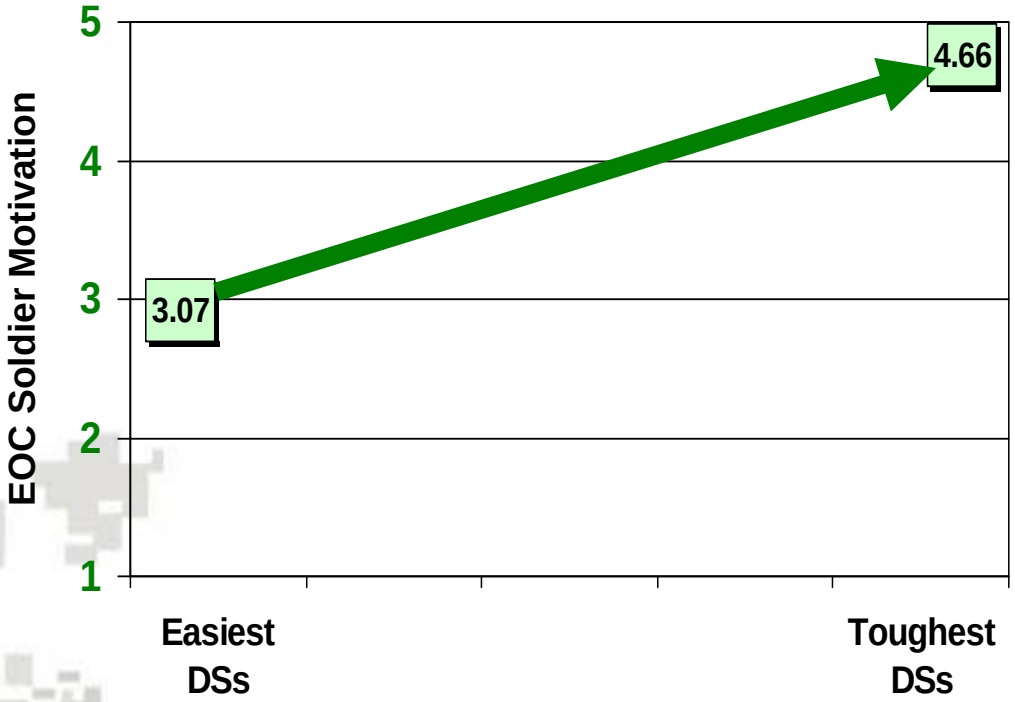
Research Protocol *study/findings replicated JUL 09

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

Incoming Soldier Survey (Reception Battalion)	Outcome Survey (End of Cycle)
Demographics Age, Sex, Education, Marital Status, Dependent Children, Civilian Employment & Activities, Family Members in Service/Prior Service **Incoming Soldier Attributes** 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 **Expected Difficulty of BCT & Expected Accomplishments** Expectation of Expending Mental, Physical, Social, and Emotional Effort/Achieving Mental, Physical, Social and Emotional Growth **Pre-BCT Preparation** Weight Gain/Loss, Effort to Improve Physically, Effort to Improve Mentally (learn more about Army, BCT, MOS, Soldier knowledge) **Reason for Enlisting**	**Perceived Difficulty of BCT (Challenge)** Mental, Physical, Social, and Emotional Effort Expended **Army-Specific Self-Confidence** Combat Skills, Mental & Emotional Preparedness, General Soldier Knowledge **Army Attributes & Values** Motivation, Respect, Pride & Professionalism, Integrity, and Accountability **Evaluation of Drill Sergeants** Toughness, Professional Engagement, Personal Nature/Warmth **Evaluation of Other Soldiers in Platoon** Relative Knowledge, Ability, and Skills **Army Identification & Commitment**

Empirical Findings (replicated JUL 09)

EOC Soldier Motivation*



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

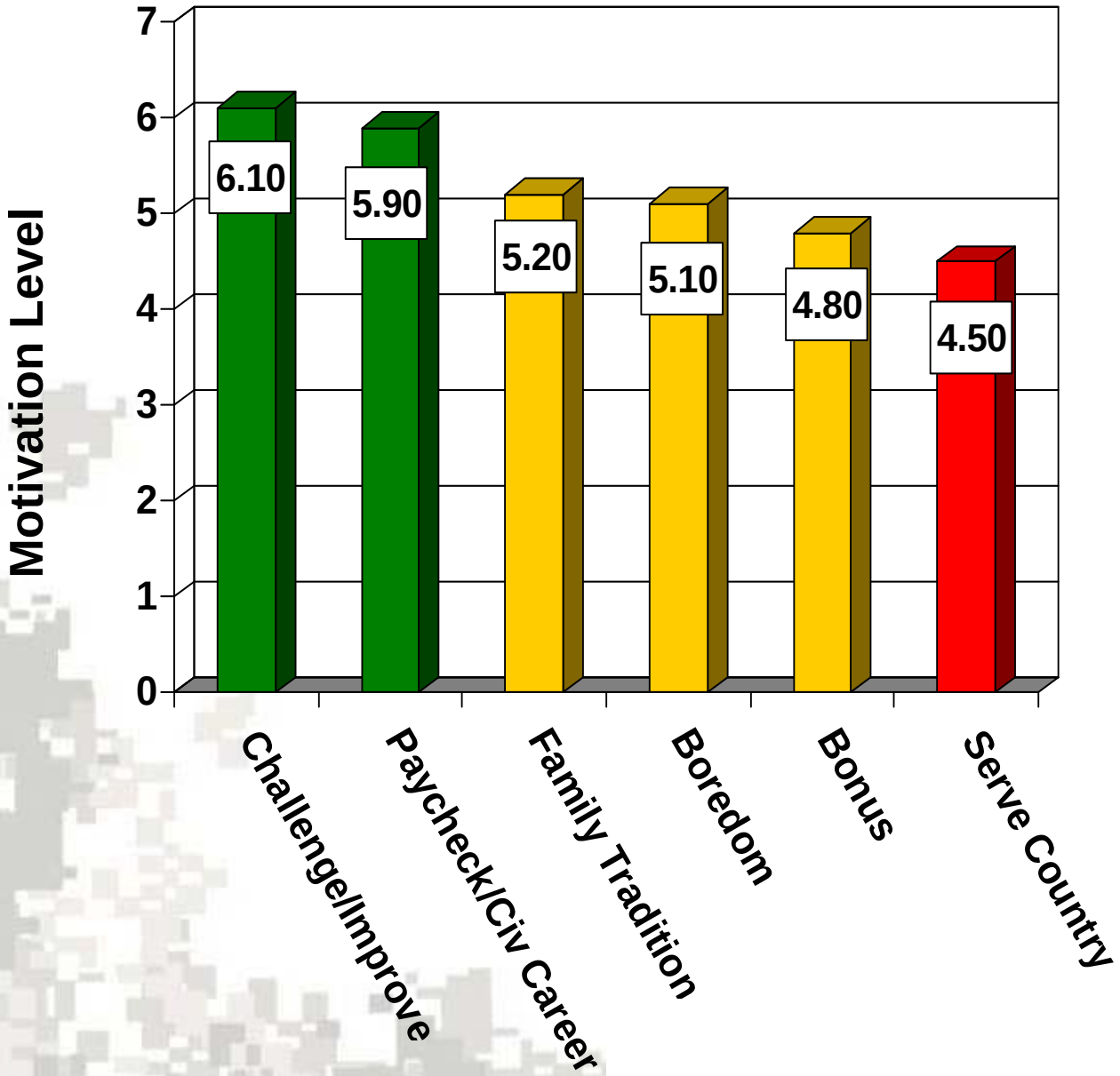
At EOC, the Soldiers with the toughest Drill Sergeants were the most motivated.

*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). adjR^2=.32; F(8, 801)=47.53

Why Soldiers Enlist (n~1,200)

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

Reason for Joining Affects Motivation to Train



Soldier Motivation to Train Scale

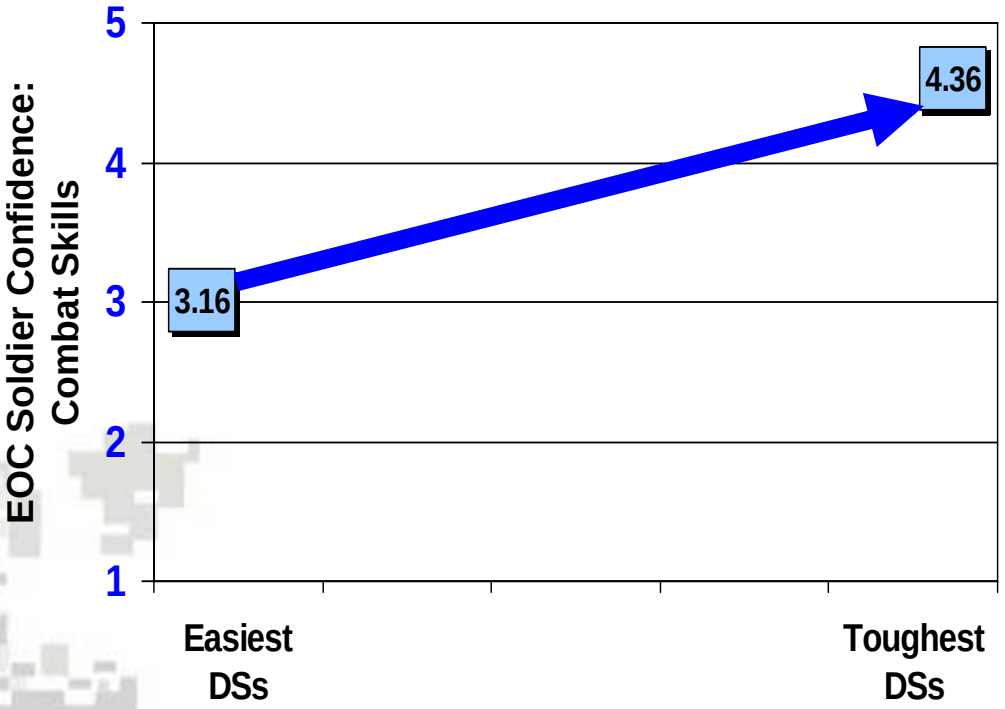
0 = not at all Motivated

7 = extremely Motivated

Measures Soldier's Motivation to:

- complete missions & tasks
- work as a team with other Soldiers
- continue training

EOC Soldier Confidence: Combat Skills*



EOC Combat-Skill Confidence Scale

1 = not at all Confident

5 = extremely Confident

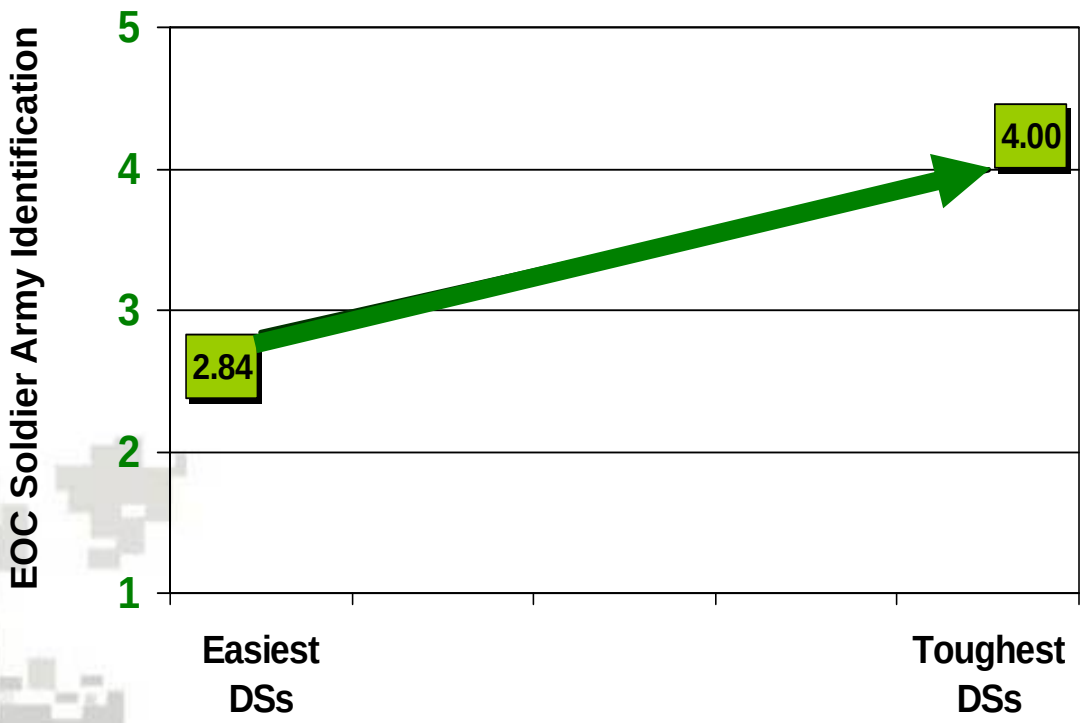
Measures Soldier's EOC Confidence in his/her ability to:

- hit enemy targets & keep weapon functioning in combat environment
- react to enemy fire & convoy attack
- move as member of fire team

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). adjR^2=.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

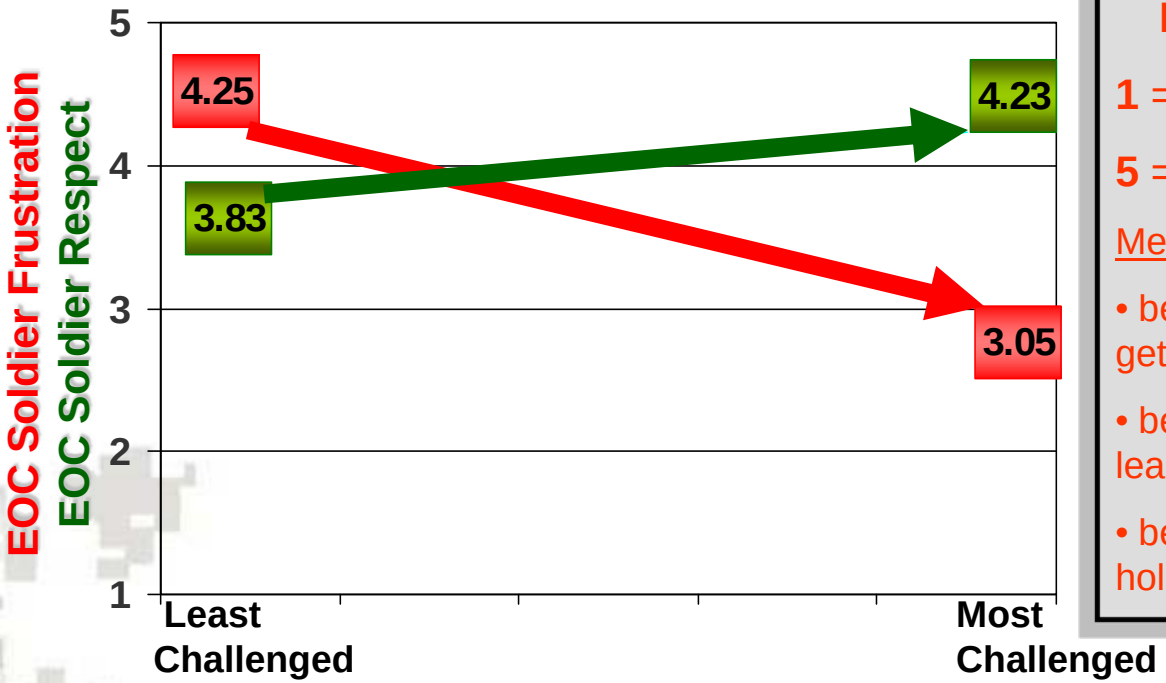
Measures Soldier's EOC feeling that:

- 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). adjR^2=.41; F(6,799)=93.69

EOC Soldier Frustration with Other Soldiers*



EOC Soldier Frustration Scale

1 = not at all Frustrated

5 = extremely Frustrated

Measures Soldier's EOC:

- belief that other Soldiers take too long to get things done
- belief that other Soldiers take too long to learn new things
- belief that other, slower Soldiers are holding him/her back

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 adjR^2=.11; F(5,819)=20.35; Respect adjR^2=.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

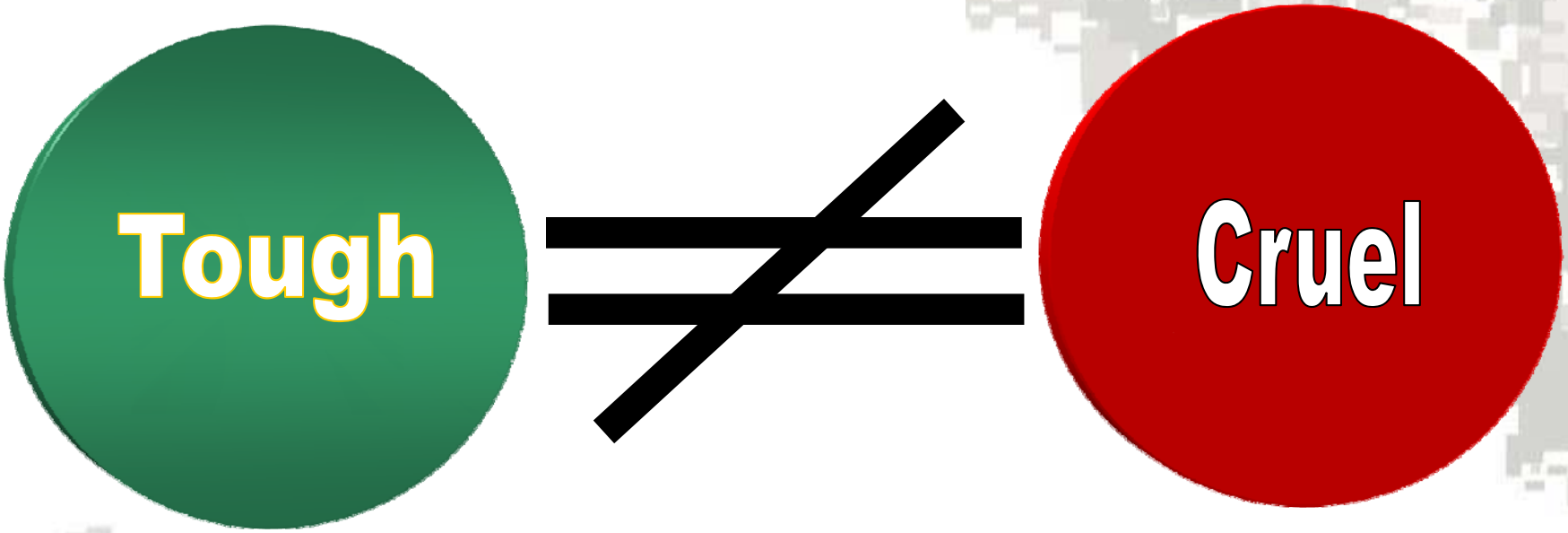
- **EOC Stress Scale** (measures sense of being overwhelmed/having to do too much too fast during BCT): 2.56

- **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.*

Soldiers who are challenged beyond their expectations do better.

*Stepwise Regressions controlling for Soldier demographics, incoming attributes and attitudes, and BCT preparedness. Pride&Prof adjR^2=.16; F(4,810)=38.45; Respect adjR^2=.10; F(6,793)=16.13; Motivation adjR^2=.20; F(7,815)=30.74; Confidence adjR^2=.29; F(10, 809)=35.07; Commitment adjR^2=.37; F(5, 813)=97.49



Setting High Standards	Arbitrarily Changing Standards
Consequences & Punishment	Excessive Physical Punishment
Criticize + Correct	Harsh Criticism Without Correction
Praise Only When Earned/ No Easy "Go"	Breaking Them Down but Never Building Them Up
Discipline	Brutality
It's Not Done Until It's Done Right	Never Demonstrating "Right"
"No Excuses!"	Ignoring Legitimate Soldier Problems

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.

Toughness & Discipline	Professional Engagement
• Are tough • Are strict • Demand a lot from us • Set high standards • Enforce the standards • Do NOT try to be "cool" • Do NOT try to be "friendly" • Are NOT easy-going	• Seem like they want to be here • Seem to know what they're doing • Care about training us • Are motivated • Push us • Challenge us • Don't give up on us

***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)

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

Pre-BCT Physical Fitness (n~1,330)

	MALES (66.9%)	FEMALES (33.1%)	TOTAL
Made effort to gain weight before BCT	27%	20%	25%
Made effort to lose weight before BCT	44.5%	51%	46.5%
Made effort to eat healthy food before BCT	78%	80%	79%
Made effort to get stronger/build muscle	84%	76%	81%
Made effort to get faster/improve run	75%	75%	75%
Routinely engaged in athletic/physical activities	62.8%	54%	60%

EOC Soldier Confidence (n~1,200)

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

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

ARMY STRONG[sm]

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:

Start	End	Briefer	Organization	Subject
10:15	10:30	Krista/Nancy	CAR G2/9	Track Opening
10:30	11:15	Lonnie Williams	USAAC G6	Overview – USAAC G6 Capabilities
11:15	11:45	All	CAR G2/9	Meet & Greet/ Review of MRA Research
11:45	12:45	ALL	CAR G2/9	LUNCH
12:45	13:45	Michael	TRU	Overview 12-16 Year Old Population
13:45	14:45	Dr. Cynthia Ogden	CDC	Q&A on Youth Obesity/Related Studies
14:45	15:00	ALL	CAR G2/9	BREAK
15:00	16:15	Dr. Jill Lindsey	Wright State U.	21st Cent. Tng. for 21st Cent. Learners
16:15	16:45	COL J. Vanderbleek	JROTC	JROTC Program Overview
16:45	17:00	Krista/Nancy	CAR G2/9	Outbrief/Recap of Day

DAY TWO:

Start	End	Briefer	Organization	Subject
10:00	11:00	COL S.W. Chandler	ARCIC	The Human Dimension (IS)
11:00	12:00	Dr. S. Acchione-Noel	FCS	Cognitive Research in Battle Command
12:00	13:00	LUNCH	CAR G2/9	LUNCH
13:00	14:00	Krista/Nancy	CAR G2/9	JROTC/March2Success Data Overview
14:00	15:00	Athylnne/G2/9 G6	JROTC G2/9, G6	JROTC/March2Success Working Group
15:00	15:15	BREAK	CAR G2/9	BREAK
15:15	16:00	A. Tyler/G2/9 G6	JROTC G2/9	Working Group -JROTC/March2Success
16:00	17:00	LTC Greg Pickell	Army National Guard	US-NEXUS Virtual World Demo
17:00	17:30	Krista/Nancy	CAR G2/9	Input Session – Recap of Day

Conclusion

Way Ahead

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

Project Goals

- 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

Four Phases

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)

Literature Review21st Century Learners

- 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

Best Practices draw on these attributes

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)

Criteria	Mean Rating*	N=17
Meaningful	2.00	
Self-direction	.94	
Metacognition	1.80	
Collaboration	1.53	
Competence	1.76	
Parallel processing	1.47	
Technology	.11	
Variety	2.18	
Traditional	2.59	

* *0= not observed 1= seldom 2=half of the time*
3= most/all of the time

Technical Training Observation Rubric (TTOR)

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.

Sample LSI Items

LSI Items Mapped to 21st c. Criteria Preferences

21st c. Criteria	Mean*	N=172
Meaningful	4.03	
Collaboration	3.95	
Metacognition	3.83	
Competence	3.82	
Technology	3.76	
Self-direction	3.65	
Traditional	3.27	

*1= strongly disagree 2=moderately disagree
3= undecided 4= moderately agree 5= strongly agree

Independent
L[1.0-2.7]
M[2.8-3.8]
H[3.9-5.0]

Avoidant
L[1.0-1.8]
M[1.9-3.1]
H[3.2-5.0]

Collaborative
L[1.0-2.7]
M[2.8-3.4]
H[3.5-5.0]

Dependent
L[1.0-2.9]
M[3.0-4.0]
H[4.1-5.0]

Competitive
L[1.0-1.7]
M[1.8-2.8]
H[2.9-5.0]

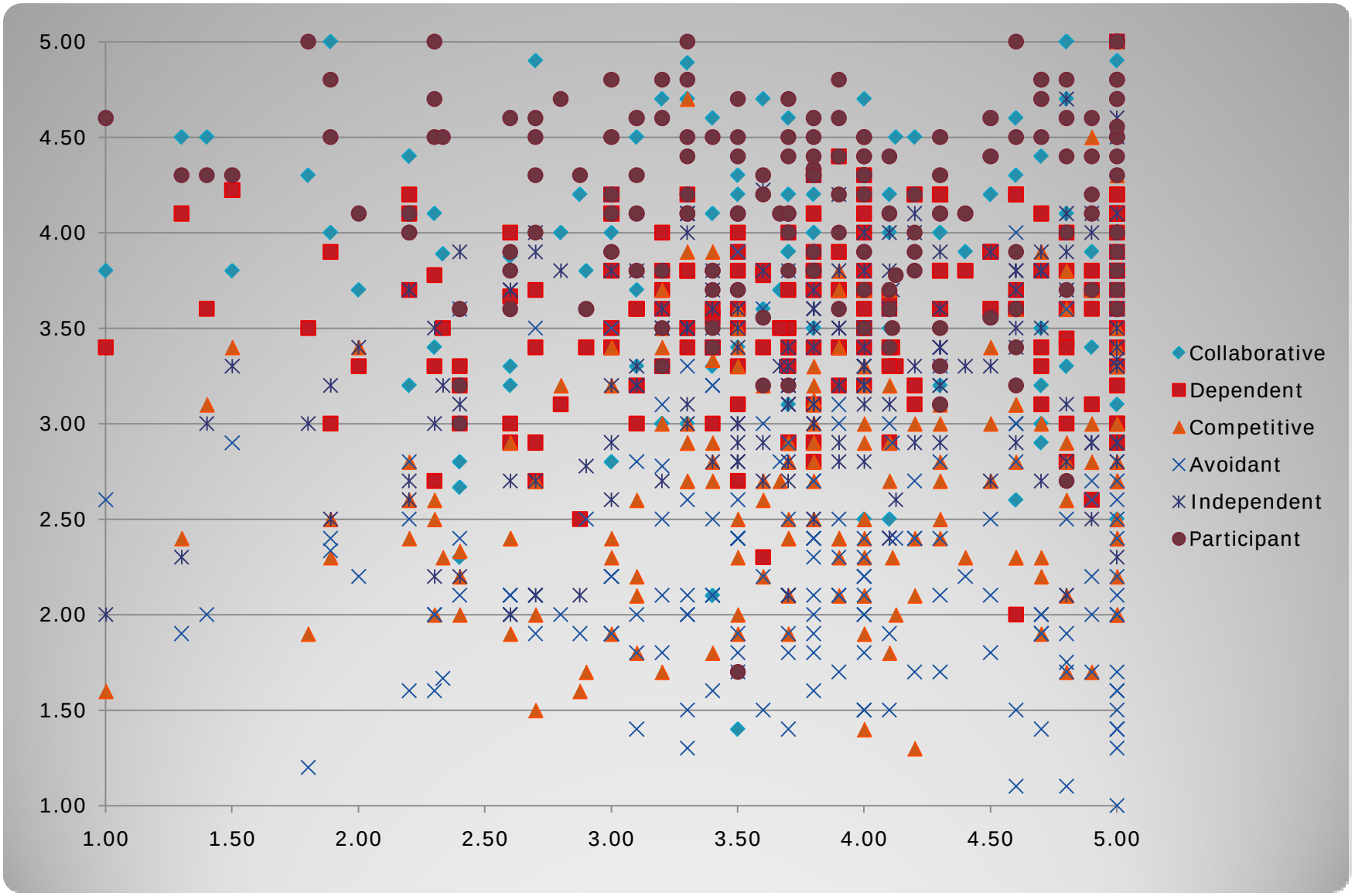
Participant
L[1.0-3.0]
M[3.1-4.1]
H[4.2-5.0]

LSI Scoring Norms

Learning Style	Mean*	N=172
Participant	4.13	Mh
Dependent	3.91	M
Collaborative	3.9	H
Technology	3.75	
Independent	3.31	M
Competitive	2.71	M
Avoidant	2.26	M

*1= strongly disagree 2= moderately disagree 3= undecided 4= moderately agree 5= strongly agree

Grasha-Reichmann LSI



LSI with Technology

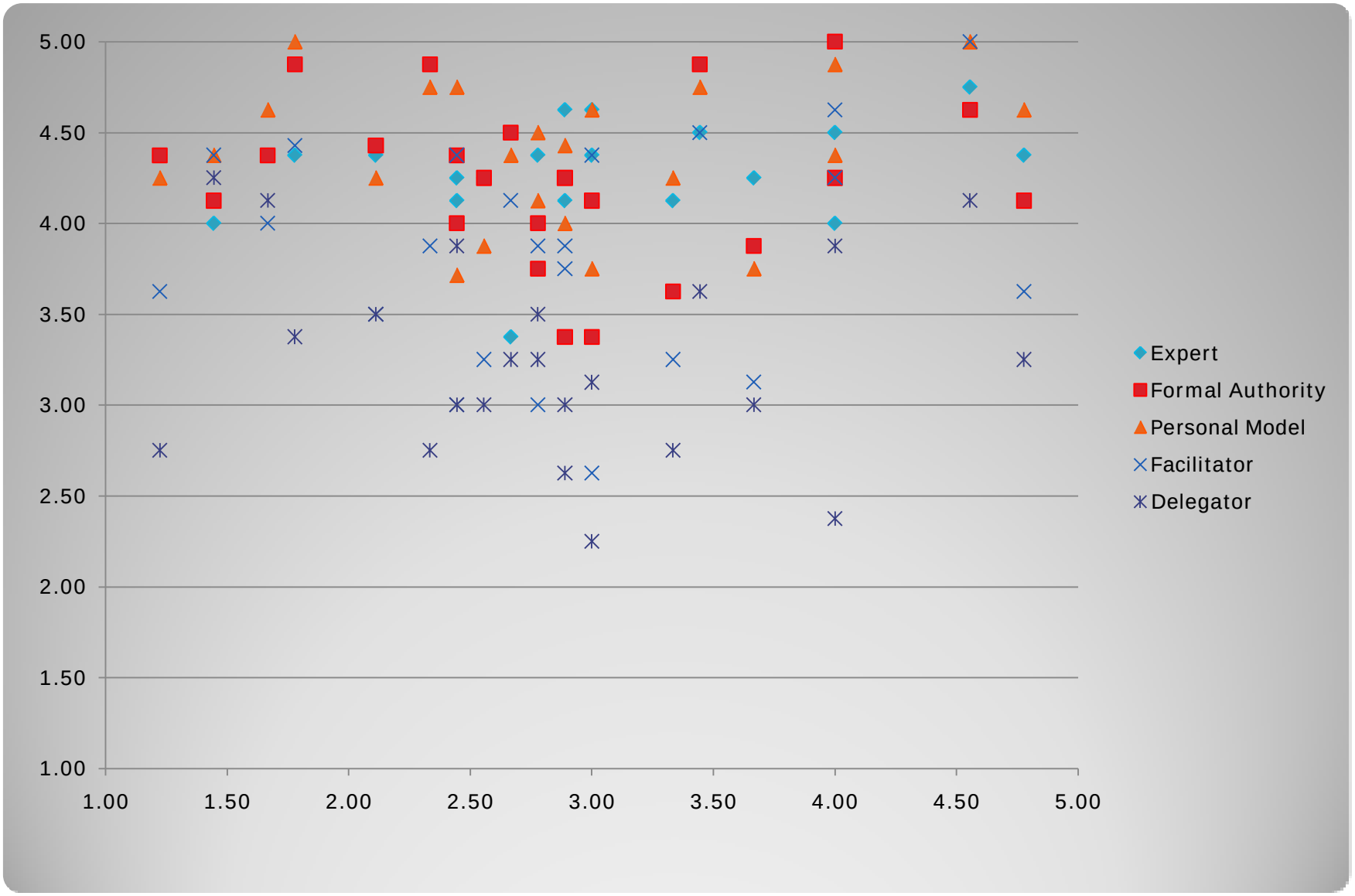
1. Sharing my knowledge and expertise with students is very important to me.
2. I give students negative feedback when their performance is unsatisfactory.
3. Students are encouraged to emulate the example I provide.
4. I spend time consulting with students on how to improve their work on individual 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

TSI Sample Items

Teaching Style	Mean*	N=22
Personal Model	3.48	
Expert	3.4	
Formal Authority	3.37	
Facilitator	3.04	
Delegator	2.60	
Technology	2.57	

*1= strongly disagree 2= moderately disagree 3= undecided 4= moderately agree 5= strongly agree

Grasha-Reichmann TSI



TSI with Technology

TSI	LSI
1 - Expert / Formal Authority with personal model / facilitator / delegator	1- dependent / participant / competitive
2 – Personal Model / Expert / Formal Authority with facilitator / delegator	2- participant / dependent / collaborative
3 - Facilitator / Personal Model / Expert w / formal authority / delegator	3- collaborative / participant / independent
4 - Delegator / Facilitator / Expert w / formal authority / personal model	4- independent / collaborative / participant

Grasha Style Clusters

Alignment of Preferences

INSTRUCTORS (N=22)

- Personal Model 3.48
- Expert 3.44
- Formal Authority 3.37
- Facilitator 3.04
- Delegator 2.60
- Technology 2.57

TRAINEES (N= 172)

- Collaborative 3.9 H
- Participant 4.1 Mh
- Dependent 3.9 M
- Independent 3.31 M
- Competitive 2.71 M
- Technology 3.7

- 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

Findings

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

Recommendation 1

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

Recommendation 2

- 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

The Way Forward

QUESTIONS

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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

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

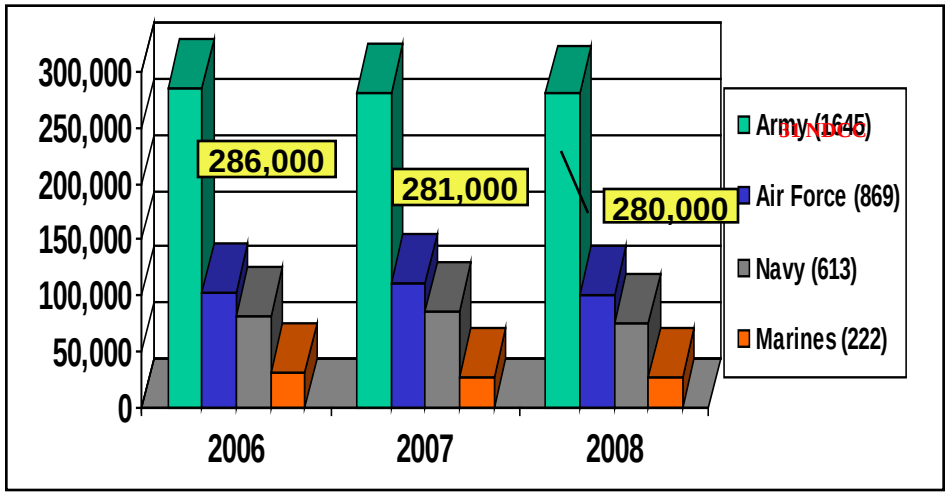
Measures of Effectiveness SY 07-08

	School	JROTC
Attendance	90%	93%
Graduation	86%	98%
Indiscipline	16.4%	5%
Drop Out (Seniors)	3%	<1%
GPA	2.7	2.9

USACC awarded 4166 ROTC scholarships:

1138 / 27.3% - All JROTC services
801 / 19.2% - Army JROTC Cadets

JROTC Enrollment – All Services

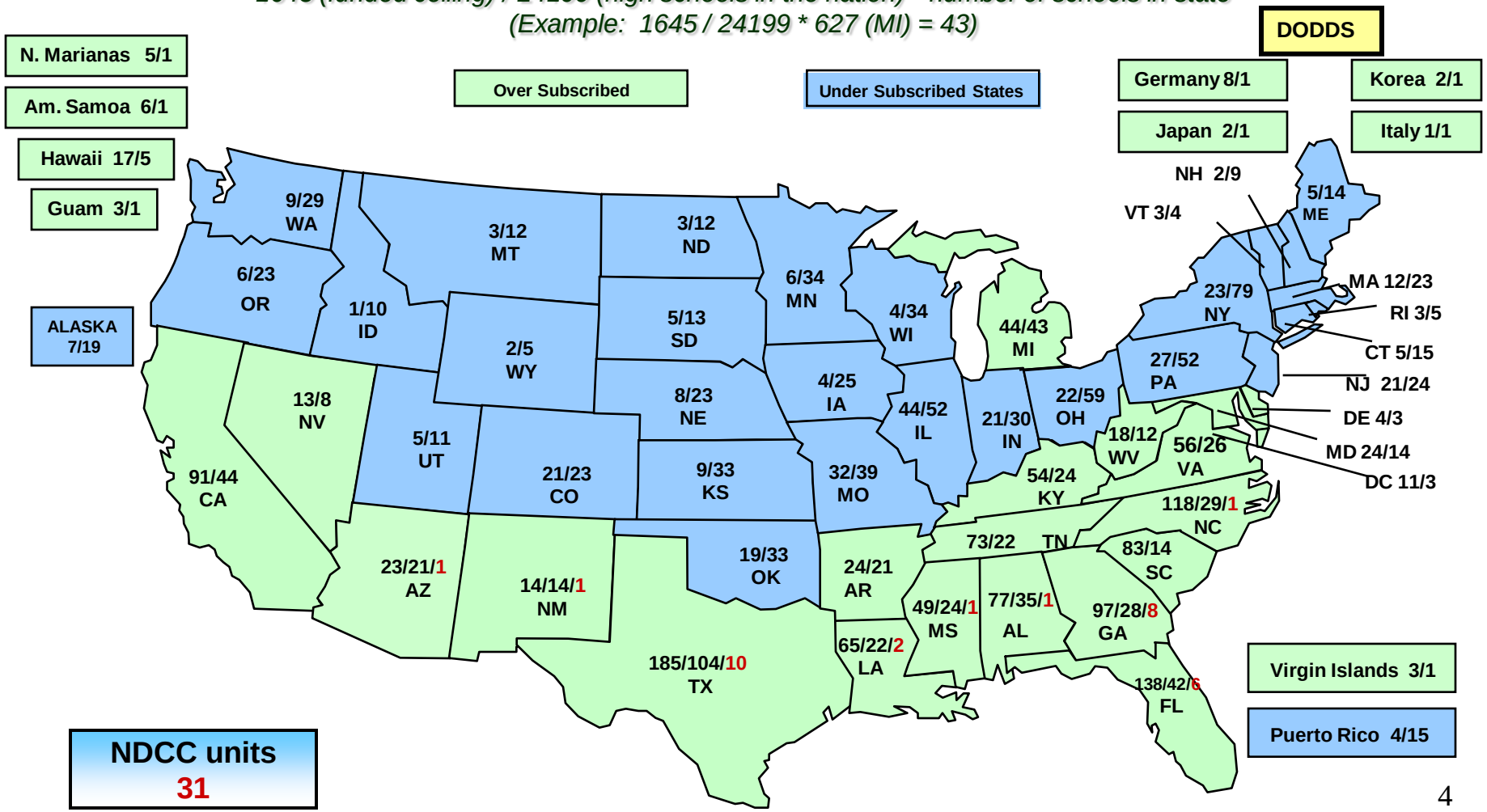


JROTC Units – Current Status

"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

Program Expansion Criteria

"Motivating young people to be better citizens"

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

NASBE
"JROTC PLUS" Program Concept

"Motivating young people to be better citizens"

- 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

"Motivating young people to be better citizens"

- 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

Conclusion

"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

United States Military Entrance Processing Command

VIPS 101 Briefing

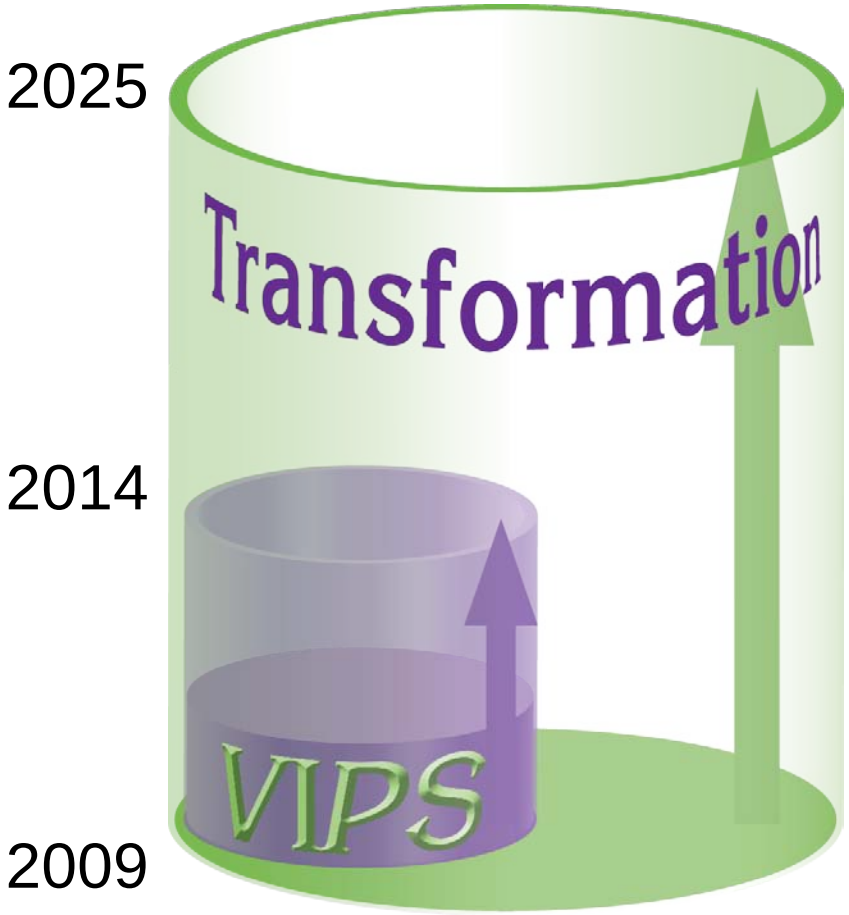
2009

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

Sequential



Considerable down time



Improving the process for applicants will also improve the process for Recruiting/ MEPS personnel and vice versa



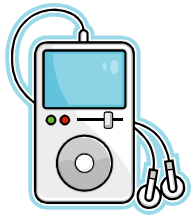
Our Customers











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

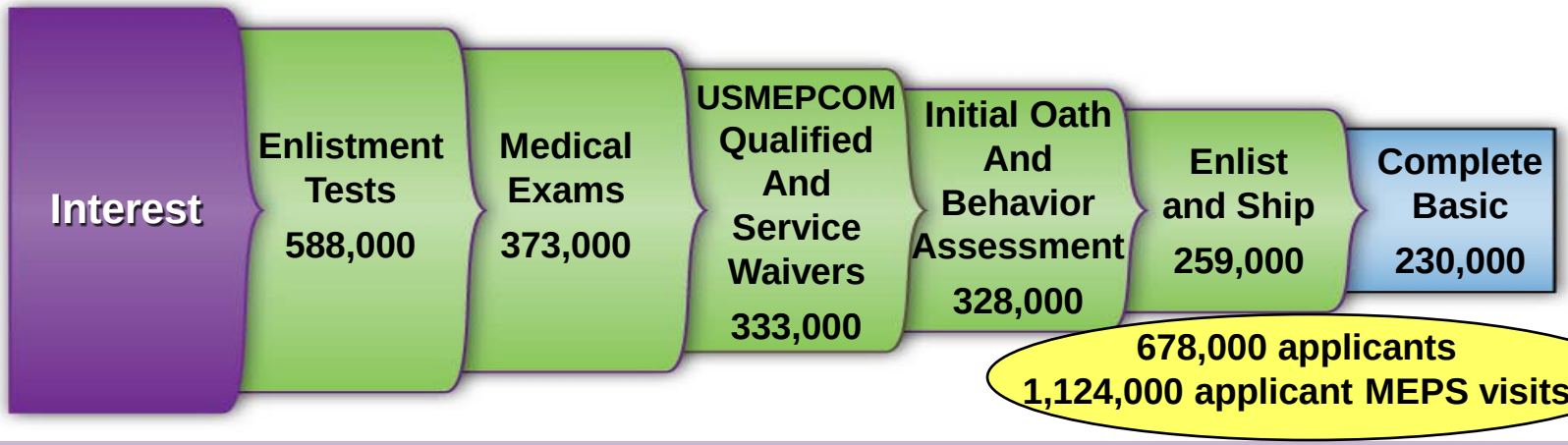
Impacts

- 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

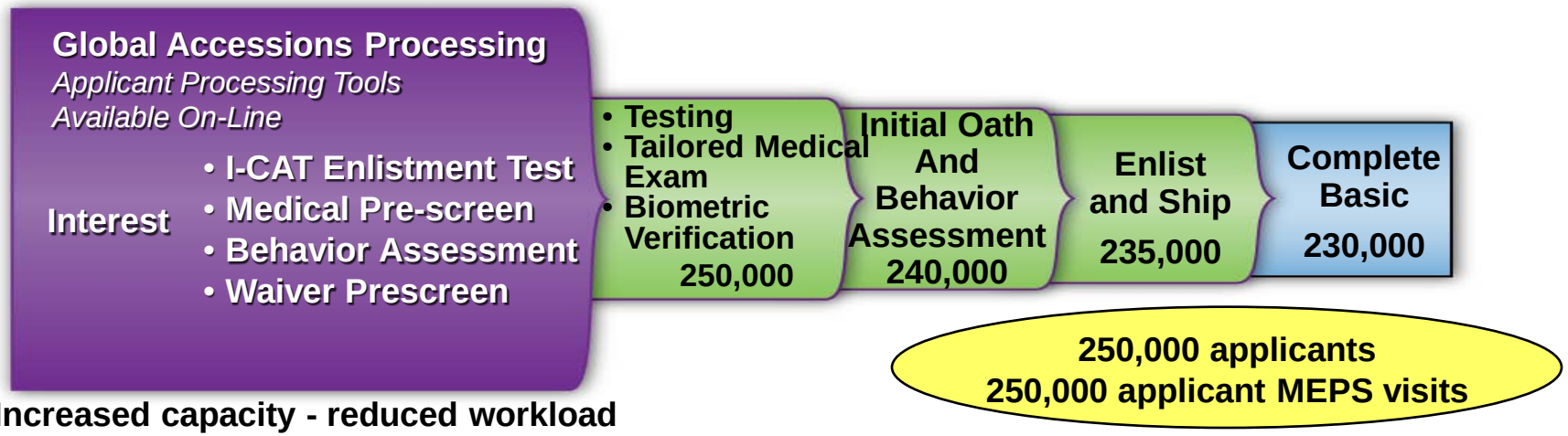
Fiscal Year 2008 Processing Data



Future

CONCEPT OF OPERATIONS

Projected Workload



Increased capacity - reduced workload

External Process | MEPS Process

Accession Enterprise

Laboratories

Healthcare Providers

Prescription History

Insurance Companies

Selective Service System

Law Enforcement

SSA

USCIS

OPM / FBI

Veterans Affairs

Defense Integrated Military Human Resource System

Armed Forces Health Longitudinal Technology Application

Biometrics Management Office

DTS

Defense Manpower Data Center

Processing

USMEPCOM

Recruiting

Reception/ Training Centers

VIPS

Business Solution

IT Solution



- 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

Medical Processing - History

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.



Accessions Research Consortium

2 September 2009

Agenda

- AEC Overview (brief)
- AEC Marketing Tools
- Social Media
- IT (Salesforce)

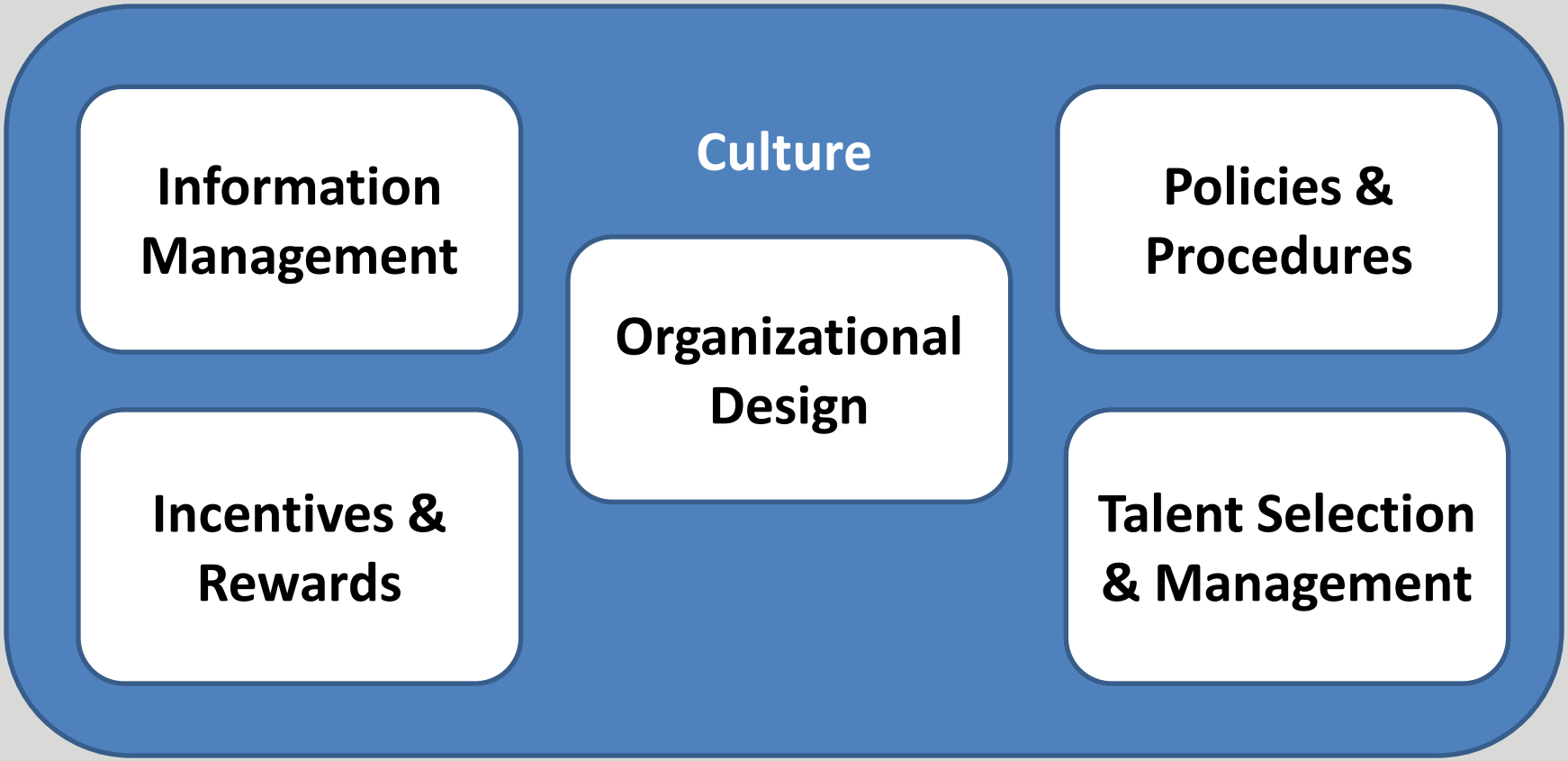
A review of recruiting processes revealed an industrial production model



- 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

ARMY EXPERIENCE CENTER

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

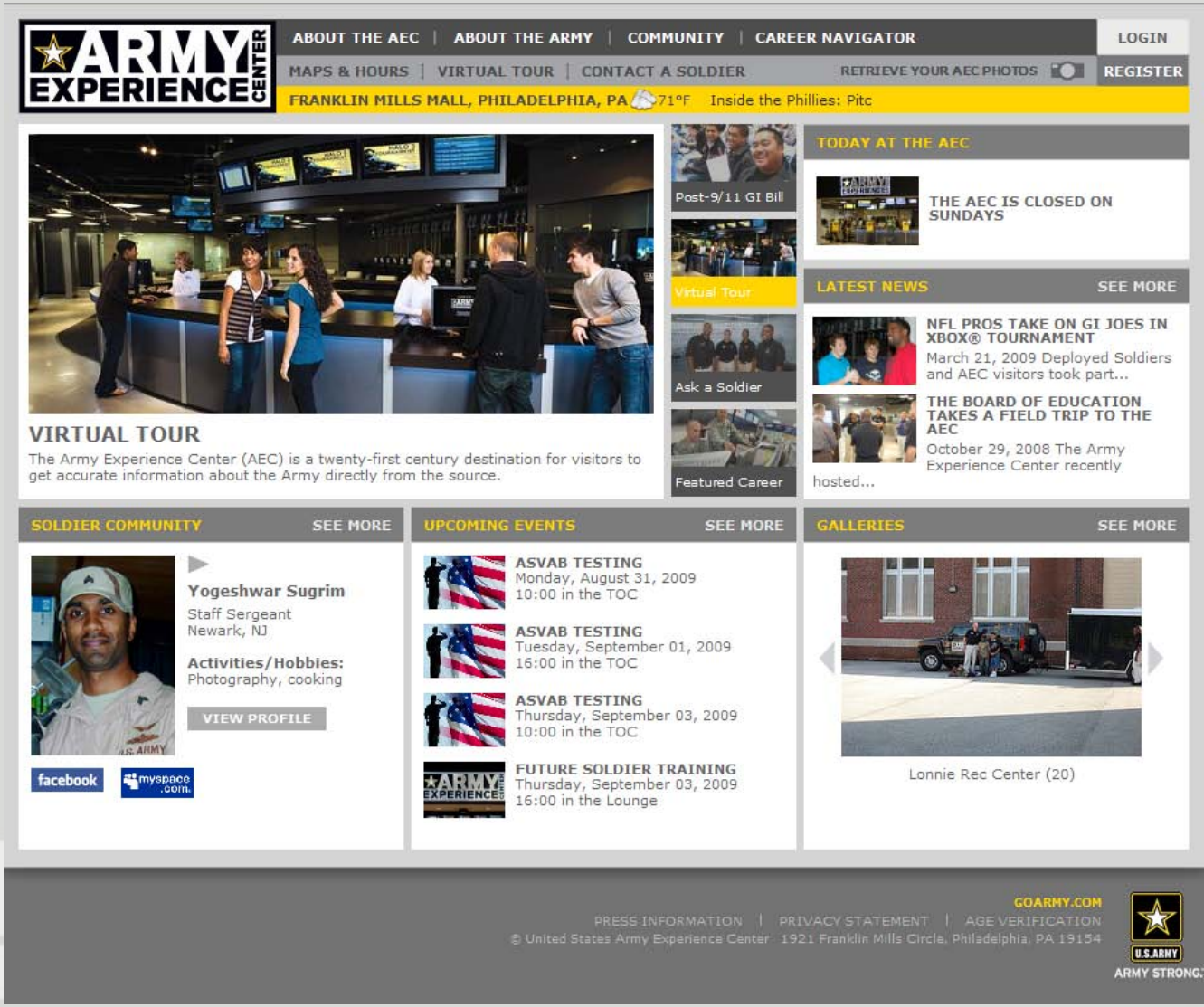
- Career Navigator
  - Explore Army Careers
  - View Soldier profiles with “Hotspots”
  - Army Compensation
  - Army Bases
  - Army Education (forthcoming)
  - Army Benefits (forthcoming)
- Mobile Kiosk
- Local Website with integrated Social Networking
- Deployable “Strike Package” for events

Career Navigator



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)

ARMY EXPERIENCE CENTER

STATS & TRENDS

FACEBOOK STATISTICS

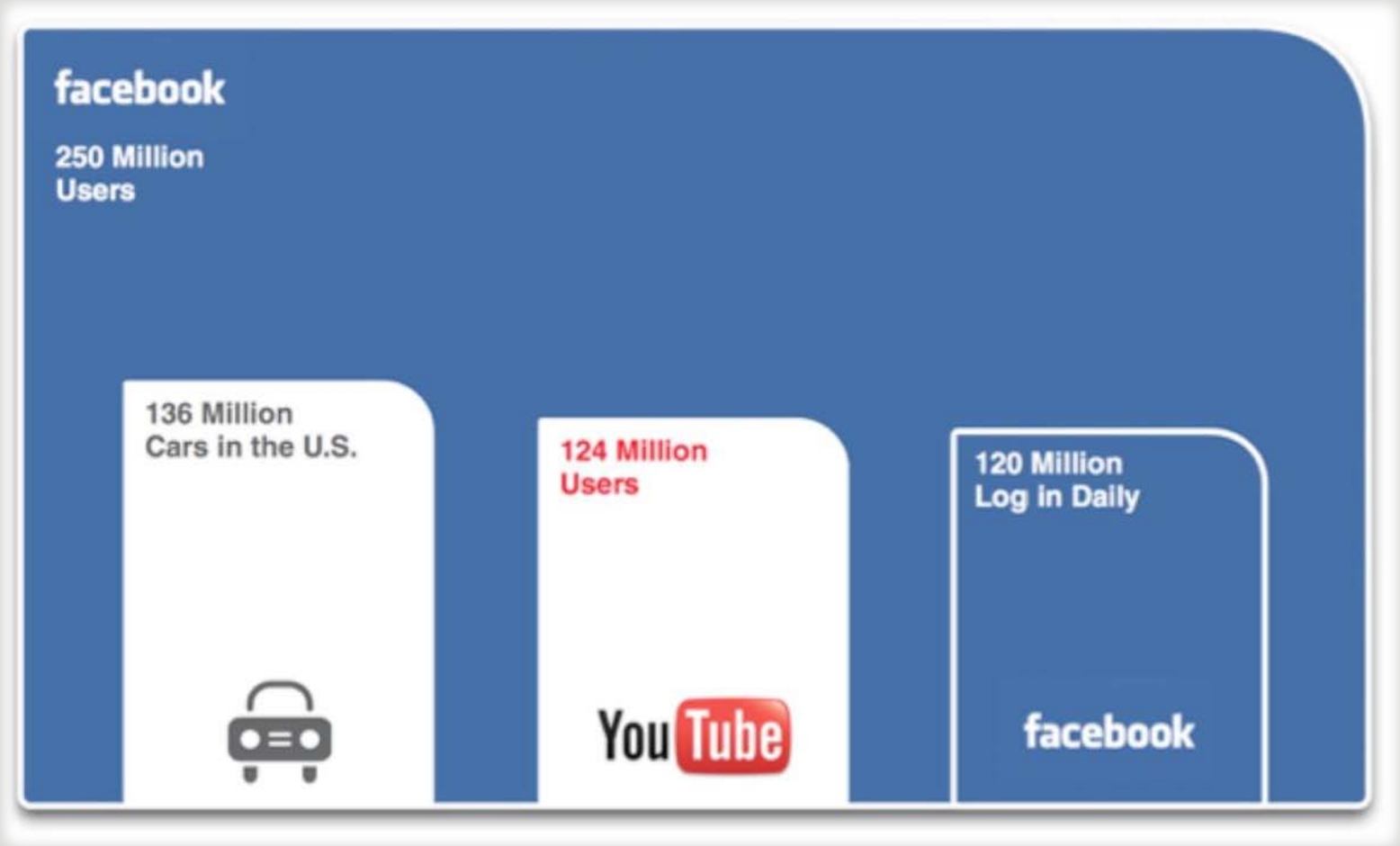
- 250MM active users worldwide
- 120MM users log on at least once a day
- Approx. 145MM monthly active users (MAU) for ALL social games on Facebook
- 35MM MAU for immersive role-playing games (RPGs)

FACEBOOK TRENDS

- Fastest growing Facebook demographic: 35+

ARMY EXPERIENCE CENTER

STATS & TRENDS

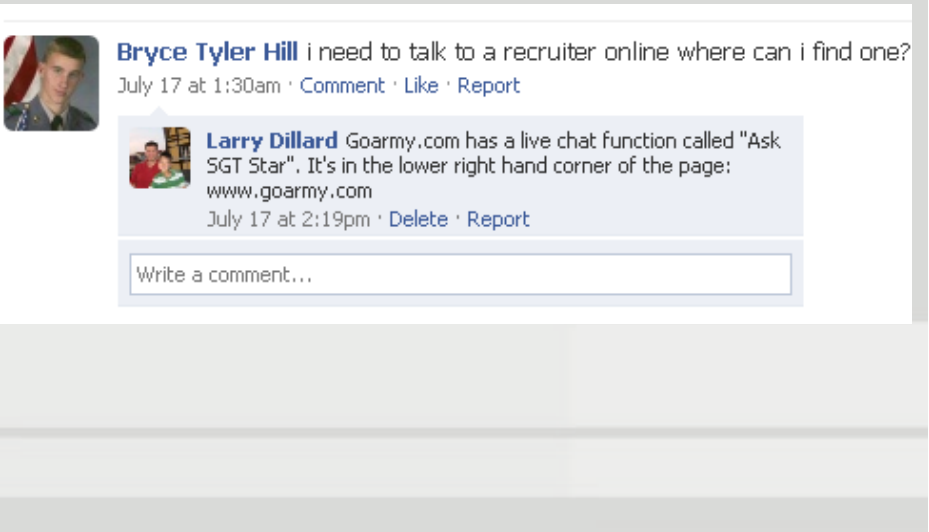


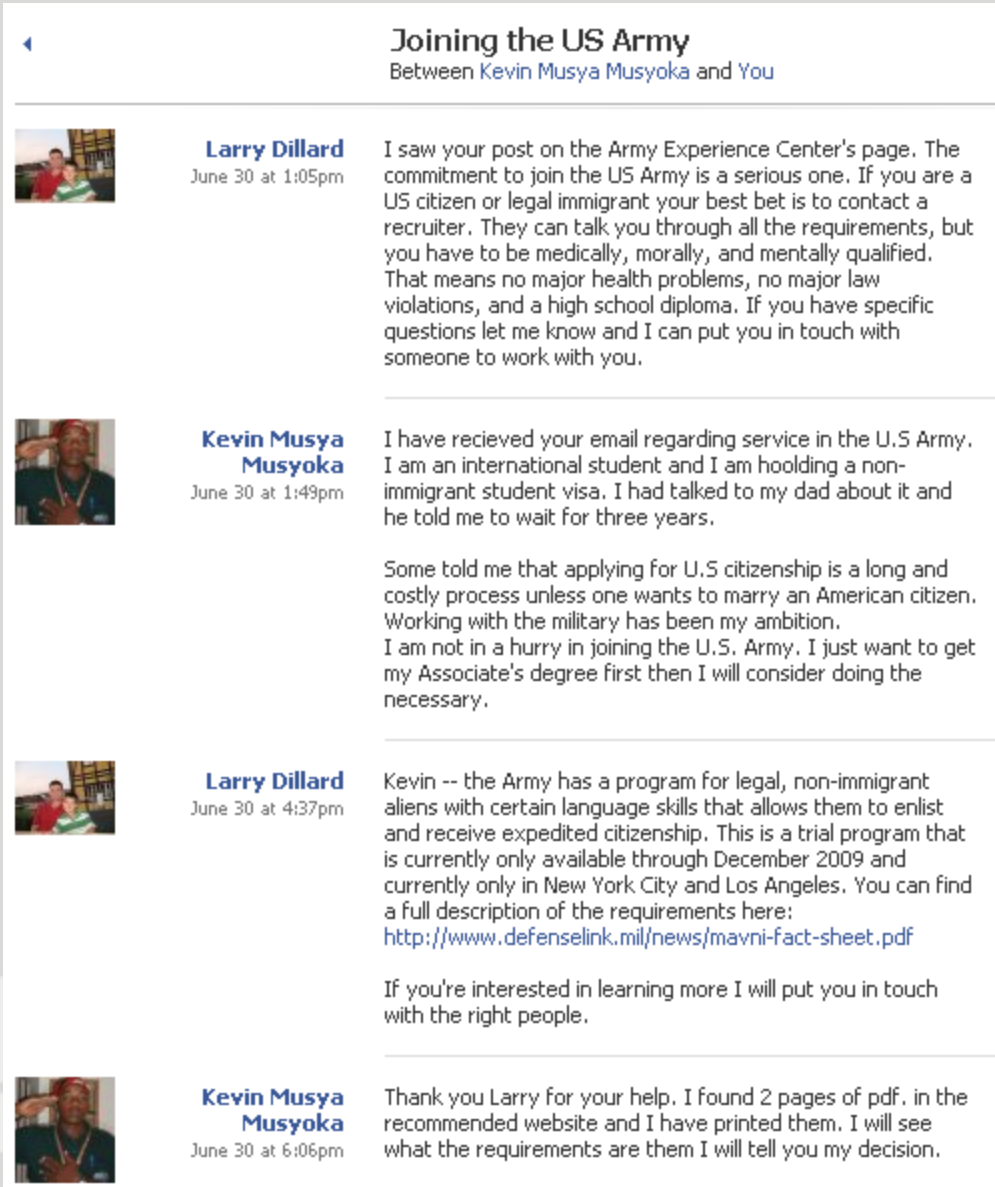
Social Media: Rules of Engagement

- 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 whatever 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

Sent via Facebook Mobile



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 em know i'm coming?



Jared Auchey
July 17 at 12:38am

Just let me know when you will be arriving so I can coordinate one of my senior people to speak with you.

ARMY EXPERIENCE CENTER

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
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

Filters

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?

Tue at 2:42pm · Comment · Like

18 people like this.

Steven C Kopplin I learned alot from BCT and my time in the Army just helped me mature more as a person . I still talk to my BCT Drill Sergeant *Army ROTC*

Tue at 2:48pm · Report

James Jackson I went throught BCT in 1973. The Drill Sergeant was fair, but tough. Though, can not 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 time that I didn't think I could make it, but my DS was there to encourage, push and give a helping hand when needed.

Tue at 3:25pm · Report

Paul J Frabizzio you guys are really inspiring. i have just begun enlist procedures and are going to meps thurs and friday.. i hope basic comes quick.. i cant wait to finally start up my army career and serve my country.. thanks for all of your stories and words or wisdom and encouragment..

Tue at 4:00pm · Report

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 Ruhnow-North even though my BCT was back in 1999 I learned how to over come 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 ... **Read More**

Tue at 3:04pm · Report

Isaac Vasquez My Drill Sergents 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.

Tue at 2:49pm · Report

Cristina Mungilla Its porbably 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 otside 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!

Tue at 3:54pm · Report

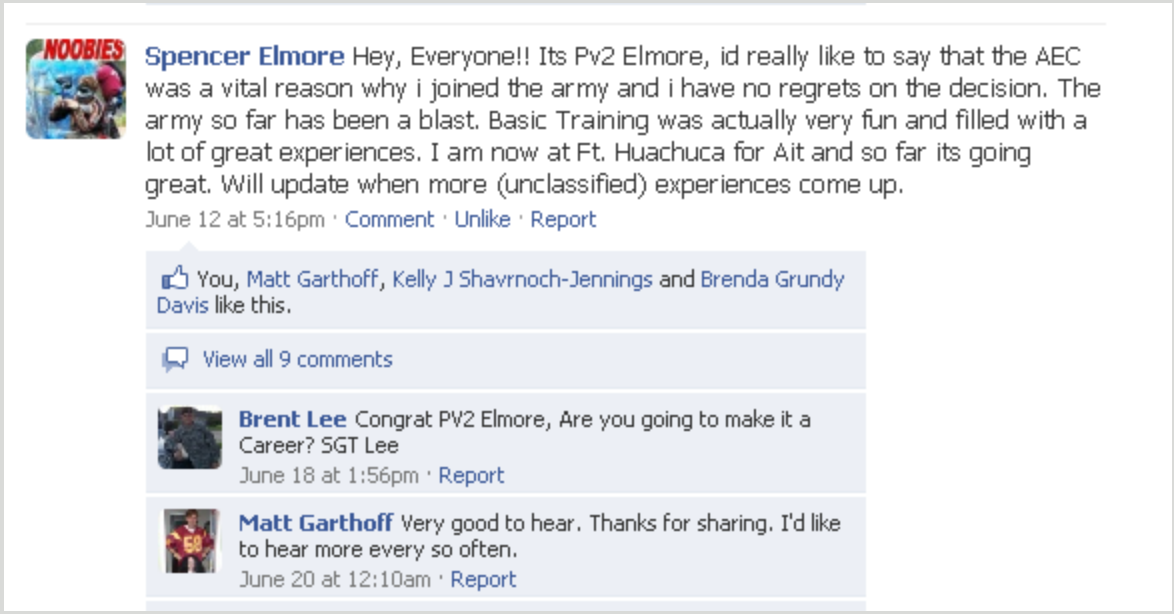
Karina Rivera I dont have these scary DS stories but I do know its a hard job to do and to put in all those hours. I happen to be lucky and have some great ones who really cared about soilders. I know that isnt always the case but sadly it happens regardless if your a drill or not. Only thing I can say is.... I was always yelled at about my hair. Had this great ... **Read More**

Tue at 4:56pm · Report

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 annivesary. I remember the moment I met Drill Sgt Jefferson. I nervously sat packed into the back of a "cattle car" when I first heard the ... **Read More**

Tue at 4:59pm · Report

Uses: Maintain Contact with New Soldiers



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

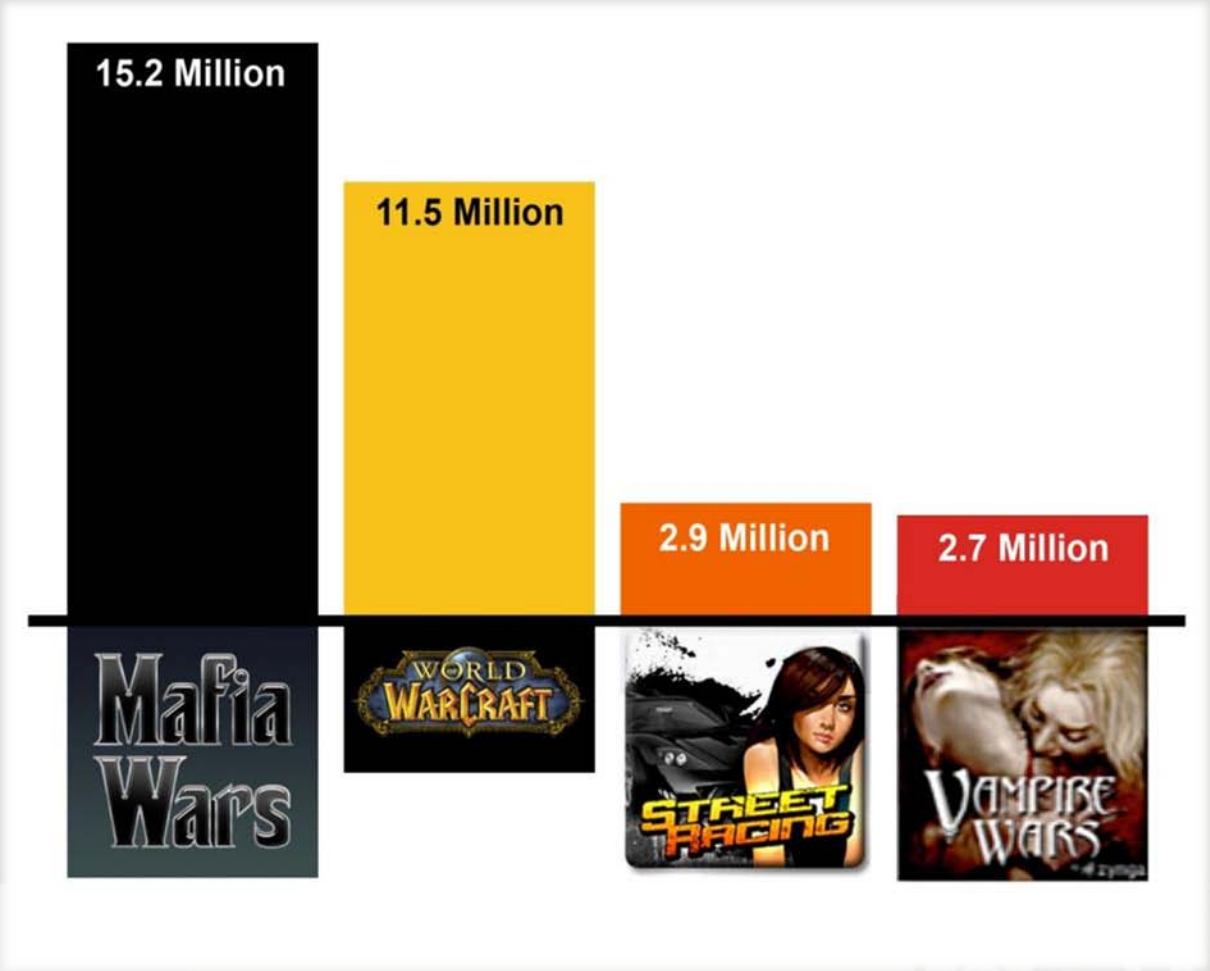
ARMY EXPERIENCE CENTER

Social Media: Next Steps

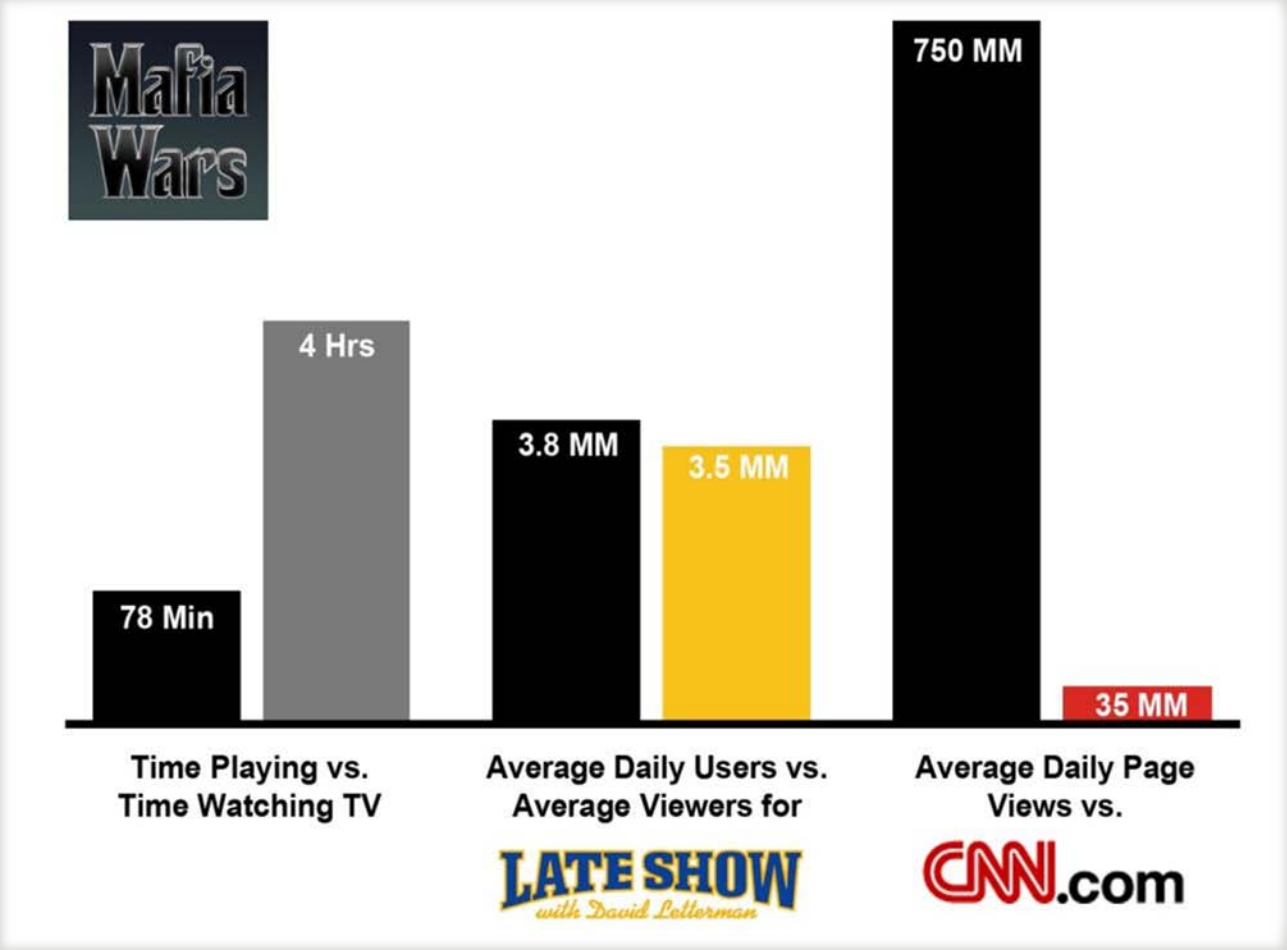
- Game in development
- Crossover content
- “My Army Story” YouTube Upload

STATS & TRENDS

SOCIAL GAME STATS



STATS & TRENDS



PLAYER DEMO

- 61% are 18-34

72%

28%

ACTIONS PER DAY

- 97MM “jobs” completed
- 4MM items shared

ARMY EXPERIENCE CENTER

facebook Home Profile Friends Inbox Phil Howard Settings Logout

FarmVille | Texas Hold'em Poker | Yoville | Vampire Wars | Pirates | FarmVille | zynga All GAMES

> Let me know when I get an energy pack! <

Add us to your profile. Add to Profile

Mafia Wars By zynga

Fly to Cuba

How to Play | Support | ToS | Forum

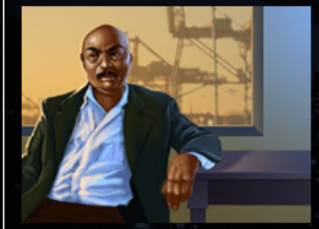
Cash (Go to Bank) $62,316 | Health 100/100 | Energy 28/28 | Stamina 6/6

Experience 225/240 | Level 8

Home | Jobs | Fight | Properties | Inventory | Godfather (14) | Profile | My Mafia (9 +1)

New! Expand your criminal empire to Cuba at Level 35! Find out more

Street Thug (lvls 1 - 4) | Associate (lvls 5 - 8) | Locked | Locked | Locked | Locked



Boss Fight - Confront Giancarlo Morillo

Morillo roughed up your uncle, and now it's time to return the favor. What's this?

Risk: $187

Payout: $1,321, 6 Experience

Requires: 6 Energy, 2 Mafia X 1 X 1

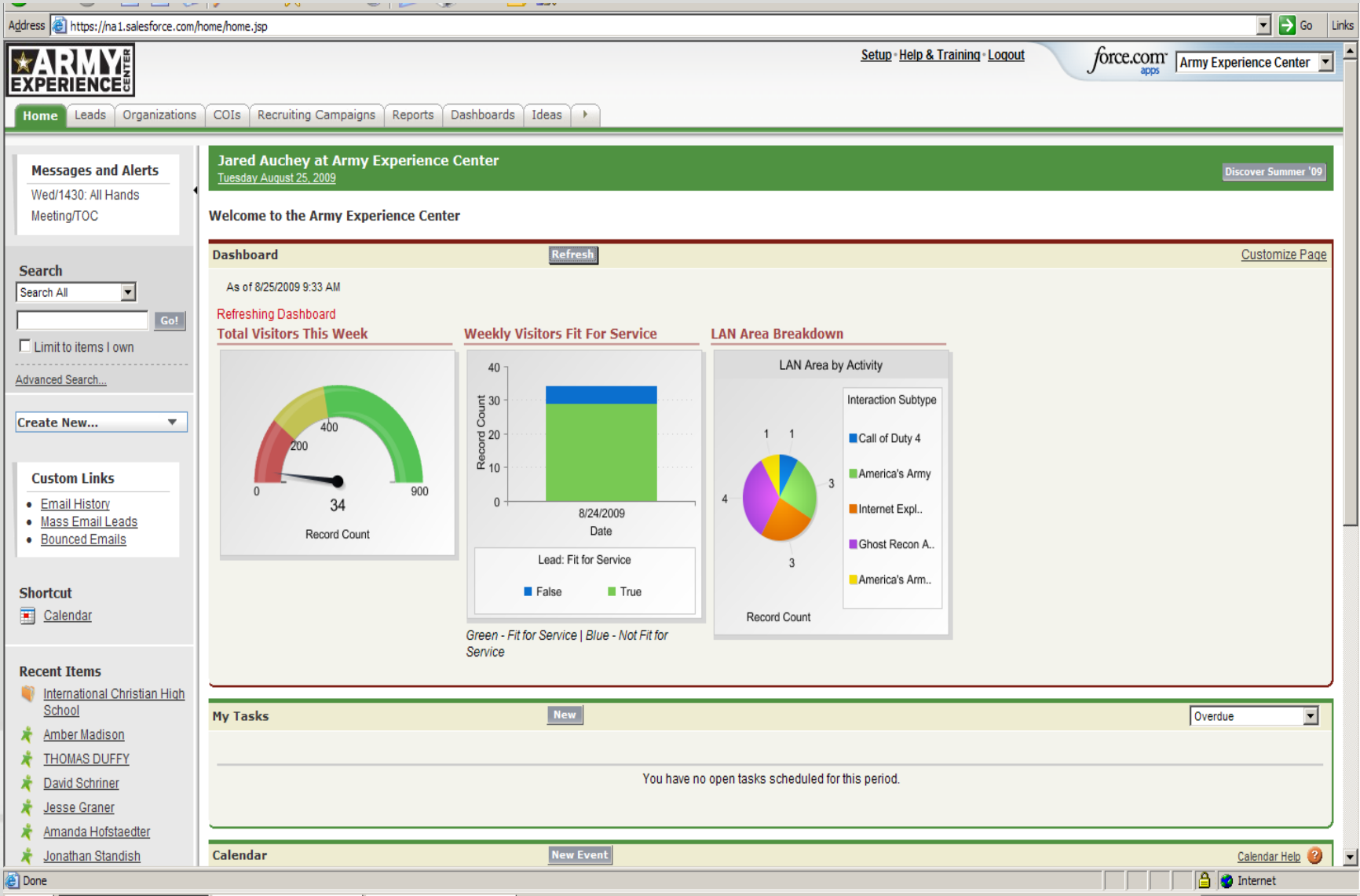
Fight!

Description	Payout	This job requires...	
Mugging Level 1 Mastered	$215 - $322 Experience: +1	1 Energy	Do Job
Corner Store Hold-up Level 1 Job Mastery 12%	$857 - $1,285 Experience: +3	3 Energy X 1	Do Job
Warehouse Robbery Level 1 Mastered	$1,499 - $2,676 Experience: +5	5 Energy X 1	Do Job
Auto Theft Level 1 Mastered	$2,997 - $4,923 Experience: +8	6 Energy X 1 X 1	Do Job
Beat Up Rival Gangster Level 1 Mastered	$557 - $835 Experience: +2 Chance to loot	2 Energy X 1	Do Job

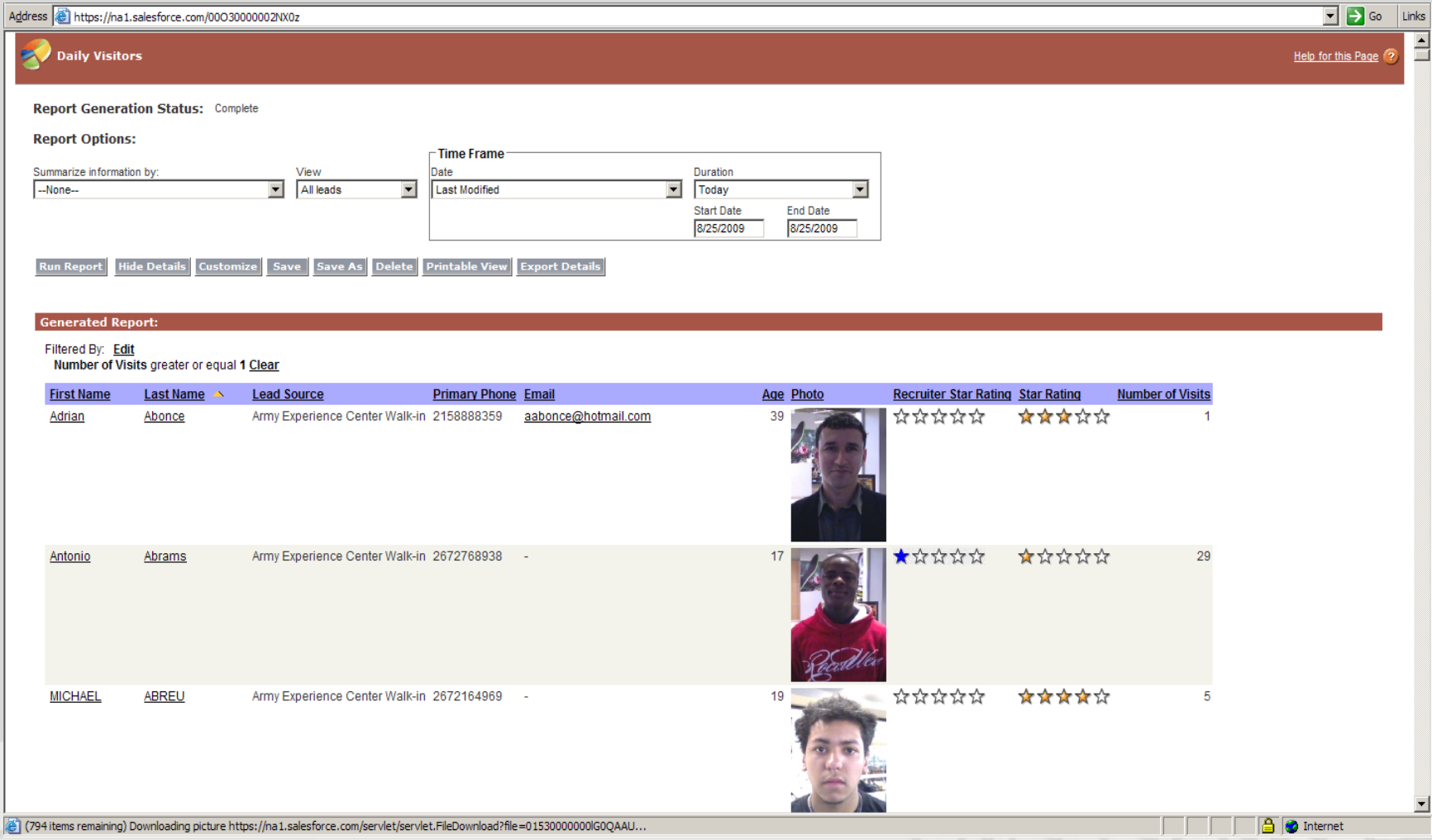
INFORMATION TECHNOLOGY
SALESFORCE.COM

ARMY EXPERIENCE CENTER

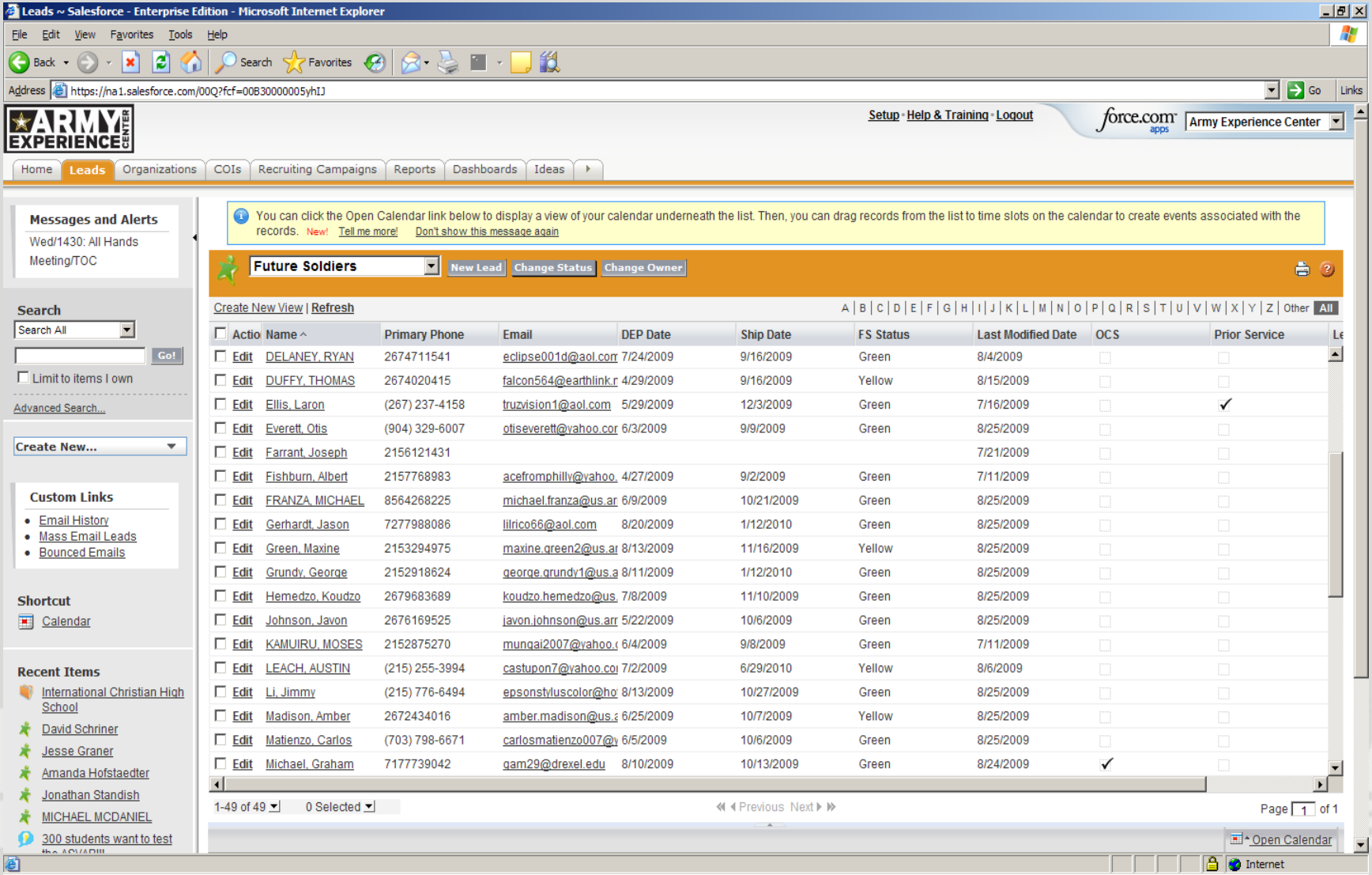
Home page with Dashboards



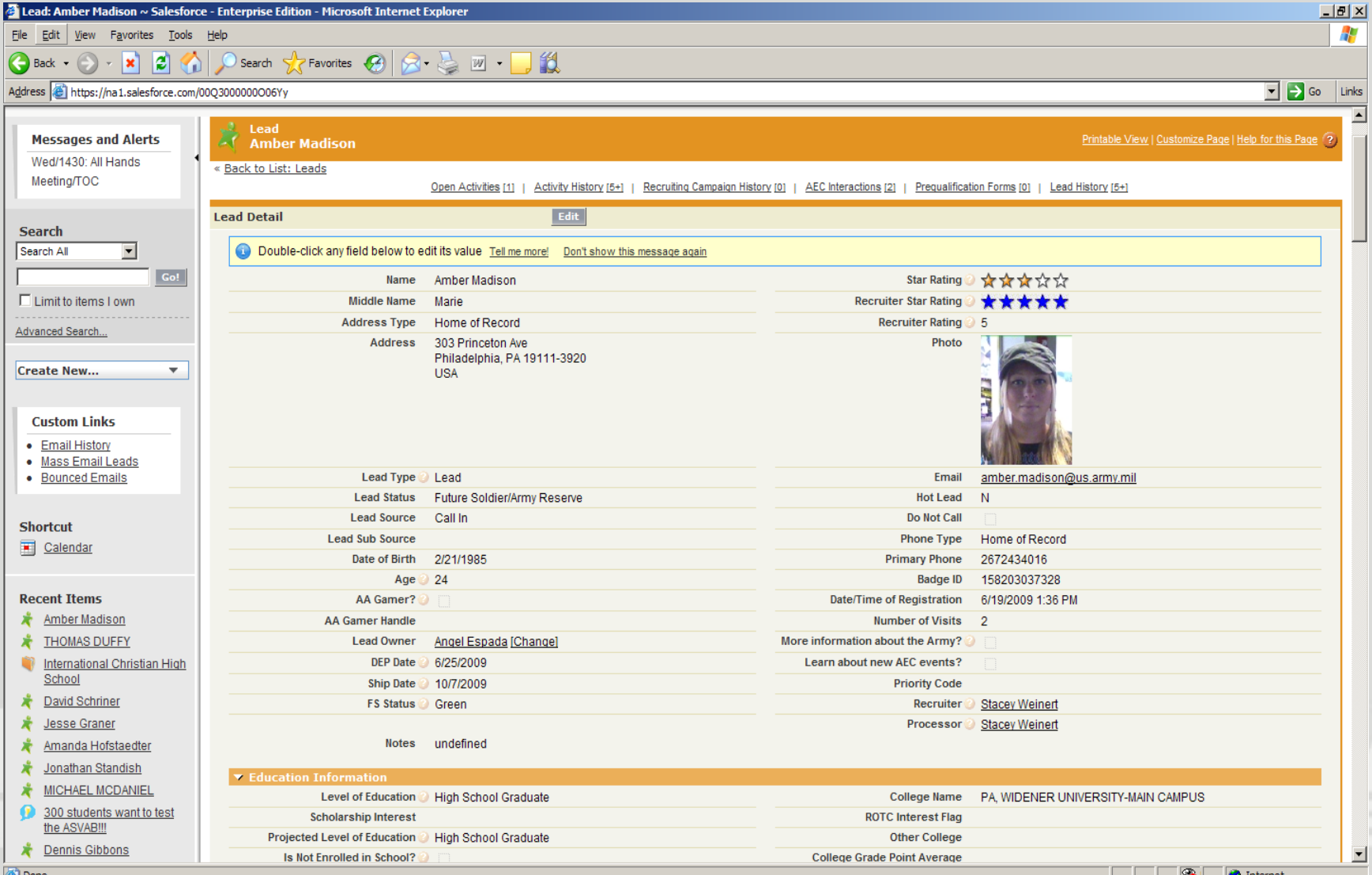
Report of Daily Visitors



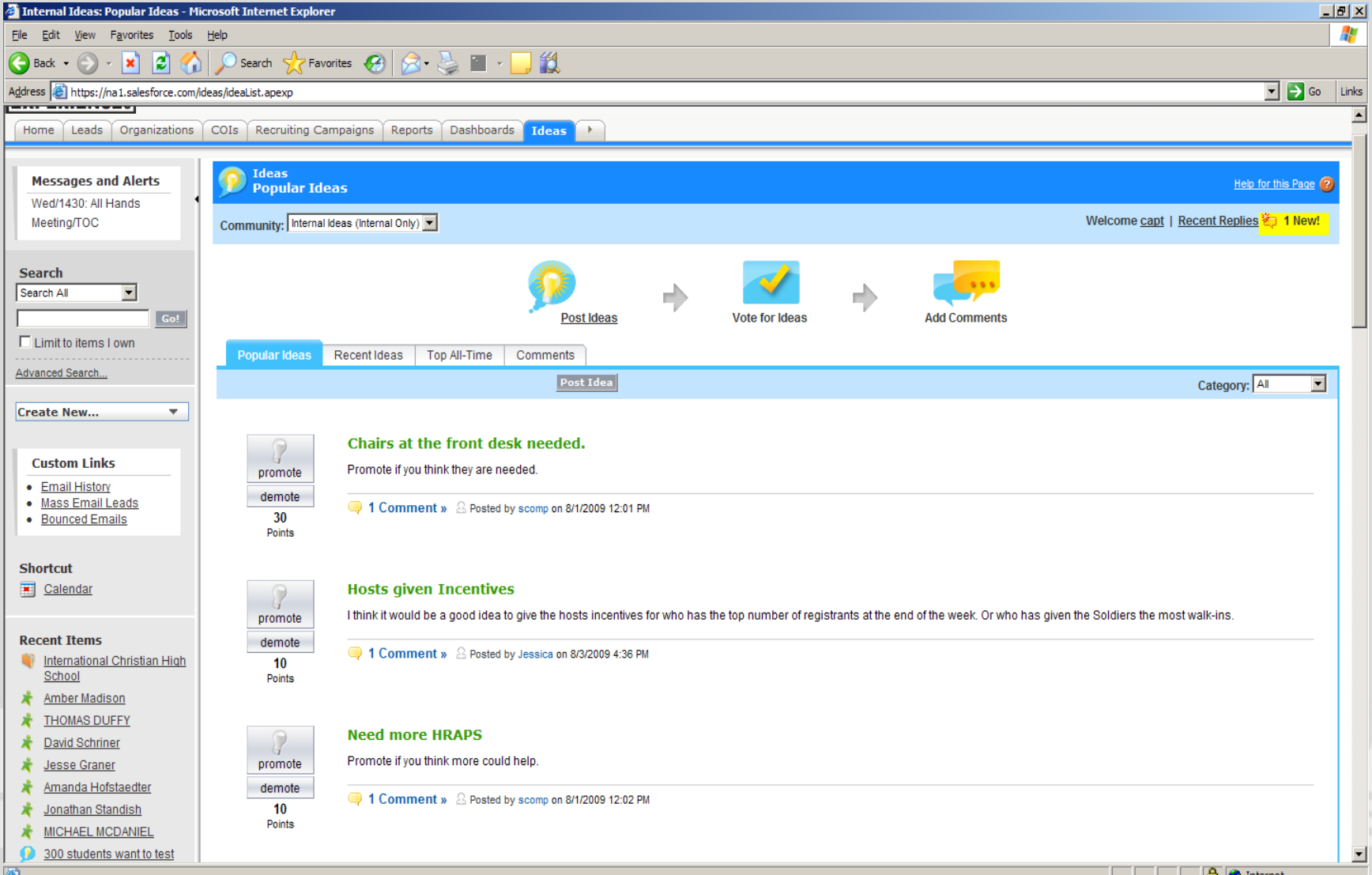
Lead Records



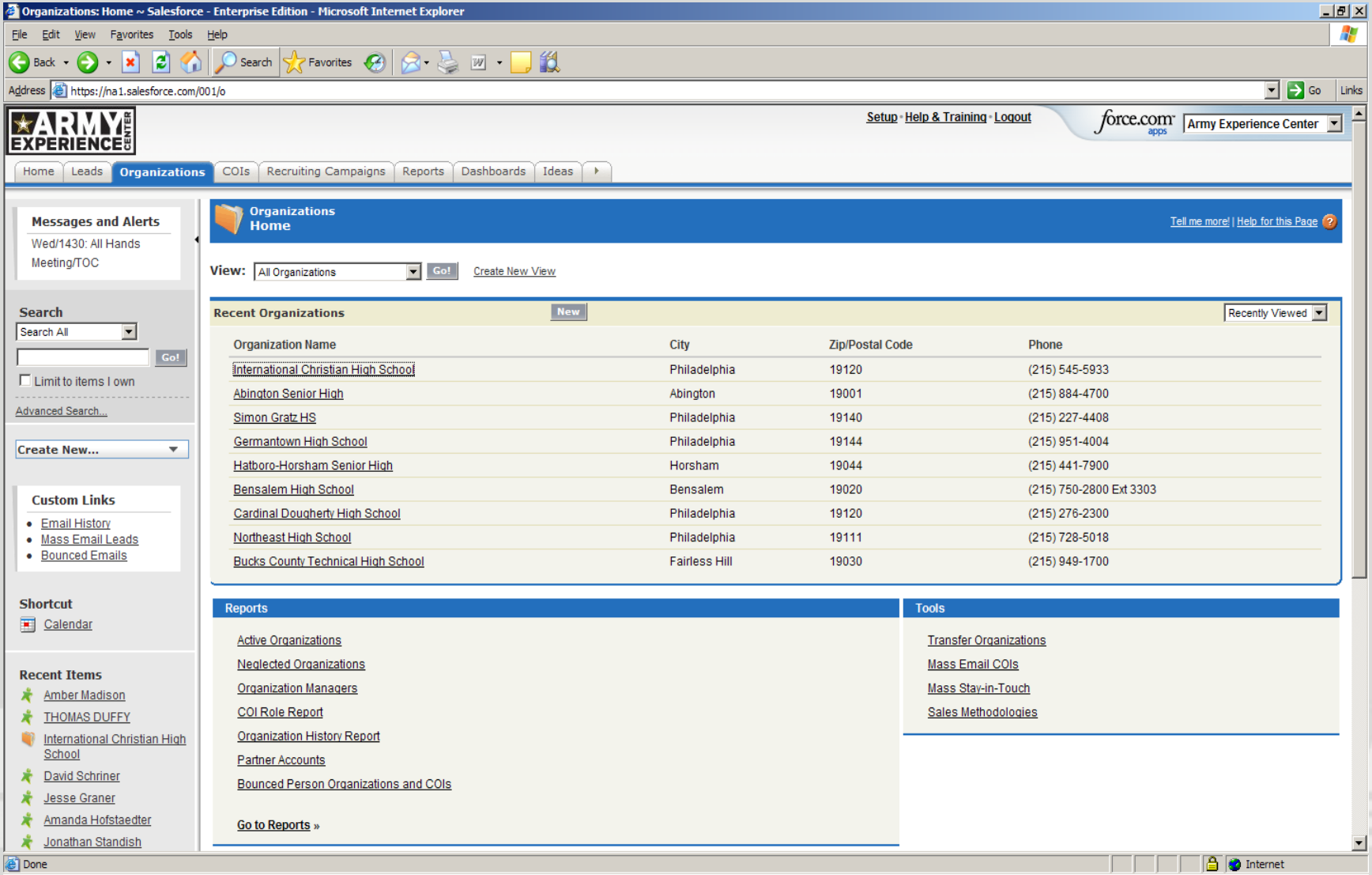
Individual Lead Record



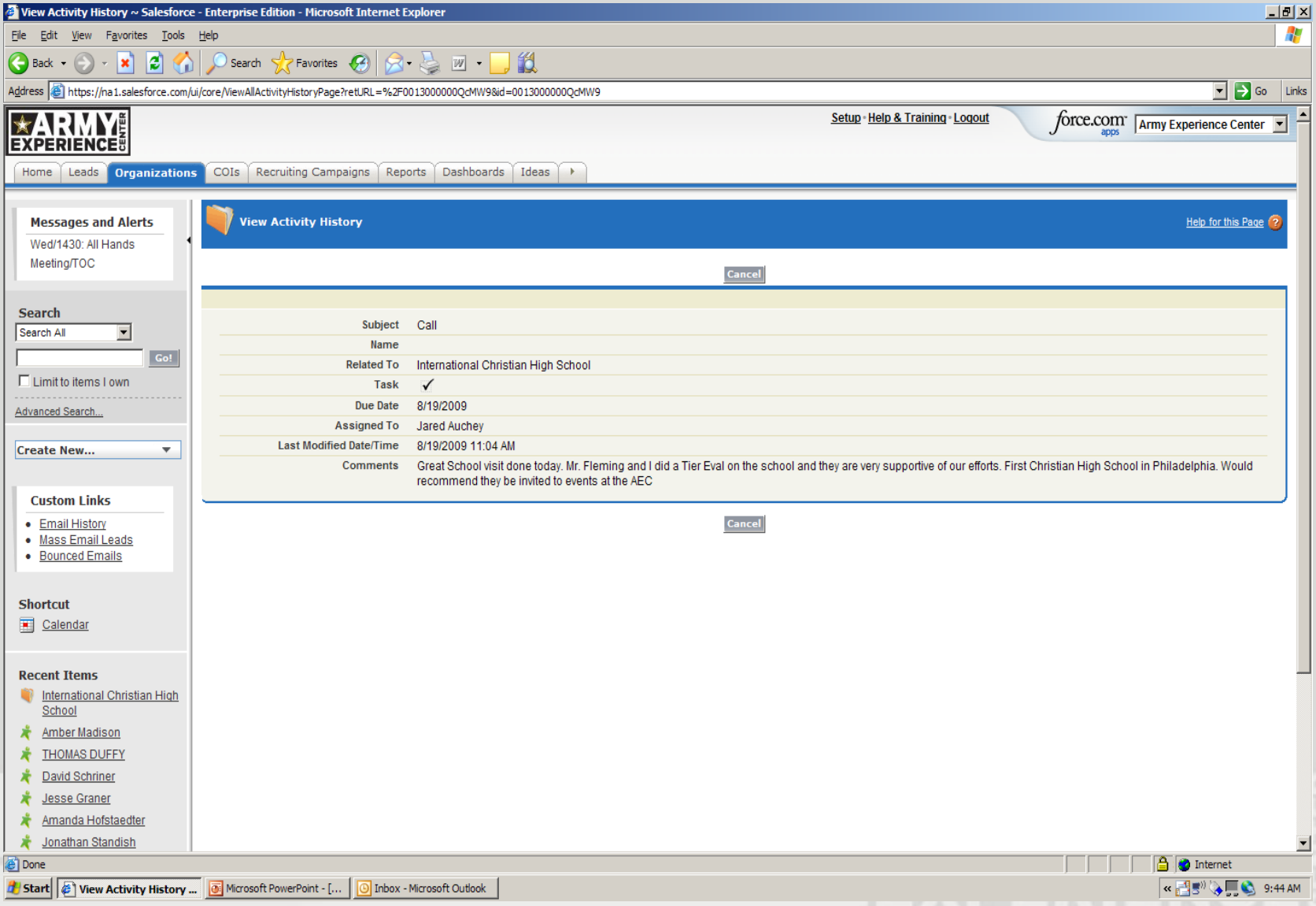
Ideas


Internal Ideas: Popular Ideas - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites
Address https://na1.salesforce.com/ideas/ideaList.apexp
Go Links
Home Leads Organizations COIs Recruiting Campaigns Reports Dashboards Ideas
Messages and Alerts
Wed/1430: All Hands Meeting/TOC
Search
Search All
Go!
Limit to items I own
Advanced Search...
Create New...
Custom Links
Email History
Mass Email Leads
Bounced Emails
Shortcut
Calendar
Recent Items
International Christian High School
Amber Madison
THOMAS DUFFY
David Schriner
Jesse Graner
Amanda Hofstaedter
Jonathan Standish
MICHAEL MCDANIEL
300 students want to test
Ideas
Popular Ideas
Help for this Page
Community: Internal Ideas (Internal Only)
Welcome capt | Recent Replies 1 New!
Post Ideas
Vote for Ideas
Add Comments
Popular Ideas
Recent Ideas
Top All-Time
Comments
Post Idea
Category: All
promote
demote
30
Points
Chairs at the front desk needed.
Promote if you think they are needed.
1 Comment »
Posted by scomp on 8/1/2009 12:01 PM
promote
demote
10
Points
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
promote
demote
10
Points
Need more HRAPS
Promote if you think more could help.
1 Comment »
Posted by scomp on 8/1/2009 12:02 PM

School Folders



School Activity Record



Lead: Matthew Trucks ~ Salesforce - Enterprise Edition - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites

Address https://na1.salesforce.com/00Q3000000PXQez Go

Home | Leads | Organizations | COIs | Reports | Dashboards | Ideas | Prequalification Forms

Messages and Alerts

SAT/1430/TOC: Sizzlin' Summer Xbox Championship

Search

Leads Go!

Limit to items I own

Advanced Search...

Create New...

Custom Links

- Email History
- Mass Email Leads
- Bounced Emails

Shortcut

Calendar

Recent Items

- Matthew Trucks
- Samantha Bailey
- Elvira Pena
- Latasha Williams
- Kenneth Feliciano
- Nick Fiorella
- Shamere Newman
- CANDACE ALLEN
- Brittany Clark

Lead
Matthew Trucks

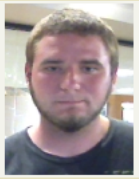
Printable View | Customize Page | Help for this Page

« Back to List: Leads

Open Activities [0] | Activity History [4] | AEC Interactions [0] | Prequalification Forms [0] | Lead History [9]

Lead Detail Edit | Switch to Detail View

Double-click any field below to edit its value Tell me more! Don't show this message again

Name	Matthew Trucks	Star Rating	☆☆☆☆☆
Middle Name		Recruiter Star Rating	★★★★☆
Address Type	Home of Record	Recruiter Rating	4
Address	3178 Emery St Philadelphia, PA 19134-5824	Photo	
Lead Type	Lead	Email	matthew.trucks@us.army.mil
Lead Status	Future Soldier/Reg Army	Hot Lead	N
Lead Source	Army Experience Center Walk-in	Do Not Call	
Lead Sub Source	Friend	Phone Type	Home of Record
Date of Birth	3/23/1989	Primary Phone	2154230182
Age	20	Badge ID	508887330196
AA Gamer?		Date/Time of Registration	7/21/2009 8:30 PM
AA Gamer Handle		Number of Visits	
Lead Owner	Angel Espada [Change]	More information about the Army?	
DEP Date	8/19/2009	Learn about new AEC events?	
Ship Date	11/9/2009	Priority Code	
FS Status	Green	Processor	Stacey Weinert
		Recruiter	Rodney Smith
Notes	null		

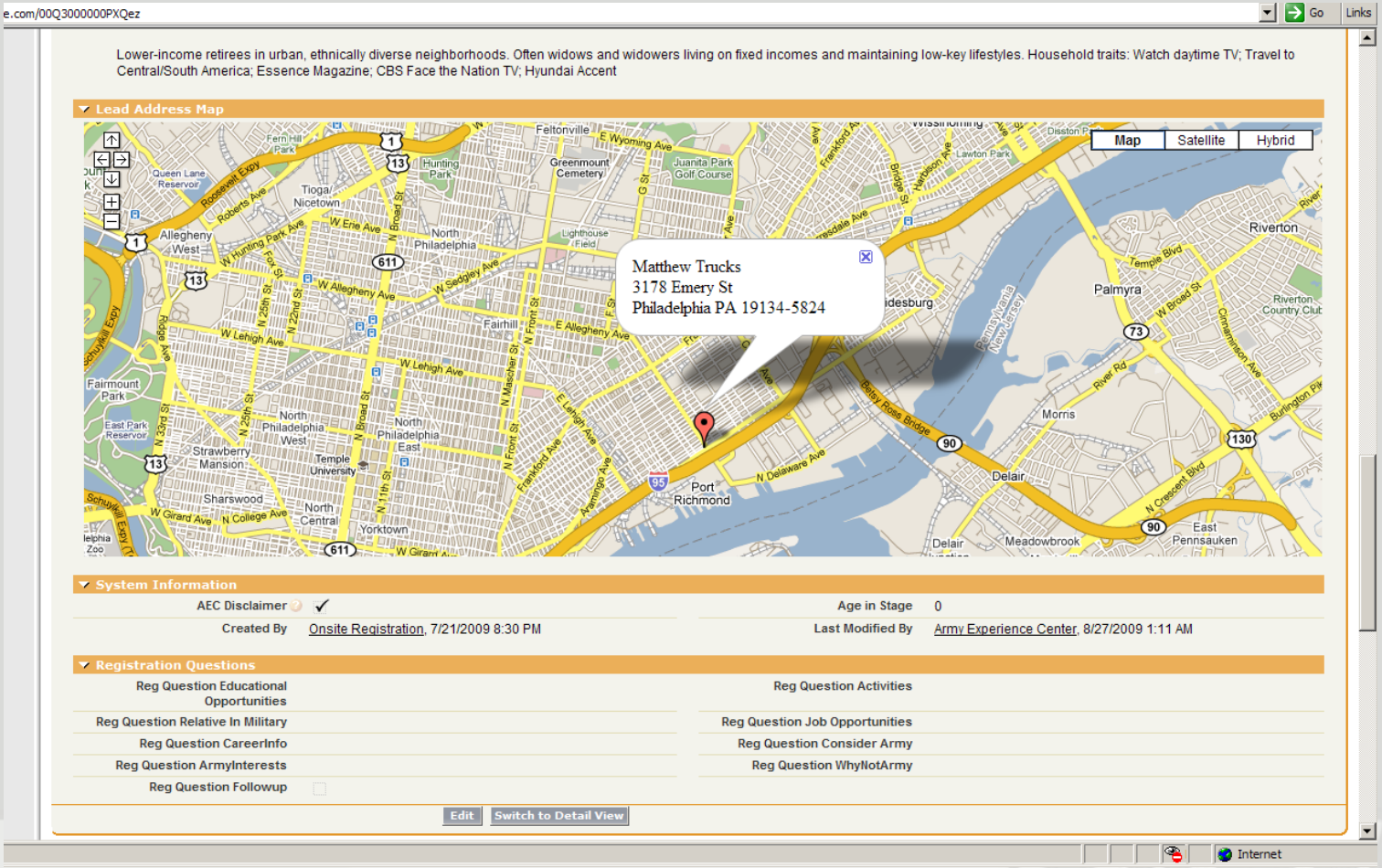
Education Information

Level of Education	High School Graduate	College Name	
Scholarship Interest		ROTC Interest Flag	

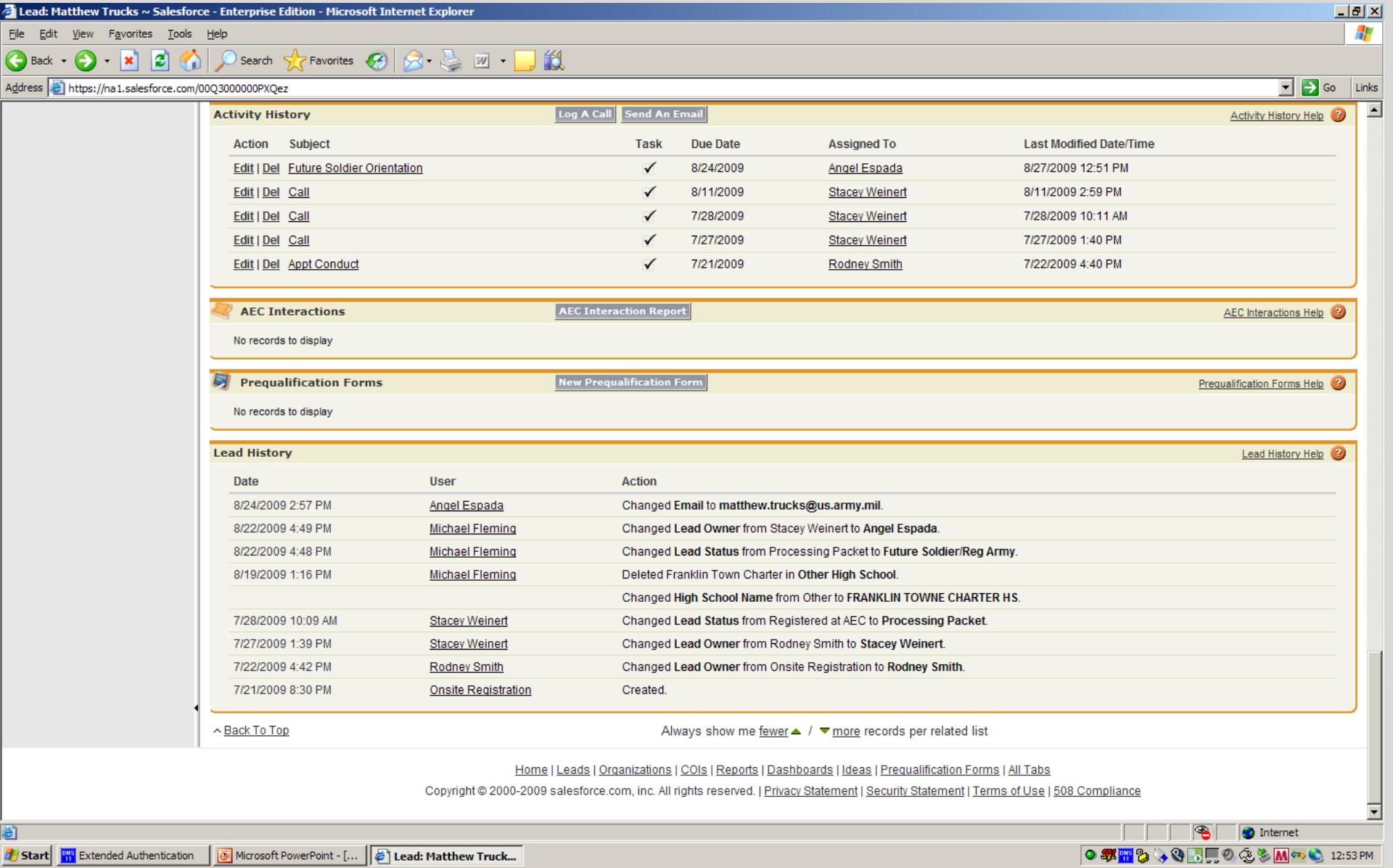
Done Internet

Start | Extended Authentication | Microsoft PowerPoint - [... | Lead: Matthew Truck... | status: Disconnected | R... 12:26

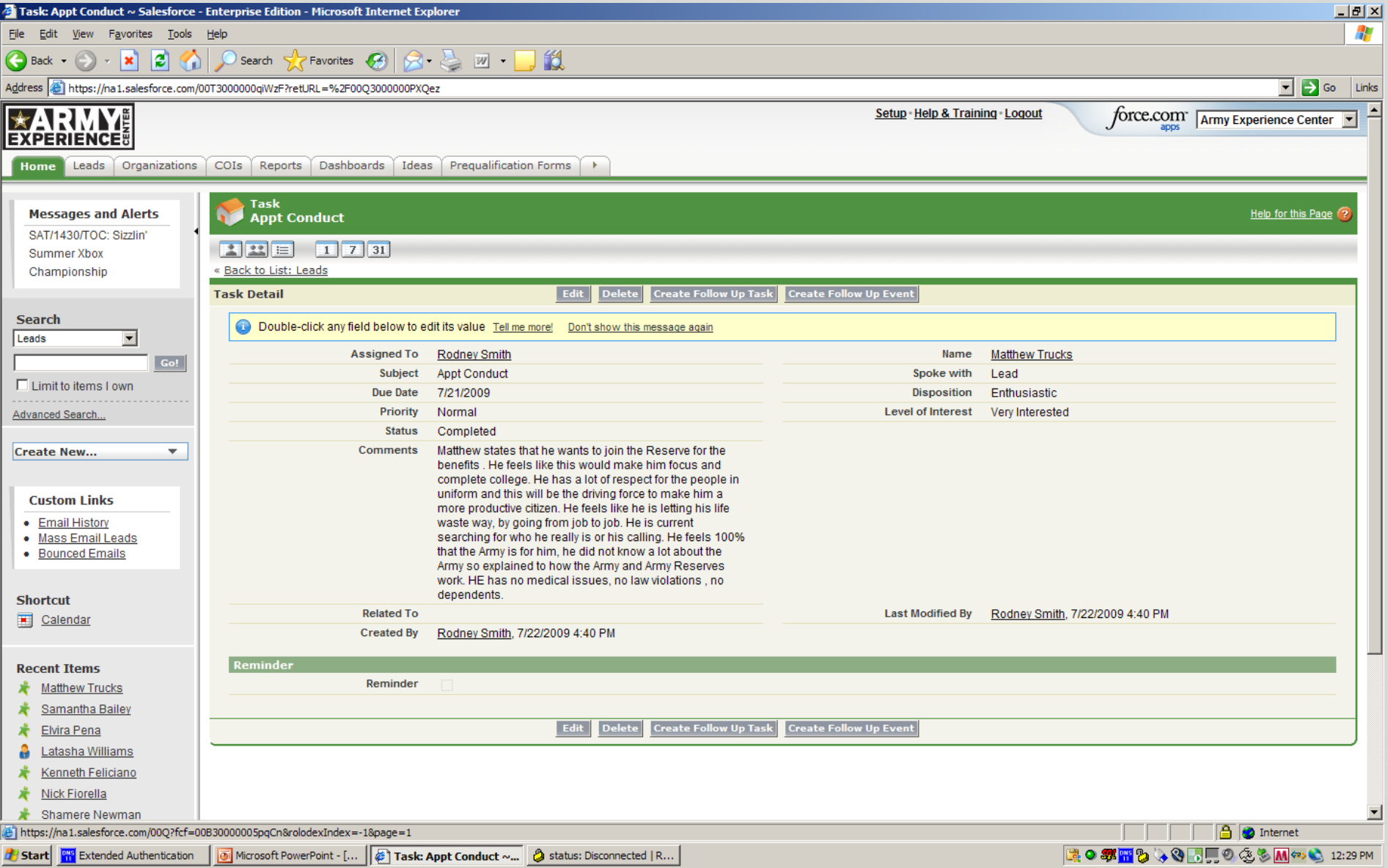
Address Mapping of Lead Record



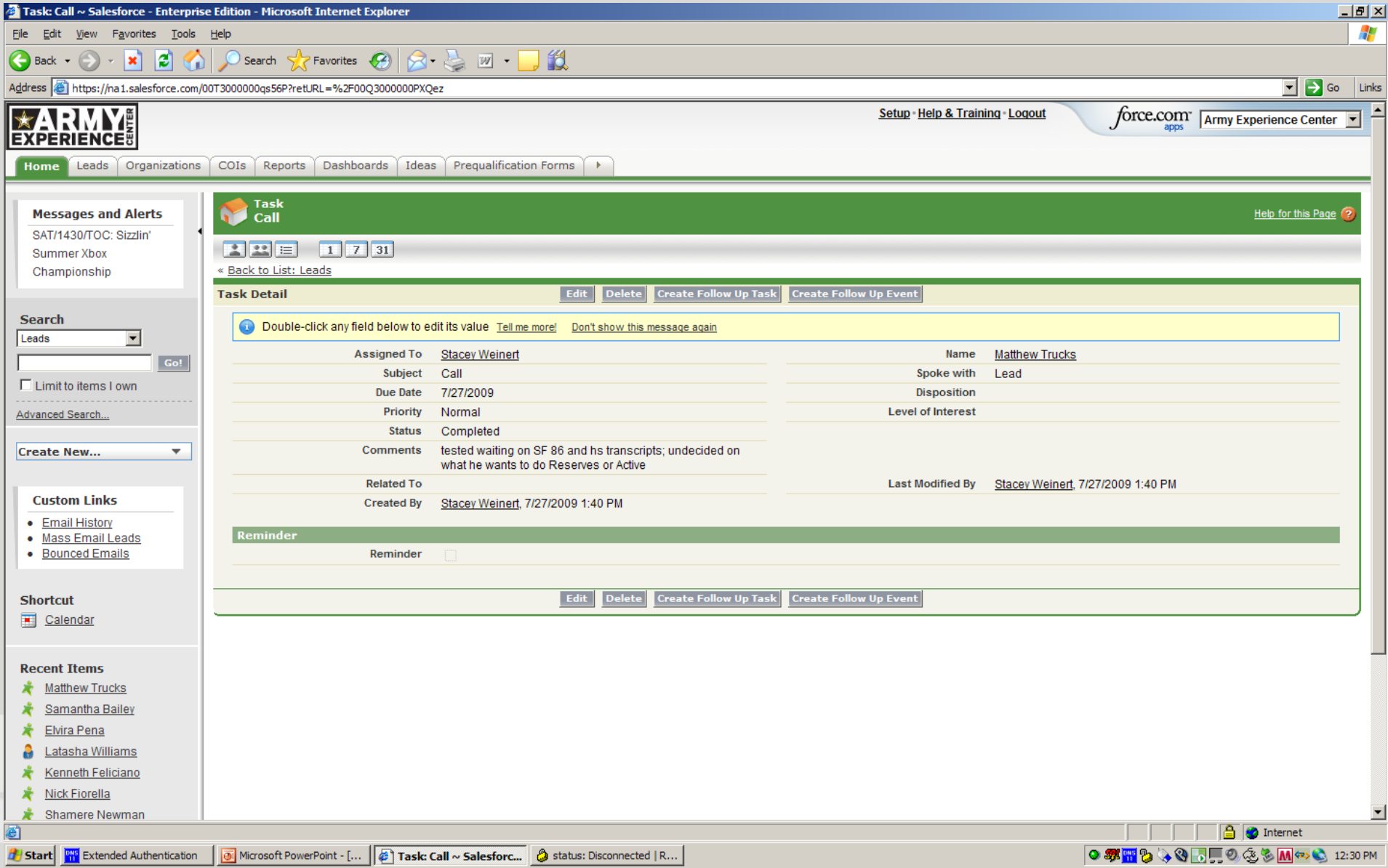
Lead Activity History



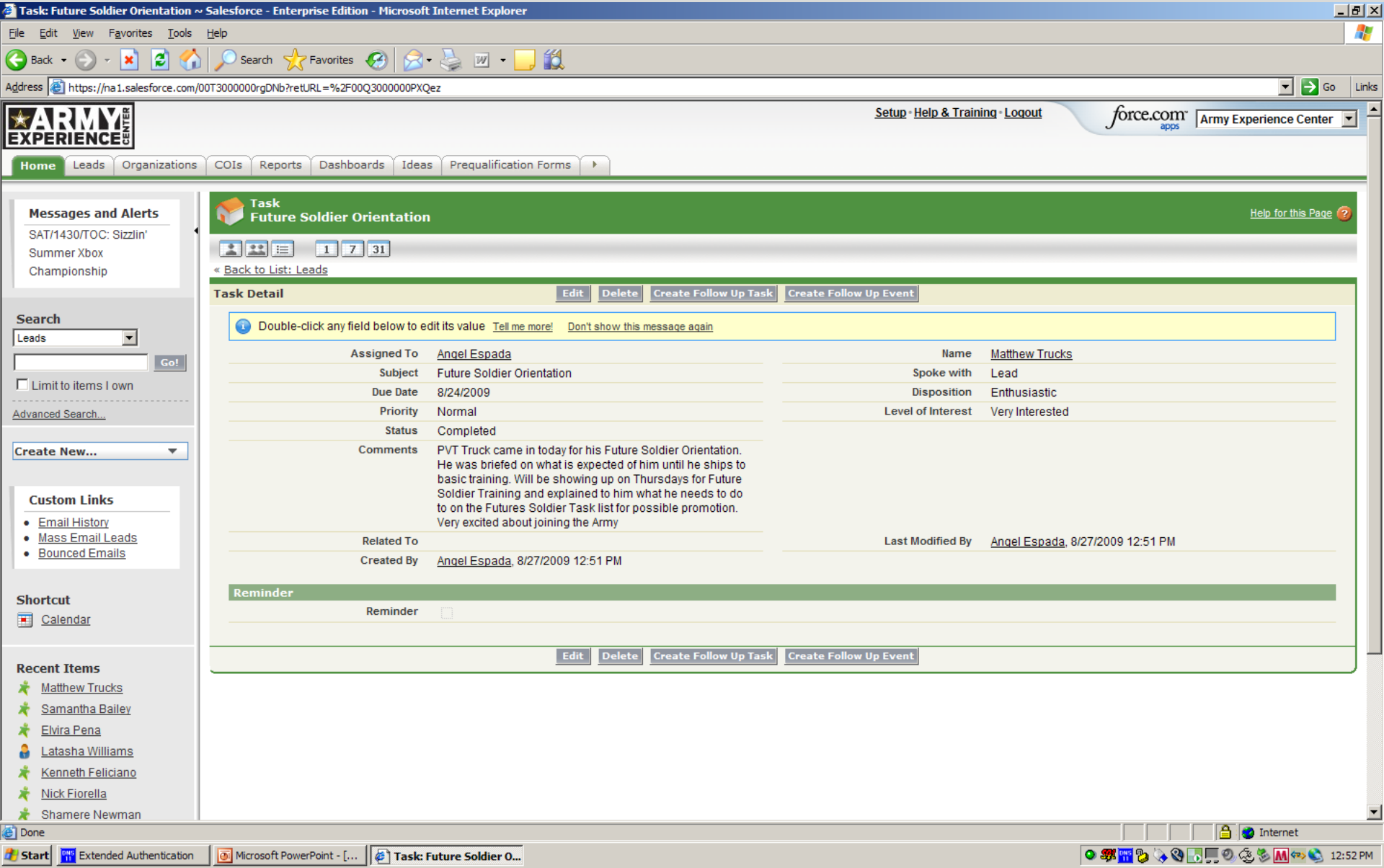
Lead Appoinment Notes



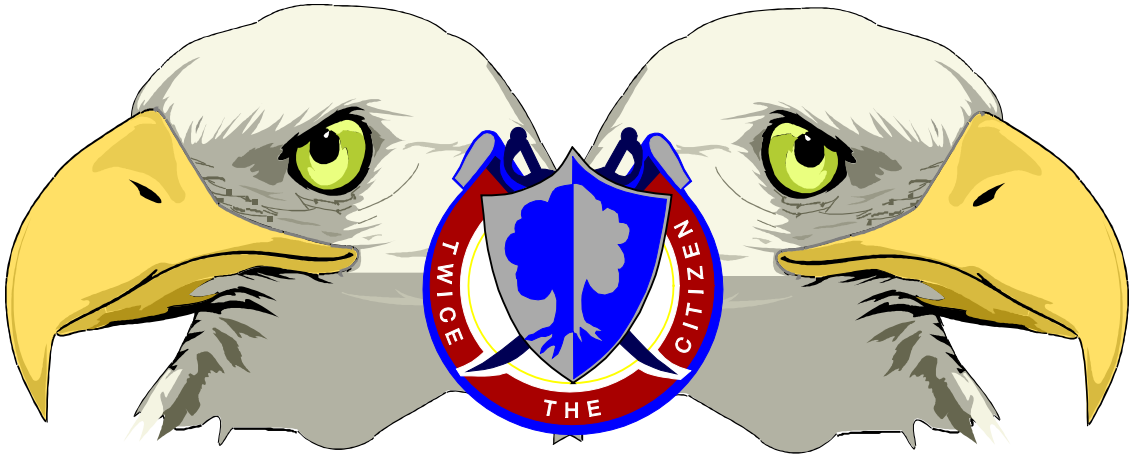
Record update from Processor



Record Update from Future Soldier PSG



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

SELRES Strength

	Off	WO	Enl	ESO	Actual
TPU	26,731	2,210	157,856	183,830	186,797
AGR	3,645	645	11,672	16,170	15,962
IMA	2,889	133	735	5,000	3,757
TOT	33,265	2,988	170,263	205,000	206,516
Change from previous week	15	48	(276)		**(213)**

Monthly ACC: and Transfers
As of 31 JUL 09

Enlisted Missions

Agency	Annual Mission	YTD Mission	YTD Achieved
USAREC			
NPS	19,000	19,000	19,408
PS	3,500	3,040	3,206
ARCD (IRR-TPU)	9,000	7,623	7,776
HRC(AC-RC)	3,098	2,539	3,126
Total	34,598	32,202	33,516

Officer Missions

Agency & Mission	Annual Mission	YTD Mission	YTD Achieved
USAREC AMEDD Mission Glide	880	728	676
USAREC Chaplain Target	70	58	49
ARCD IRR-TPU Mission	1,600	1,355	1,505
USAREC OCS Mission Glide	120	100	131
ARCD OCS Mission Glide	25	21	2
USAREC DC Mission Glide	85	71	23
ARCD DC Mission	350	256	525
HRC AC-RC Mission	426	354	456
USACC ROTC Mission Glide	650	560	291
ARCD Warrant Mission	350	291	317
Total	4,556	3,794	3,975

FY 09 Strength Update

SELRES Strength as of: **29-Aug-09**

Weekly

Current Week SELRES Strength

	Off	WO	Enl	ESO	Actual
TPU	26,731	2,210	157,856	183,830	186,797
AGR	3,645	645	11,672	16,170	15,962
IMA	2,889	133	735	5,000	3,757
TOT	33,265	2,988	170,263	205,000	206,516

100.7%

Previous Week SELRES Strength

	Off	WO	Enl	ESO	Actual
TPU	26,701	2,147	158,494	183,830	187,342
AGR	3,642	644	11,601	16,170	15,887
IMA	2,895	135	735	5,000	3,765
TOT	33,238	2,926	170,830	205,000	206,994

101.0%

Strength Changes from Previous Week

	Off	WO	Enl	Total
TPU	20	51	(312)	(241)
AGR	1	0	39	40
IMA	(6)	(3)	(3)	(12)
TOT	15	48	(276)	**(213)**

Monthly

Enlisted Accessions and Transfers / Officer & WO Transfers

Month of:		USAR ENL Total	USAREC Total	USAREC NPS	USAREC PS	HRC A RCT	ARCD	Total USAR PS		HRC A RCT	ARCD IRR-TPU
Jul-09	**Mission**	1,326	230	0	230	259	837	1,326	185	36	149
	Actual	1,605	489	239	250	396	720	1,366	222	71	151
	Delta	279	259	239	20	137	(117)	40	37	35	2
	Msn Pct	121.0%	212.6%		108.7%	152.9%	**86.0%**	103.0%	120.0%	197.2%	101.3%
YTD Thru:											
Jul-09	**Mission**	32,202	22,040	19,000	3,040	2,539	7,623	13,202	1,709	354	1,355
	Actual	33,516	22,614	19,408	3,206	3,126	7,776	14,108	1,961	456	1,505
	Delta	1,314	574	408	166	587	153	906	252	102	150
	Msn Pct	104.1%	102.6%	102.1%	105.5%	123.1%	102.0%	106.9%	114.7%	128.8%	111.1%
FY 09	**Mission**	34,598	22,500	19,000	3,500	3,098	9,000	15,598	2,026	426	1,600
	Actual	33,516	22,614	19,408	3,206	3,126	7,776	14,108	1,961	456	1,505
	Delta	(1,082)	114	408	(294)	28	(1,224)	(1,490)	(65)	30	(95)
	Msn Pct	**96.9%**	**100.5%**	**102.1%**	**91.6%**	**100.9%**	**86.4%**	**90.4%**	**96.8%**	**107.0%**	**94.1%**
	FYTD Msn Leadline	***93.1%***	***98.0%***	***100.0%***	***86.9%***	***82.0%***	***84.7%***	***84.6%***	***84.4%***	***83.1%***	***84.7%***

AR Strength MSC and below (as of 21 Aug 09)

Enlisted			
GRADE	REQ	OH	%OH
E1	0	9,479	
E2	0	10,534	
E3	26,055	24,675	172%
E4	40,274	44,867	111%
E5	31,145	30,840	99%
E6	23,607	23,416	99%
E7	22,723	13,509	59%
E8	6,812	6,686	98%
E9	1,493	1,559	104%
Total	152,109	165,565	109%

135% SL1

Warrant Officer			
GRADE	REQ	OH	%OH
W1	0	504	
W2	2,005	1,044	77%
W3	882	597	68%
W4	638	470	74%
W5	109	76	70%
Total	3,634	2,691	74%

Officer			
GRADE	REQ	OH	%OH
O1	0	1,954	
O2	4,196	4,382	151%
O3	12,504	7,921	63%
O4	10,581	7,335	69%
O5	5,404	5,576	103%
O6	1,395	1,557	112%
O7	90	51	57%
O8	26	24	92%
Total	34,196	28,800	84%

66%

CSR	0	1,090	

Totals	189,939	198,146	104%

Shaping and Balancing Issues

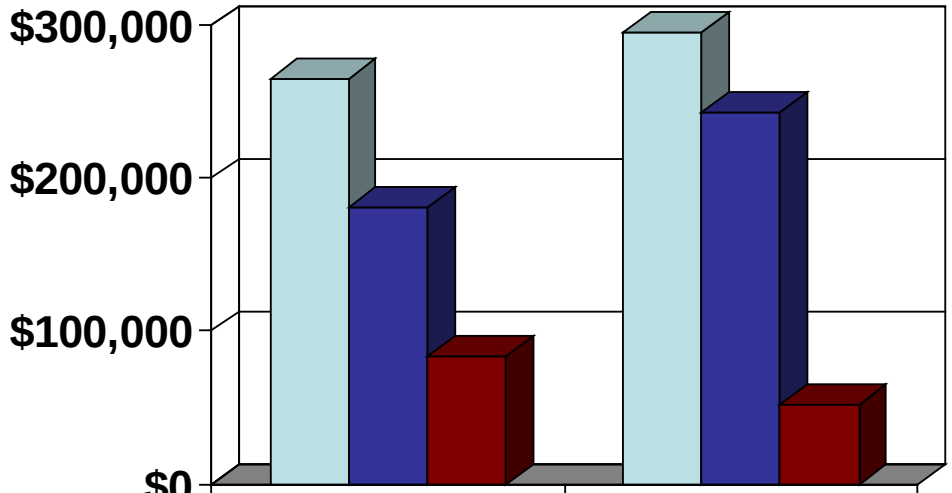
- Shaping and balancing the force will require targeted recruiting, precise missioning, tailored incentives (adequate funding) and available training
- Currently, many of these elements are planned and coordinated independently and in different forums; this complicates precision accessioning
- We have 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)



	FY 09	FY 10
AFP	$264,737	$295,332
Must Fund	$180,966	$243,133
Discretionary	$83,771	$52,199

AR-RAP Changes

- 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

Summary

- 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?

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Sappers!

BACK UP

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

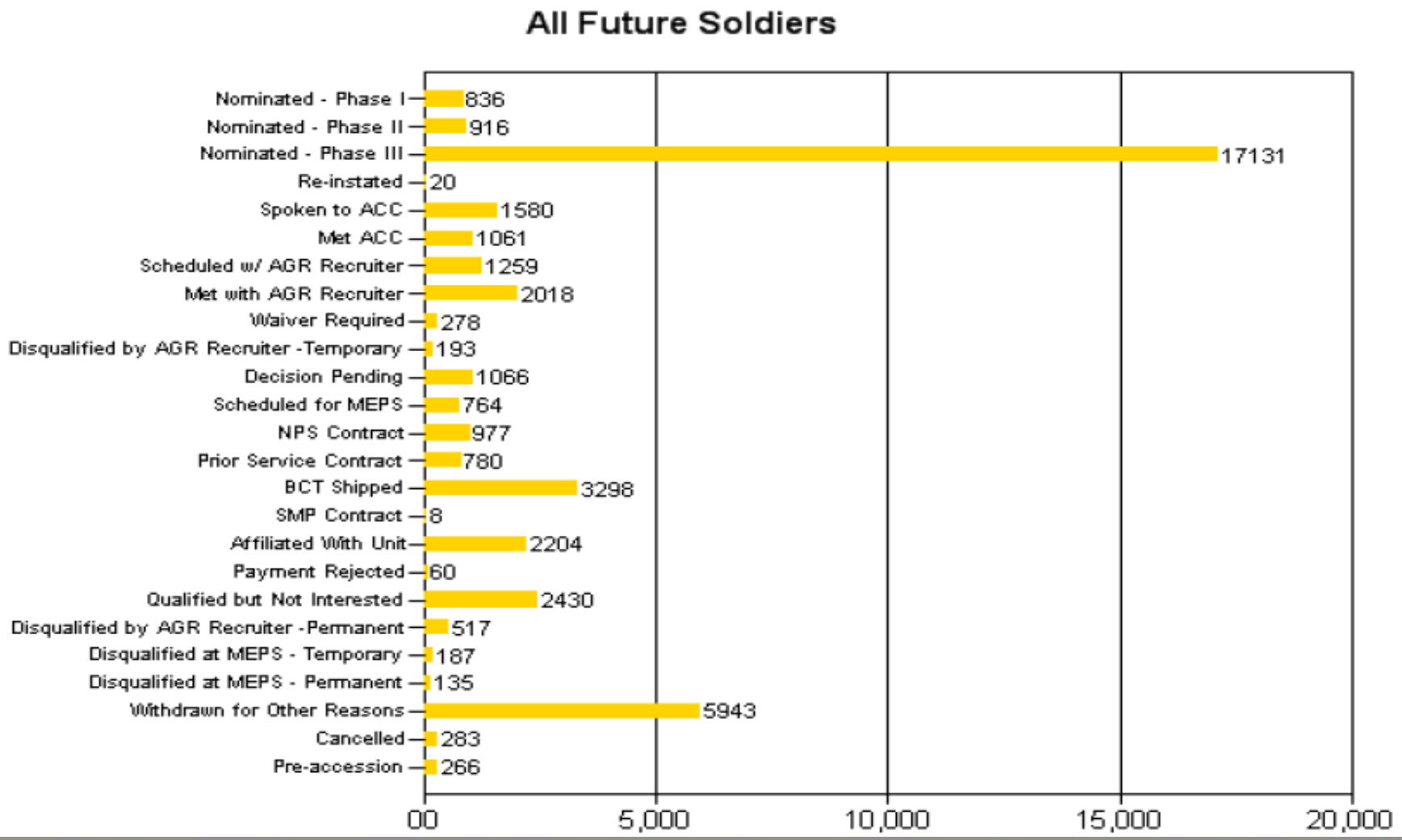
Nominees by Current Status

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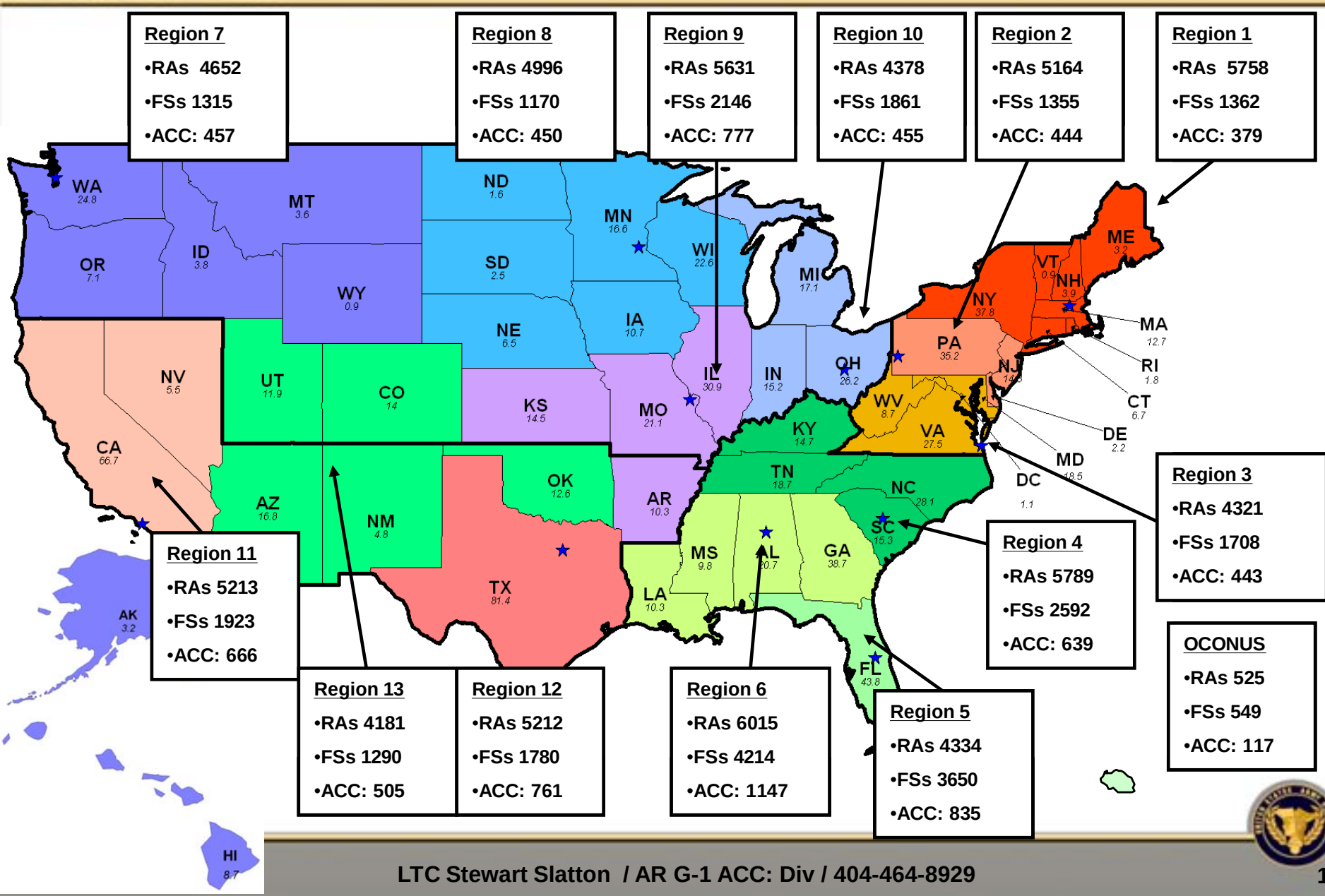
Total Active FS: 26929

Total Historical FS: 44210

*Click on status colum to see break down by state.

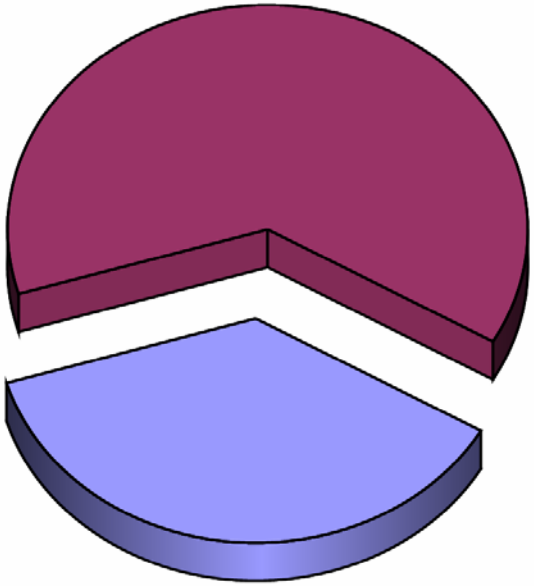


AR-RAP Regional Activity



RA Data and Contract Ratio

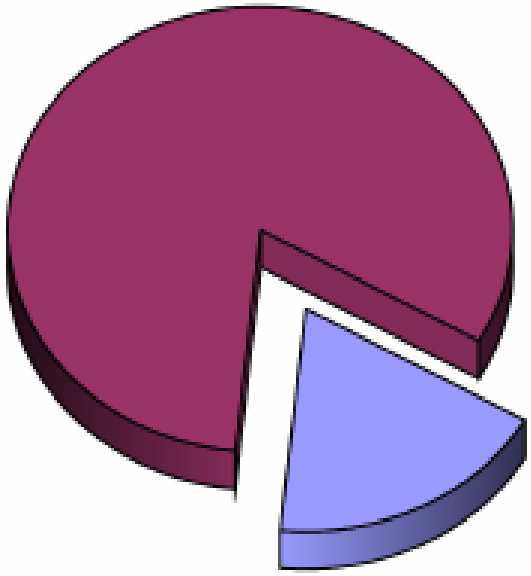
AR-RAP Accession to Recruiting Assistant



Remaining	5,089
RCTG ASST	2,992

Rate of: 37%

Nominee to Contract Ratio



Nominees	36,127
Accessions	8,081

Ratio: 5 to 1

US Army Recruiting Command



Adaptive Mission Processes

by

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502-626-1121

September 1, 2009



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Mission Process

DA Accession Msn

USAREC Contract Msn

RA MISSION 80,000

RA Contracts

USAR MISSION 26,500

USAR Contracts

Brigade Contract Msn

Battalion Contract Msn

Company Contract Msn

Station Contract Msn

Mission the recruiting force to maintain FSTP levels

Concentrate placement into critical MOS'

Maintain presence in all recruiting markets

Enable success and improvement

DA Accession Requirements Based on

- Defense Planning Guidance
- Force Structure
- Retention/ Attrition Rates
- Fiscal Constraints

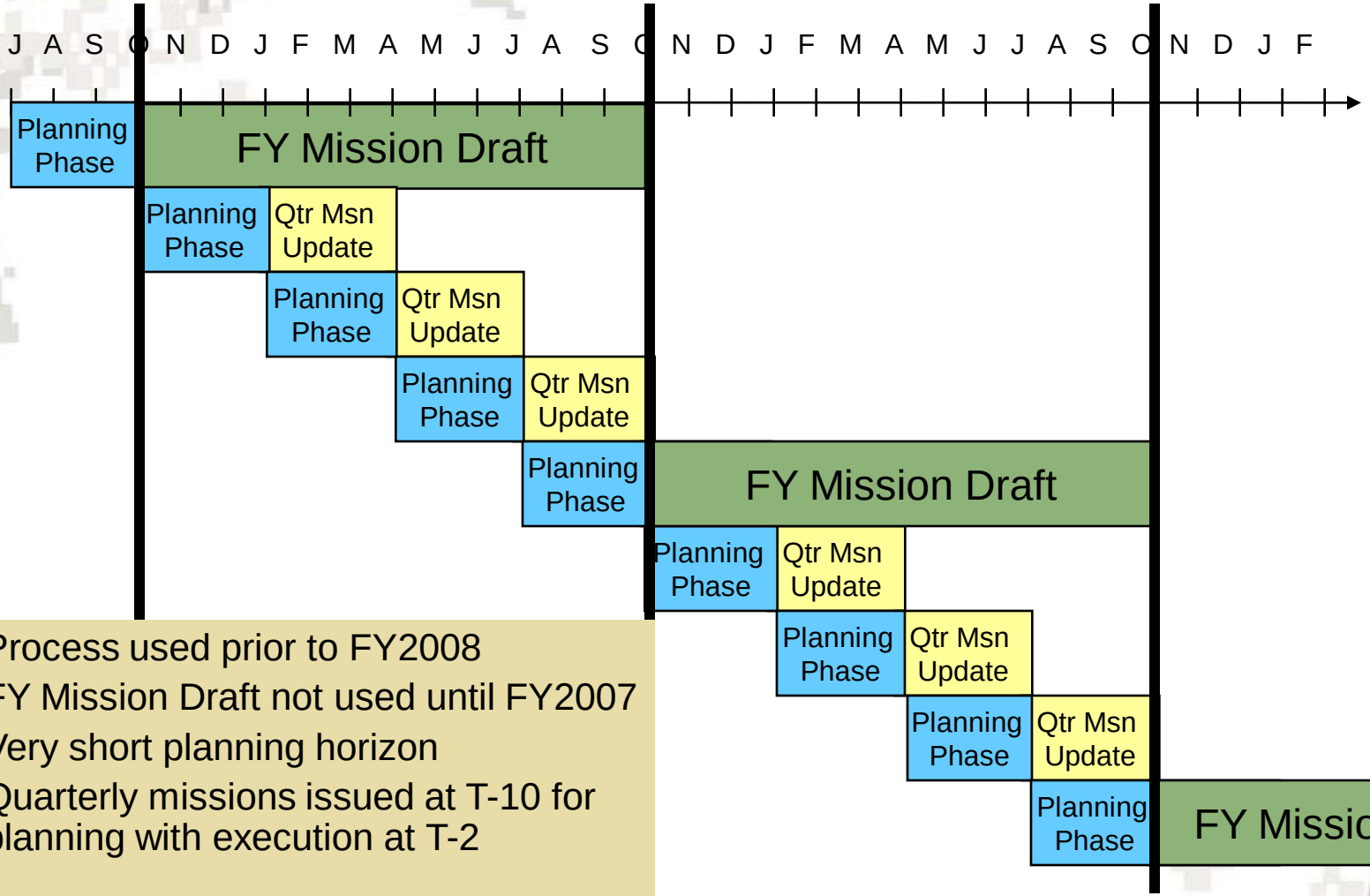
Annual Contract Mission Monthly Phase Lines to meet DA Requirements

- 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

- Reward at Contract & Accession
- Track Training Base Attrition for QC

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Historical Rolling Quarterly Mission



- 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

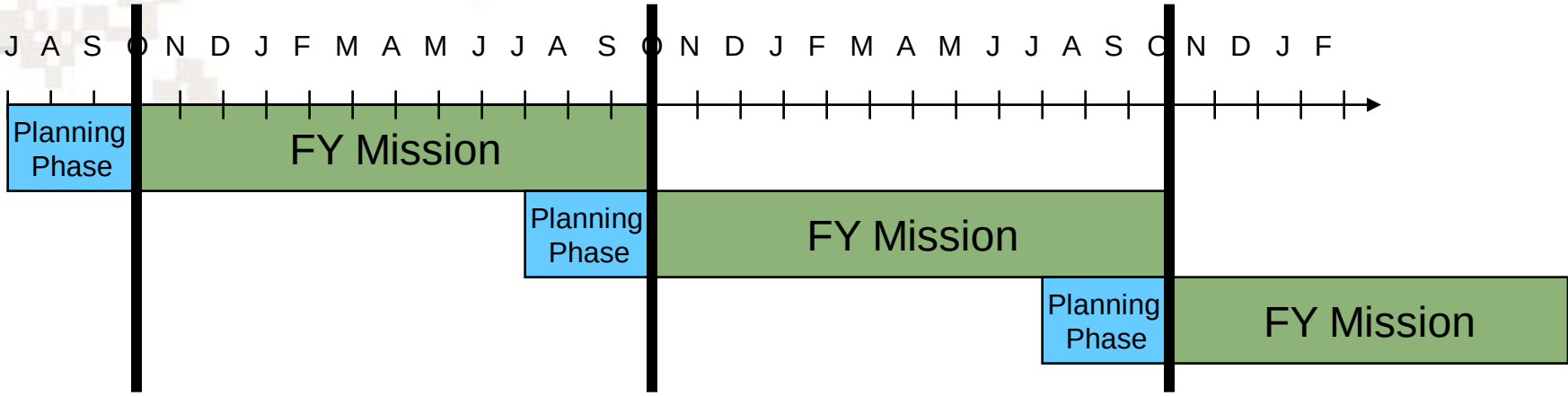
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Impact on Recruiting Force

- **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**

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Annual Mission Process

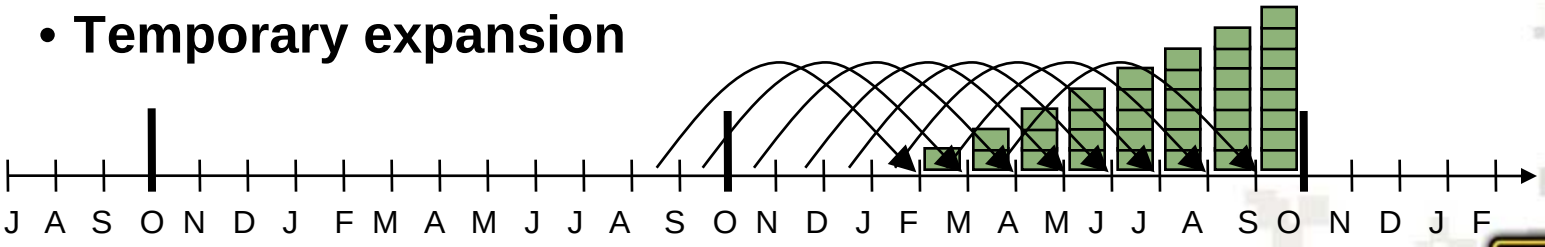


- **Process used in FY2008 & FY2009**
- **Long range planning horizon**
- **No view of future FY beyond current FY**
- **Each FY mission was revised in 3rd or 4th quarter due to either force structure changes or external requirement changes**

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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**



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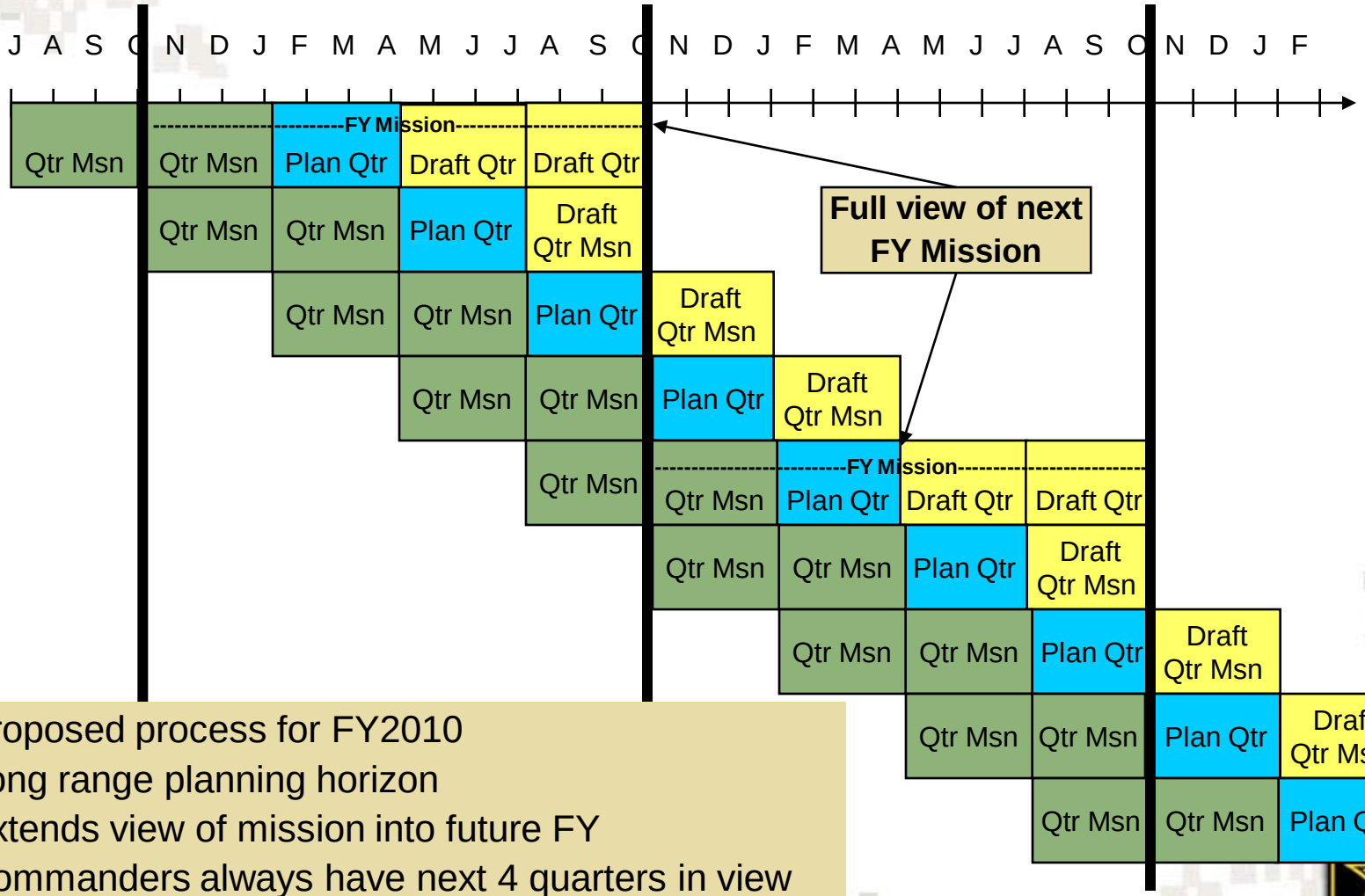
Resource Implications

- **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

Rolling Quarter Annual Mission



- 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

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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**



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Station Commander Pros & Cons

Advantages	Disadvantages
+ Most prefer this concept over Annual cycle + Station Commanders will stay in touch with their mission (they touch missions every quarter) + There will be a more fluid continuity during leadership changes + Continuous mission view 9-12 months out… resulting in predictability and improved QOL. + More lead time for planning + Will create a consistent battle rhythm + Should slow down the "11th hour" changes in assigned missions	- Increases time required to process missions by as much as a four-fold -Will require several iterations to develop new processes - RQAM may look further out than the station commanders can effectively plan for

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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USAAC Accessions Research Consortium
United States Army Accessions Command

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

Gaps	Potential Solutions
Recruiting currently focused on volume and not MOS precision	Explore using precision bonus and tactical segmentation targeting for precision MOS missioning and recruiting
Current processes are not synched with ARFORGEN Model	Explore synchronization of mission process, training seats and ARFORGEN
Currently bonuses and incentives create inter-component competition	Explore possibility of elevating quarterly incentive review board to a quarterly GO panel to set incentives based on service requirements.

Footprint vs. Geographic Diversity

Gaps	Potential Solutions
Large recruiting footprint results in geographic diversity, but comes at a large cost. $43.5 M for 1,638 stations.	Explore mobile recruiting vehicles, MOU with Army Reserve for pilot program to use USAR centers in key locations.
Geographical diversity representing a cross section of America vs. reduced footprint	Determine the balance between targeting and exploiting markets and maintaining cross section of America.

Revolution in Recruiting Operations

Gaps	Potential Solutions
Negative Cultural bias against recruiting duty	Force a cultural change, make recruiting attractive
Current process for managing recruiters is to focus on recruiter deficiencies	Shift focus to support Recruiters with resources
Suboptimal process, requiring many difficult individual tasks	Shift focus to a division of labor
Soldiers placed in unfamiliar environment requiring specialized training and experiences	Focus instead on critical Soldier tasks
Recruiting is focused on individual efforts	Instill team concept common to all other aspects of recruiting to the Army

Revolution in Recruiting Operations

Gaps	Potential Solutions
Overseas contingency operations create demand for recruiters. Results in fluctuation in the number of recruiters based on changing Army resources	Experiment by utilizing civilian manpower for non-Soldiers tasks and return NCO's to the operational Army.
Shifting from a volume mission to a high quality precision mission or greater quality within a band of excellence requires greater resources	Conduct research to quantify the marginal increase in resources needed to shift to a precision mission.

Revolution in Recruiting Operations

Gaps	Potential Solutions
Closed, “stove-piped” architecture currently RA, AR, Civilian, ROTC, ARNG individual focus creates inter-component competition	Explore Total Army Recruiting and single location for seeking Army opportunities
Public image of Recruiters poor	Explore opportunities such as leveraging PAYS as incentive for high quality non-qualified applicants
Reserve and National Guard Market Share	Two years of data gathered, may begin utilizing data to create

Revolution in Recruiting Operations

Gaps	Potential Solutions
Recruiting organizations are different than normal Army units – continuous mission, no reset, no block leave, difficulty finding time for professional development. Results in reduced quality of life. Limited ability to do long range planning impacts development of local advertising campaign plans and partnerships. Complicated hiring process and Army Recruiter School capacity limitations. Long logistics tail when recruiter number fluctuate includes of GOV's, computers, facility space	Work with other stake holders to receive annual mission no later than six months prior to start of the FY, USAREC then uses a rolling quarter annual mission to provide long range planning and always have next four quarters in view.

Revolution in Recruiting Operations

Gaps	Potential Solutions
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	Explore creation of a Army Reserve delayed entry program or delayed training program.

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



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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**

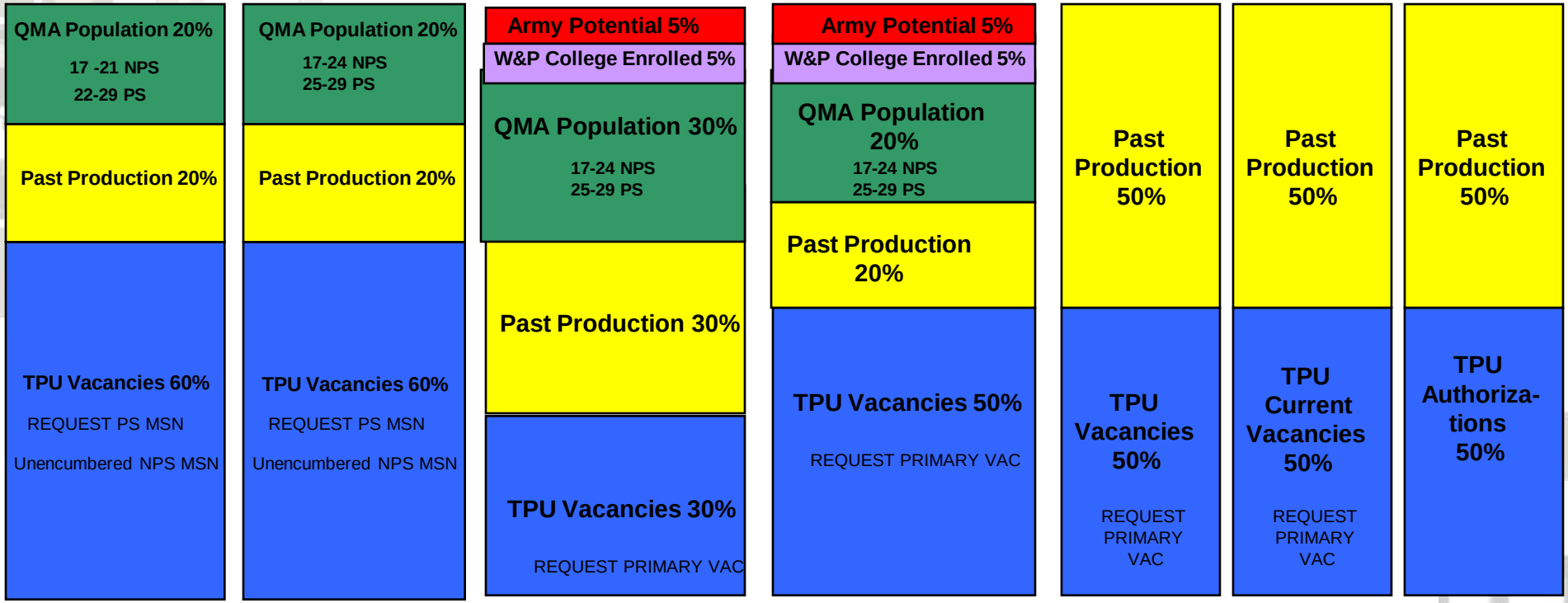
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Chicken or Egg

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**

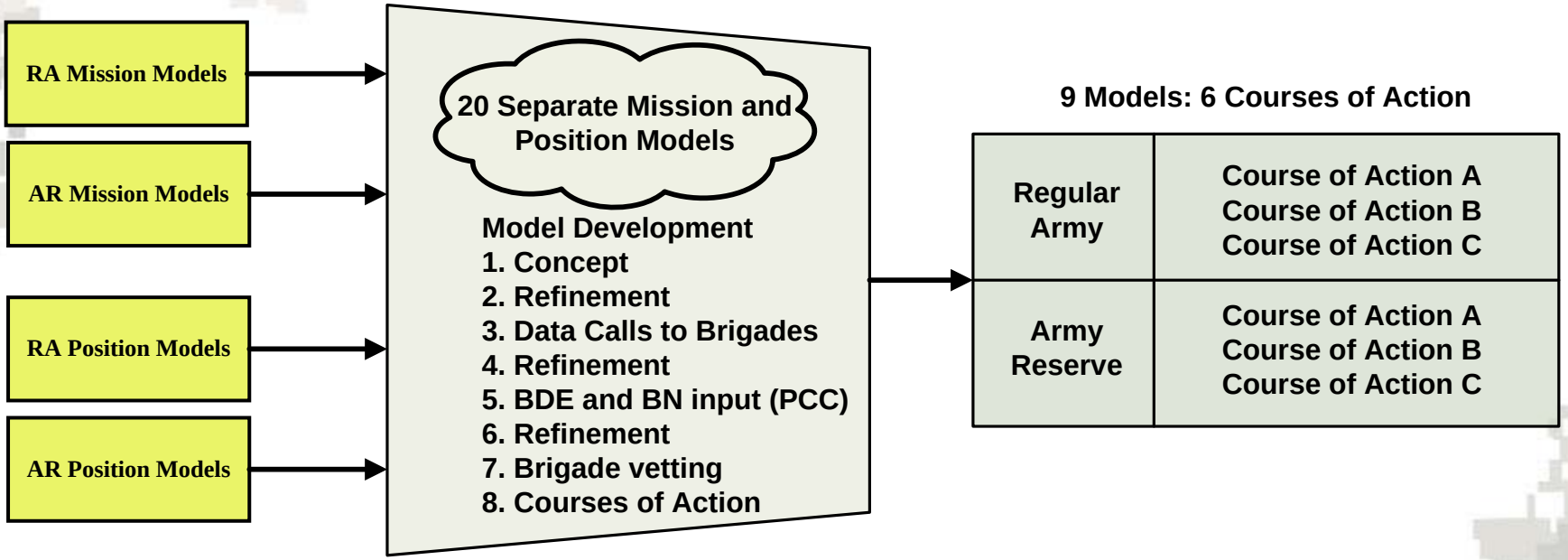
USAR Mission Models



Change in FY08 from “past 12 month average vacancies” to “current vacancies”
Change in FY09 to TPU authorizations instead of vacancies.

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Model Development: Overall Process



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

<u>Resources vs. Mission</u>: 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)

Regular Army

BDE	Current Delta	Goal for Delta
1st	1.24%	1.00
2nd	-3.08%	-1.00
3rd	0.74%	0.75
5th	-1.21%	-1.00
6th	2.31%	1.00

Army Reserve

BDE	Current Delta	Goal for Delta
1st	1.17%	1.00
2nd	-1.14%	-1.00
3rd	-0.57%	0.75
5th	-1.09%	-1.00
6th	1.64%	1.00

Total

BDE	Current Delta	Goal for Delta
1st	1.22%	1.00
2nd	-2.60%	-1.00
3rd	0.42%	0.50
5th	-1.19%	-1.00
6th	2.15%	1.00

**** Current = FY10 mission and recruiters allocated by FY09 models***
**** Goal = the delta which is acceptable or desired by each BDE***

Model Development: New Contract Mission Model Approach

- 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**

RA Mission Model 1
100% DOD GSA Past Production

RA Mission Model 2
90% DOD GSA Past Production 10% Projected QMA (17-24)

- **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**



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RA "Other" Contract Mission Distribution

BN	RSID	FY10 RQWR	4-yr AVG VOL WR	Delta	OTH Prop (% of total Gap)
ALBANY	1A	0.56	0.97	0.41	1.48%
BALTIMORE	1B	0.57	0.98	0.41	1.48%
NEW ENGLAND	1D	0.56	1.18	0.62	2.25%
HARRISBURG	1E	0.58	1.31	0.73	2.62%
NEW YORK CITY	1G	0.53	0.99	0.47	1.68%
MID-ATLANTIC	1K	0.54	0.78	0.25	0.88%
SYRACUSE	1N	0.58	1.22	0.64	2.30%
BECKLEY	1O	0.59	1.23	0.65	2.33%
ATLANTA	3A	0.58	1.47	0.89	3.19%
COLUMBIA	3D	0.58	1.30	0.72	2.59%
JACKSONVILLE	3E	0.60	1.47	0.87	3.13%
MIAMI	3G	0.53	1.22	0.69	2.48%
MONTGOMERY	3H	0.59	1.63	1.04	3.74%
RALEIGH	3J	0.59	1.41	0.82	2.94%
TAMPA	3N	0.59	1.32	0.73	2.63%
BATON ROUGE	3T	0.57	1.35	0.78	2.81%
DALLAS	4C	0.60	1.75	1.15	4.15%
DENVER	4D	0.59	1.37	0.79	2.84%
HOUSTON	4E	0.59	1.59	1.00	3.59%
KANSAS CITY	4G	0.58	1.44	0.85	3.06%
OKLAHOMA CITY	4J	0.59	1.70	1.11	4.01%
SAN ANTONIO	4K	0.59	1.59	1.00	3.58%
PHOENIX	4P	0.59	1.42	0.84	3.01%
CHICAGO	5A	0.55	0.95	0.39	1.41%
CLEVELAND	5C	0.58	1.17	0.60	2.14%
COLUMBUS	5D	0.58	1.15	0.57	2.05%
INDIANAPOLIS	5H	0.58	1.30	0.72	2.58%
GREAT LAKES	5I	0.57	1.21	0.65	2.33%
MILWAUKEE	5J	0.58	1.25	0.67	2.42%
MINNEAPOLIS	5K	0.57	1.13	0.56	2.02%
NASHVILLE	5N	0.58	1.31	0.73	2.63%
LOS ANGELES	6F	0.54	1.17	0.62	2.24%
PORTLAND	6H	0.59	1.35	0.77	2.76%
SACRAMENTO	6I	0.59	1.80	1.21	4.35%
SALT LAKE CITY	6J	0.58	1.48	0.90	3.22%
SO CALIFORNIA	6K	0.57	1.35	0.77	2.79%
SEATTLE	6L	0.58	1.13	0.55	1.96%
FRESNO	6N	0.57	1.22	0.64	2.32%
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.

Goal is balanced workloads!

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.

RA Recruiter Allocation Models

- **Recruiter distribution of 6521 OPRA**

RA Position Model 1
30% Projected QMA (17-24)
25% DOD GA Past Production
15% DOD SA Past Production
10% Potential
10% 2 Year College
5% 4 Year College
5% Other

RA Position Model 2
80% DOD GSA Past Production
20% Projected QMA (17-24)

- **Model 1 is status quo (2005 – 2009)**
- **Model 2 shifts to markets of opportunity**

RA Courses of Action (Paired Combinations)

COA A Status quo	COA B Middle ground	COA C Markets of Opportunity
RA Mission Model 1	**RA Mission Model 2**	**RA Mission Model 2**
100% DOD GSA Past Production	90% DOD GSA Past Production 10% Projected QMA (17-24)	90% DOD GSA Past Production 10% Projected QMA (17-24)
RA Position Model 1	**RA Position Model 1**	**RA Position Model 2**
30% Projected QMA (17-24) 25% DOD GA Past Production 15% DOD SA Past Production 10% Potential 10% 2 Year College 5% 4 Year College 5% Other	30% Projected QMA (17-24) 25% DOD GA Past Production 15% DOD SA Past Production 10% Potential 10% 2 Year College 5% 4 Year College 5% Other	80% DOD GSA Past Production 20% Projected QMA (17-24)

** COA D screened out (RA Mission Model 1 combined with RA Position Model 2)*

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RA Courses of Action Comparison

Regular Army	Courses of Action					
	COA A		COA B		COA C	
Evaluation Criteria	**Status Quo**		**Middle Ground**		**Markets of Opportunity**	
	Metric	**Rank**	**Metric**	**Rank**	**Metric**	**Rank**
Balances Troops to Task	1.34%	3.4	1.91%	2.8	0.99%	3.8
Focus on Quality	70%	3.2	65%	2.9	85%	3.9
Total Score		6.6		5.7		7.7

- **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**



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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**

		A		B	D		
BDE	OPR Authorizations	OPR Share	Quality Mission	Quality Mission Share	OPR Share - Quality Mission Share*	Current Delta	Required Quality Write Rate
1st	1,251	19.18%	8,280	18.36%	0.82%	1.22%	0.55
2nd	1,347	20.66%	9,870	21.89%	-1.23%	-2.60%	0.61
3rd	1,336	20.49%	8,951	19.85%	0.64%	0.42%	0.56
5th	1,382	21.19%	9,970	22.11%	-0.92%	-1.19%	0.60
6th	1,205	18.48%	8,020	17.79%	0.69%	2.15%	0.55
Total	6,521	100.00%	45,091	100.00%	0.00%	0.00%	0.58

**** Screening and Evaluation Criteria***

Army Reserve

Enlisted Contract Mission and Position Models

AR Contract Mission Model

- **AR GSA contract mission distribution**

AR Mission Model 1
50% GSA Past Production (AR)
50% TPU Authorizations (SL1)

AR Mission Model 2
50% GSA Past Production (AR)
25% TPU Authorizations (SL1)
25% TPU Vacancies (SL1)

AR Mission Model 3
40% GSA Past Production (AR)
30% TPU Authorizations (SL1)
20% TPU Vacancies (SL1)
10% Projected QMA (25-29)

- **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**

AR Position Model 1
40% GSA Past Production (AR)
30% TPU Vacancies (SL1)
20% TPU Authorizations (SL1)
10% Projected QMA (25-29)

AR Position Model 2
30% GSA Past Production (AR)
30% TPU Authorizations (SL1)
20% TPU Vacancies (SL1)
20% Projected QMA (25-29)

- **Model 1 is status quo (2008 – 2009)**
- **Model 2 is population centric**

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AR Courses of Action

COA A Status quo	COA B Middle ground	COA C Markets of Opportunity
AR Mission Model 1	**AR Mission Model 2**	**AR Mission Model 3**
50% GSA Past Production (AR) 50% TPU Authorizations (SL1)	50% GSA Past Production (AR) 25% TPU Authorizations (SL1) 25% TPU Vacancies (SL1)	40% GSA Past Production (AR) 30% TPU Authorizations (SL1) 20% TPU Vacancies (SL1) 10% Projected QMA (25-29)
AR Position Model 1	**AR Position Model 1**	**AR Position Model 1**
40% GSA Past Production (AR) 30% TPU Vacancies (SL1) 20% TPU Authorizations (SL1) 10% Projected QMA (25-29)	40% GSA Past Production (AR) 30% TPU Vacancies (SL1) 20% TPU Authorizations (SL1) 10% Projected QMA (25-29)	40% GSA Past Production (AR) 30% TPU Vacancies (SL1) 20% TPU Authorizations (SL1) 10% Projected QMA (25-29)

- ***Combinations involving AR Position Model 2 were screened out, thus do not appear as viable Course of Action***

AR Courses of Action Comparison

Army Reserve	Courses of Action					
	COA A		COA B		COA C	
Evaluation Criteria	**Status Quo**		**Middle Ground**		**Markets of Opportunity**	
	Metric	**Rank**	**Metric**	**Rank**	**Metric**	**Rank**
Balances Troops to Task	1.41%	2.1	0.67%	3.6	0.36%	4.3
Focus on Quality	45%	3.5	45%	3.5	40%	3.0
Total Score		5.6		7.1		7.3

- **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**



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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**

		A		B	D		
BDE	OPR Authorizations	OPR Share	Quality Mission	Quality Mission Share	OPR Share - Quality Mission Share*	Current Delta	Required Quality Write Rate
1st	340	22.31%	2,494	22.12%	0.19%	1.22%	0.61
2nd	331	21.72%	2,507	22.24%	-0.52%	-2.60%	0.63
3rd	312	20.47%	2,313	20.52%	-0.05%	0.42%	0.62
5th	294	19.29%	2,184	19.37%	-0.08%	-1.19%	0.62
6th	247	16.21%	1,775	15.75%	0.46%	2.15%	0.60
Total	1,524	100.00%	11,273	100.00%	0.00%	0.00%	0.62

**** 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**

BDE	OPR Authorizations	OPR Share (A)	Quality Mission	Quality Mission Share (B)	OPR Share - Quality Mission Share* (D)	Current Delta	Required Quality Write Rate
1st	1,591	19.78%	10,774	19.12%	0.66%	1.22%	0.56
2nd	1,678	20.86%	12,377	21.96%	-1.10%	-2.60%	0.61
3rd	1,648	20.48%	11,264	19.98%	0.50%	0.42%	0.57
5th	1,676	20.83%	12,154	21.56%	-0.73%	-1.19%	0.60
6th	1,452	18.05%	9,795	17.38%	0.67%	2.15%	0.56
Total	8,045	100.00%	56,364	100.00%	0.00%	0.00%	0.58

**** Screening and Evaluation Criteria for RA and AR COAs***

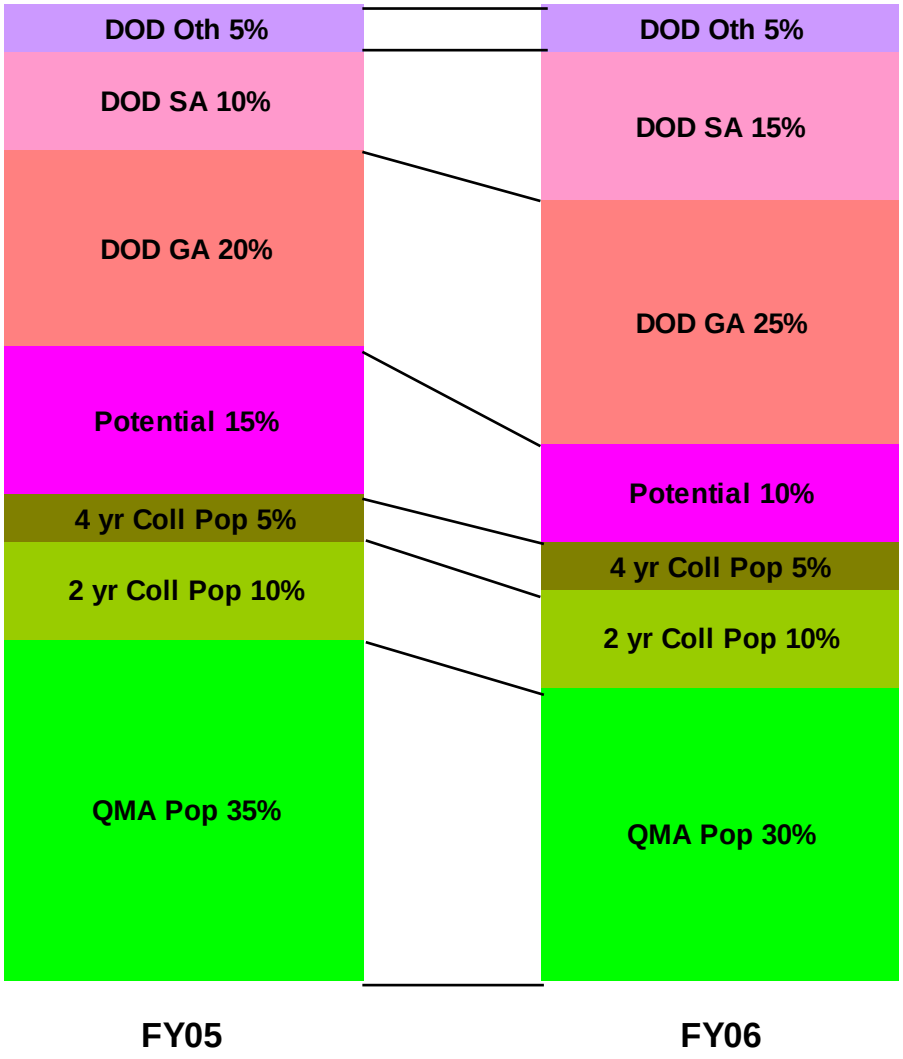
US Army Recruiting Command



Back-up Slides

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RA Mission Models (RY05 – RY06)

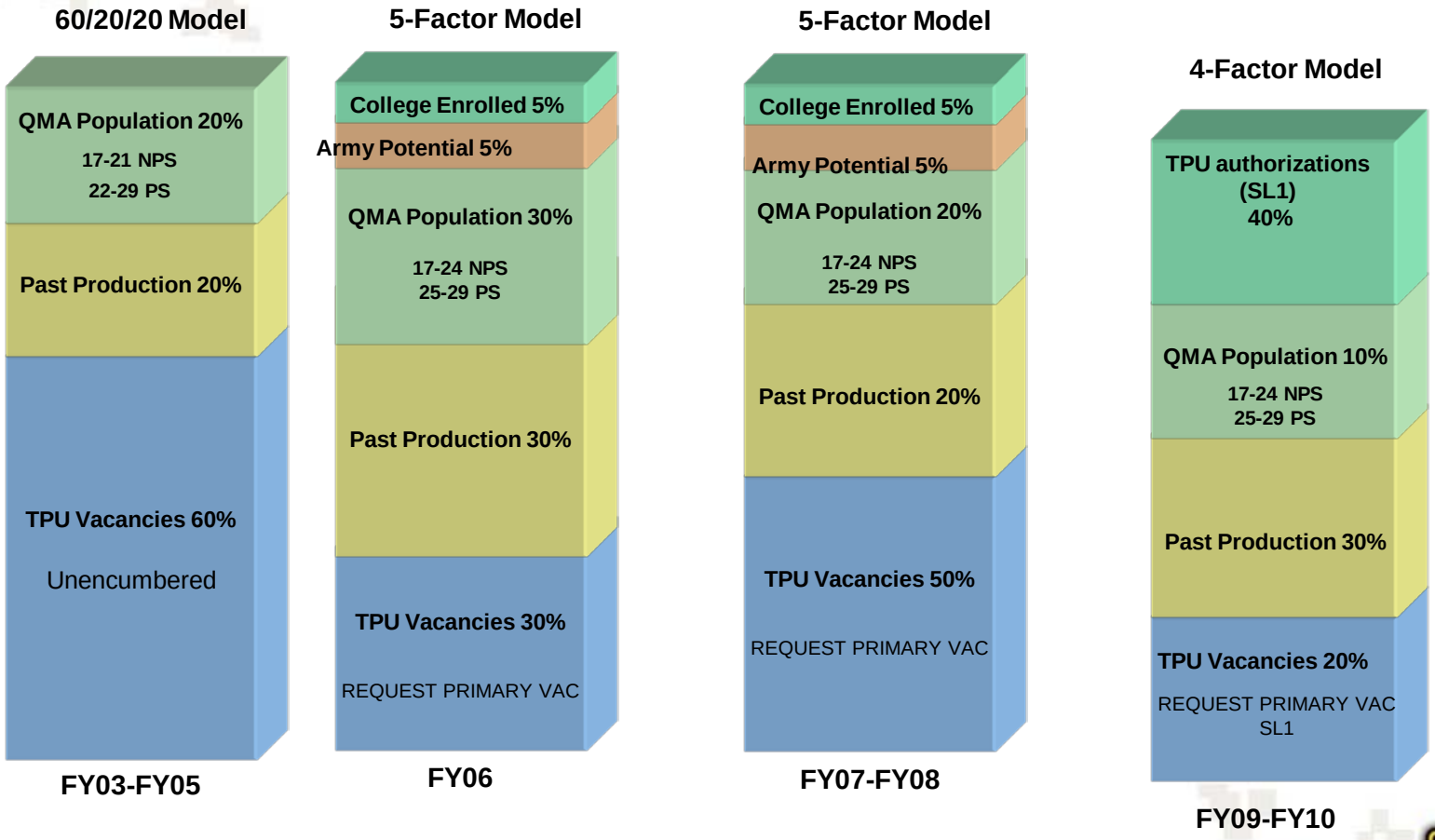


Problems with the RAM model

- 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

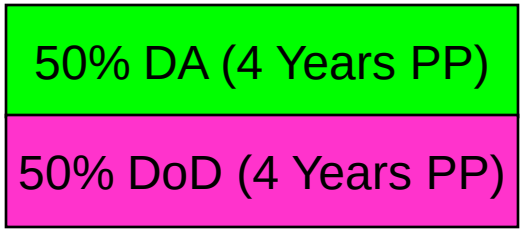
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USAR Positioning Models



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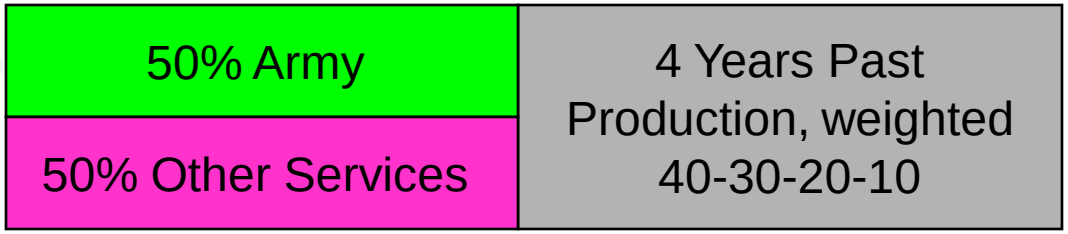
RA Mission Models (RY07 – RY08)



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"**

RA Mission Models (RY09)



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.

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Army Research Consortium

1 SEP 09

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**

- **Holistically Develop (Local)**
- **Statistically Test (Regional)**
- **Deliberately Expand (National)**

Develop experimentation & testing framework

Focus on station level reengineering experiments

Integrate proven reengineering efforts

Integrate tests into strategic plan (DOTMLPF)

Revise leadership & management construct

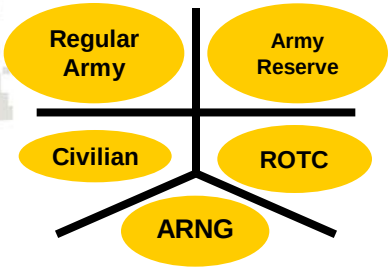
What Pinnacle Does

- **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**



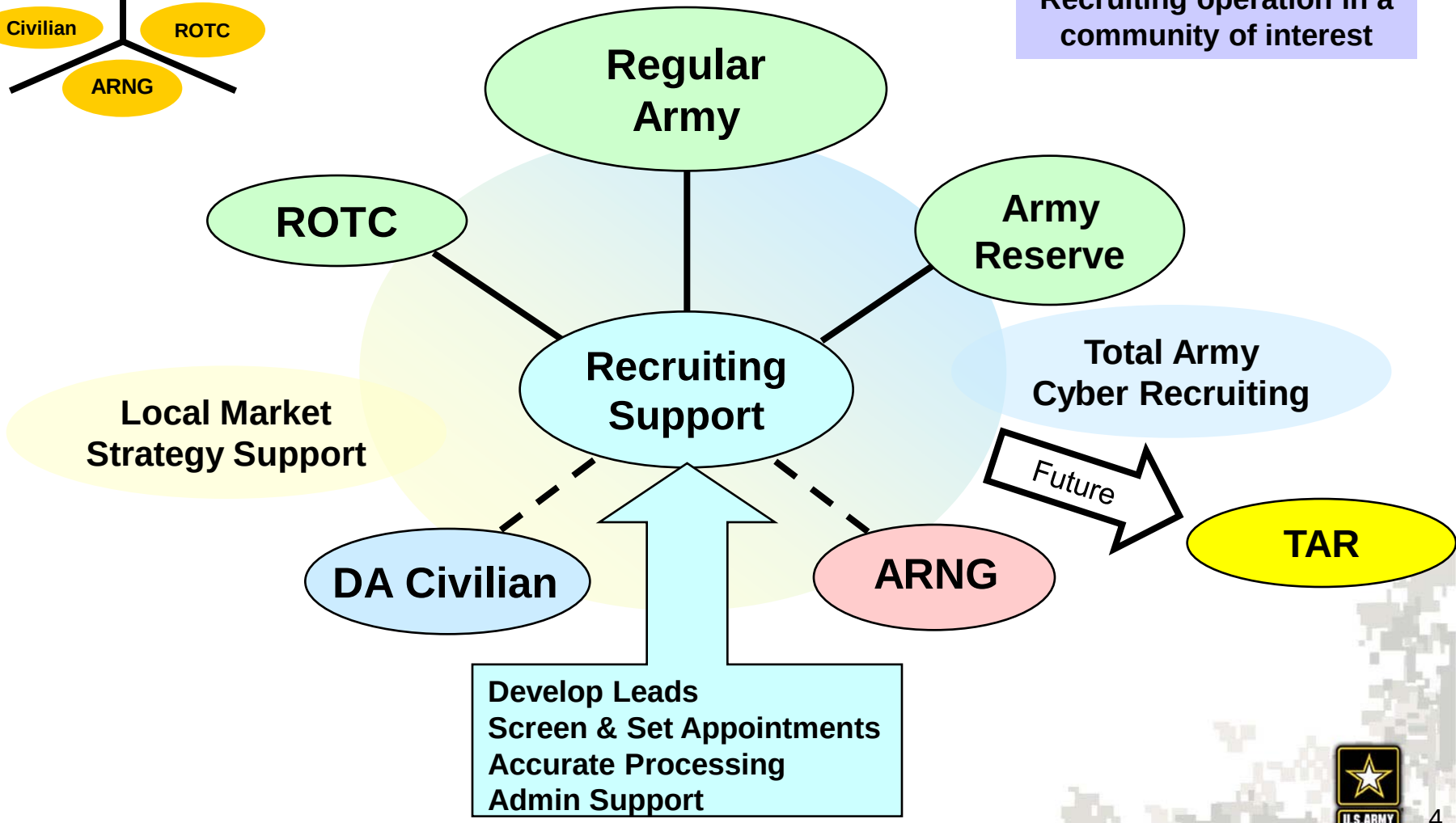
Total Army Integration

Closed Architecture



A Recruiting Support Core provides the base for a Total Army Recruiting operation in a community of interest

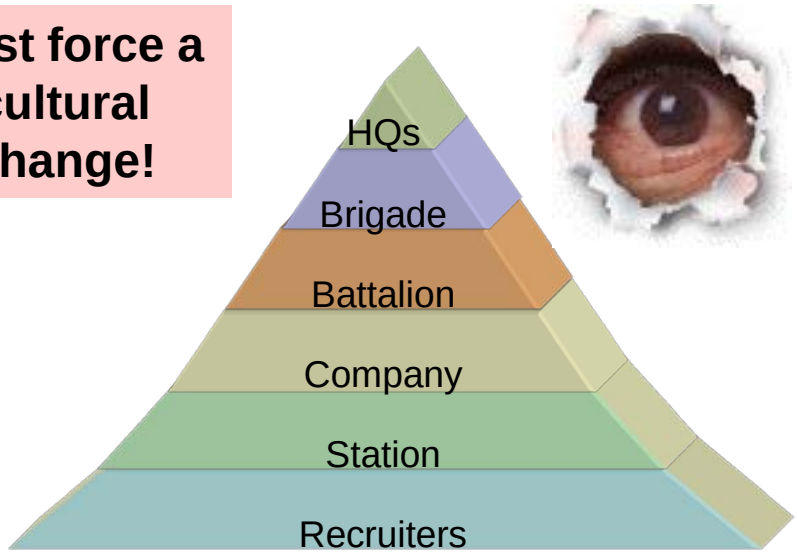
Open Architecture



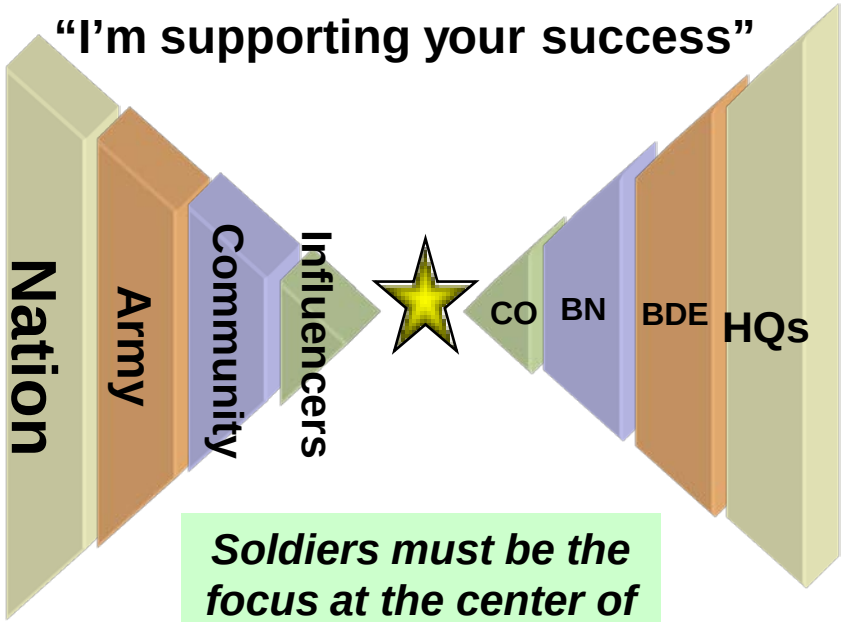
Recruiting Duty for Soldiers

Current
"I've got my eye on you"

Must force a cultural change!



Future
"I'm supporting your success"



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

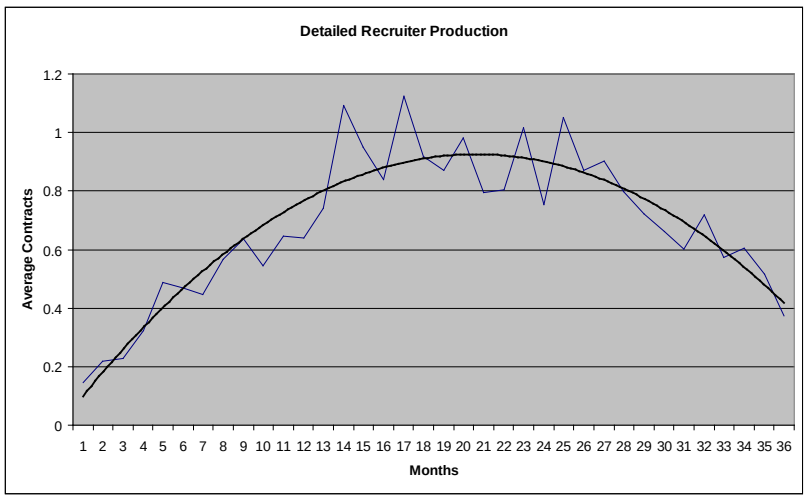
Current Construct

Division of Labor Specialization Of Skills

	Training Level			Experience Level		
	Novice	Adept	Master	Novice	Adept	Master
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						

Level of training after RRS

Level of experience after one year



- **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**

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Critical Soldier Tasks in Recruiting

Division of Labor Specialization Of Skills

- Tell the Army story
- Counsel Applicant – gain a commitment
- Develop COIs
- Lead FSs / HRAPs

- Face-to-face engagements
- Lead and establish Army presence
- Ensure applicant suitability for “our” Army

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



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Future Construct

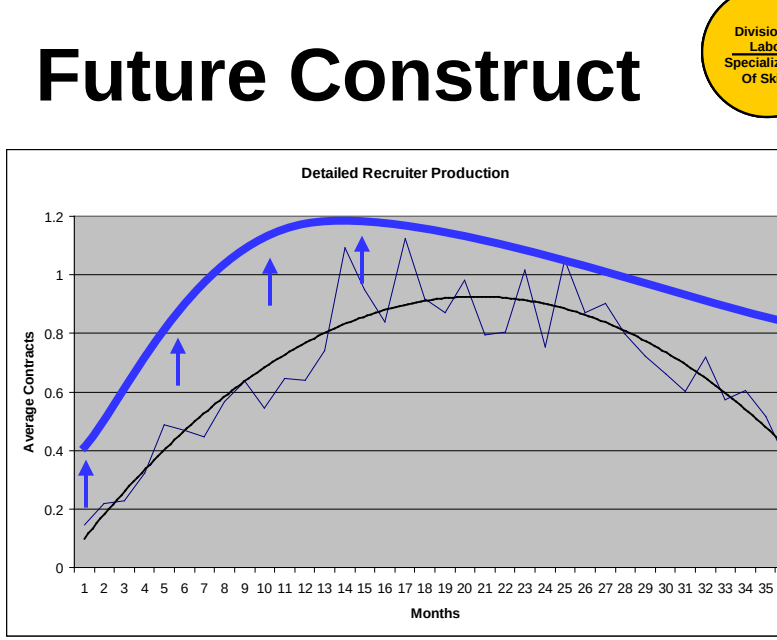
Division of Labor Specialization Of Skills

	Training Level			Experience Level		
	Novice	Adept	Master	Novice	Adept	Master
Prospecting						
• Telephone						
• COI / VIP						
• Face-to-face						
• Cyber						
• Social Networking						
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						
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• 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						

Level of training after RRS

Level of experience after one year





- **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

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Recruiting Support Team Role

Dedicated Recruiting Support Team

Organization

Stn Cdr

Focused on coaching & mentoring Soldiers, planning support, integrating Future Soldier plan, and being the recruiting SME

Selected for leadership

ASC

RA AR RA RA

Detailed Force
3-4 Soldiers

DAC DAC DAC

Recruiting SPT Team
2-3 Civilians

FS Leader

Prep for BCT
Referral Program

Leads

Functions

Conduct Appointment

Schools & Events

Lead Gen

Leads

Lead Gen & Development Cell

Develop Contact Plan

Schedule Appointment

In Brief Cell

Processing Cell

Shipping Cell

Future Soldier Training Cell

Focused on maintaining the FSP, training, and referrals

Focused on Face-to-Face

Focused on developing and screening appointments, customer relations, and accurate processing

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Radcliff Recruiting Company

Current

	Staff	LP	OP	Civ
RA	2	3	21	1
AGR	0	0	6	NA

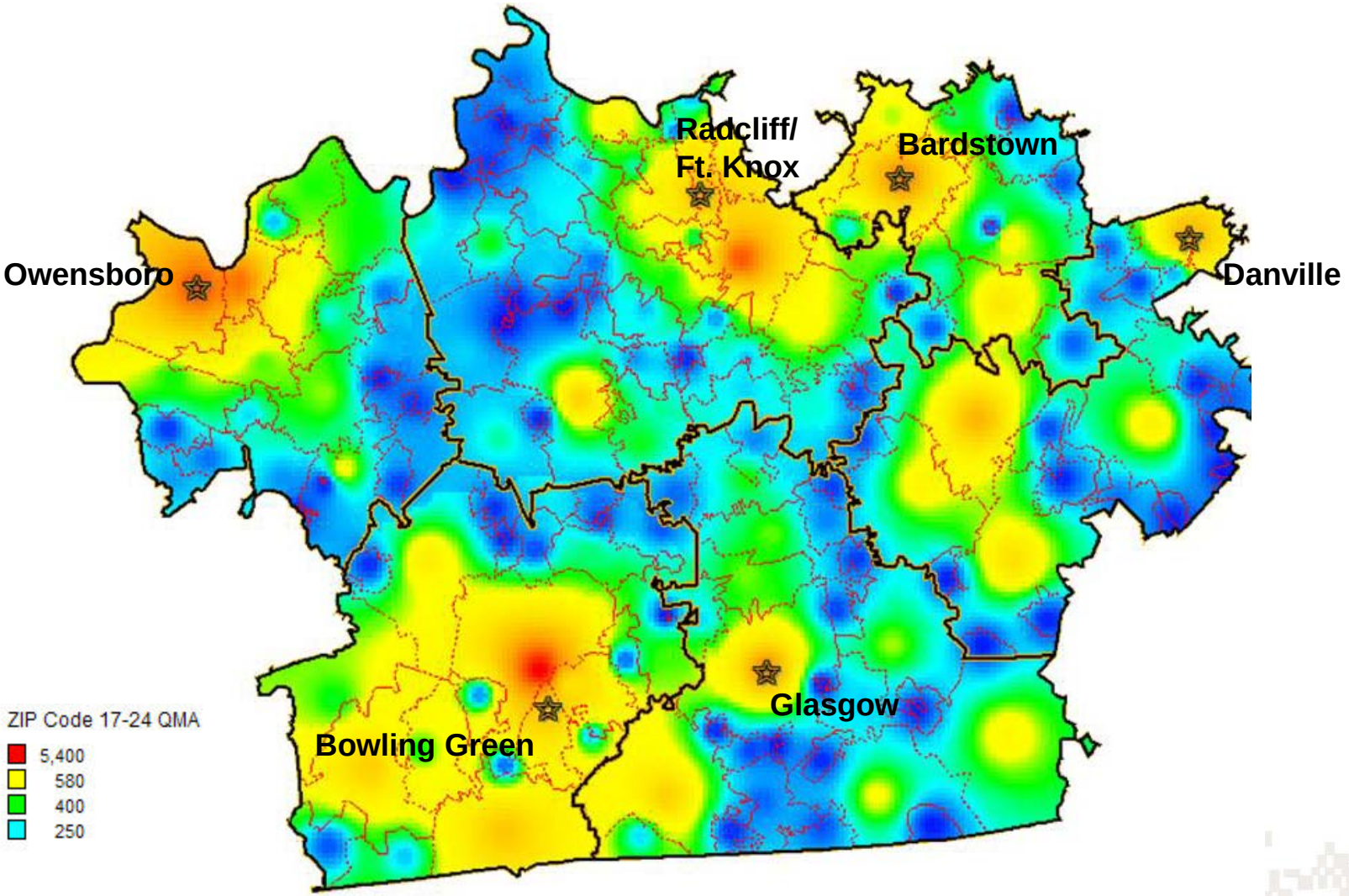
CDR
1SG
CIV

Co HQ's

Bowling Green RS	Glasgow RS	Bardstown RS	Radcliff RS	Danville RS	Owensboro RS
LPSC 4 OPRA 2 OPAGR	OPSC 1 OPRA	OPSC 1 OPRA 1 OPAGR	LPSC 8 OPRA 2 OPAGR	OPSC 1 OPRA	LPSC 3 OPRA 1 OPAGR

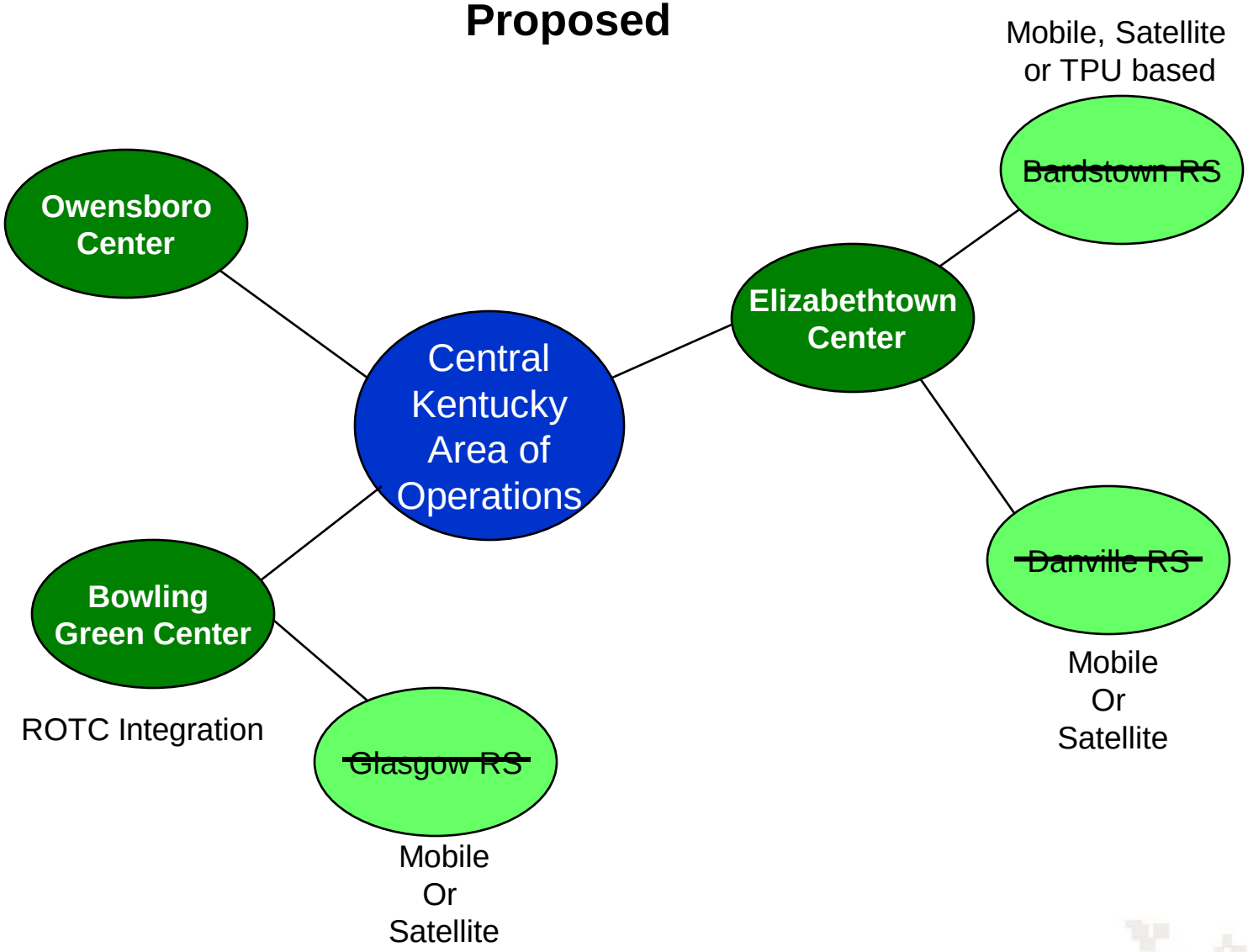
Radcliff Recruiting Company

Nashville Battalion



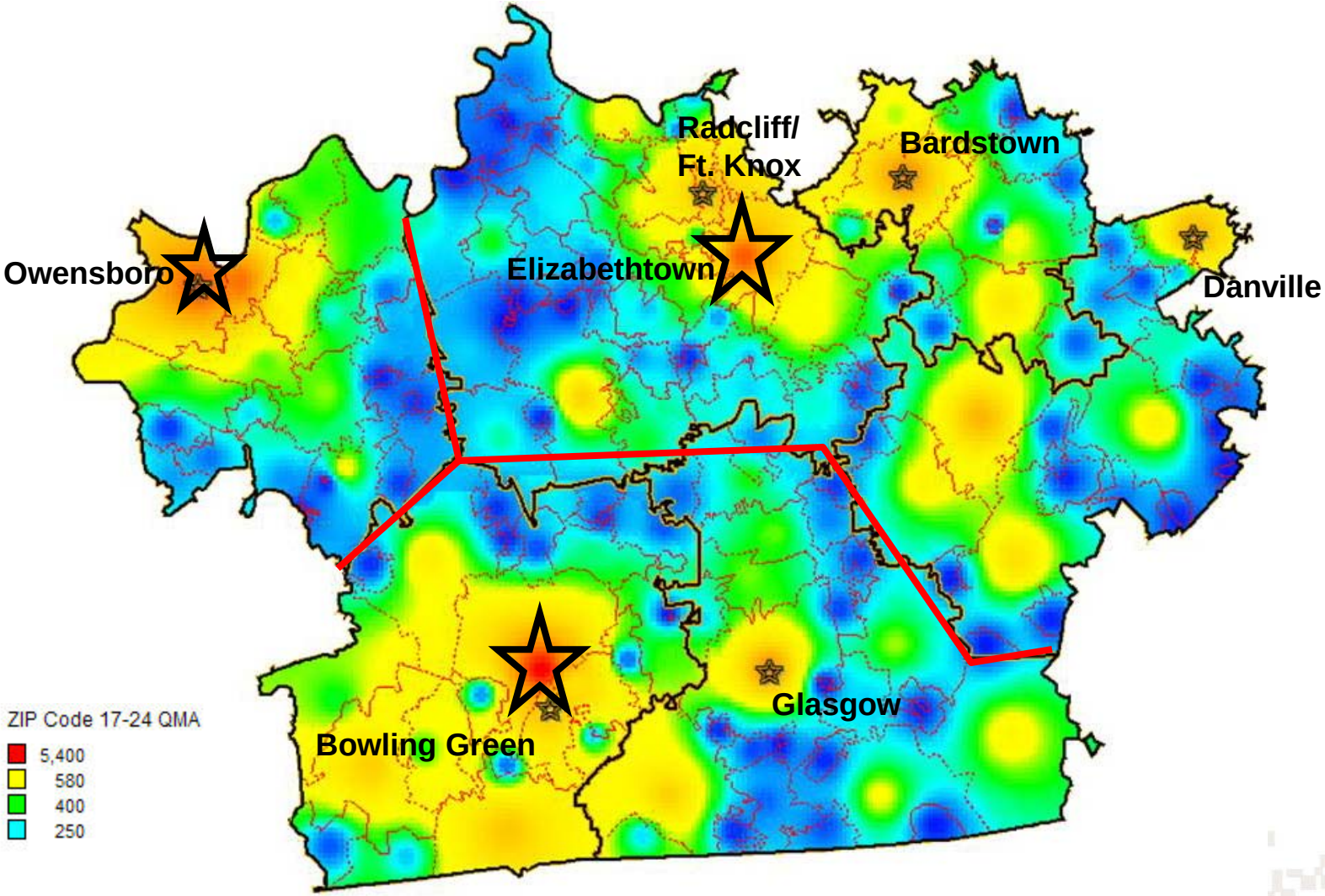
Radcliff Area of Operations

Proposed



Radcliff Area of Operations

Nashville Battalion



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**

U.S. ARMY RECRUITING



PINNACLE

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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)

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)



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)

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)

Present

- 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

Future

- Centralized leads refinement focusing on qualified appointments
- Split of mission between teams allowing Soldiers to focus on quality
- Internet based, single sign-on, directly accessed, integrated IT
- Full integration of ROTC and local TPU's
- Single trip to MEPS
- Well-defined, Army aligned Officer/NCO responsibilities
- Specific skill focused dedicated training
- Fully integrated enlisted, officer, and civilian opportunities

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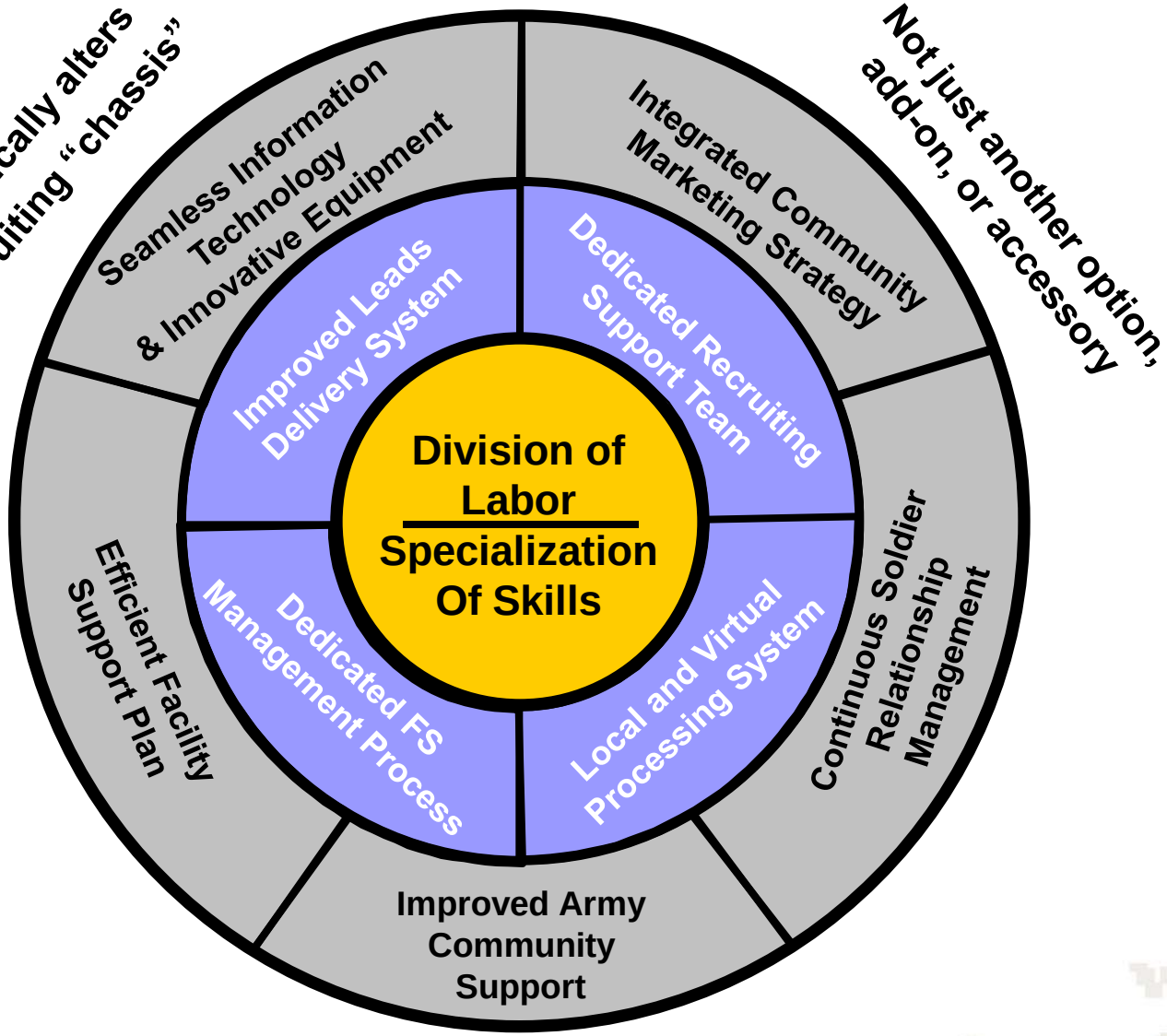
Benefits to Total Army

- **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



Total Army Community-Based Process





Community Marketing Team

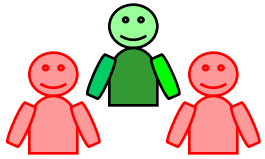
Event Plans



Grassroots Advisory

Prospecting





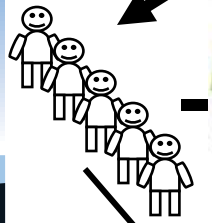
Planning & Scheduling Team



Total Army Team **(RA/AR/ARNG/ Officer/Enlisted/ Units/Veterans)**

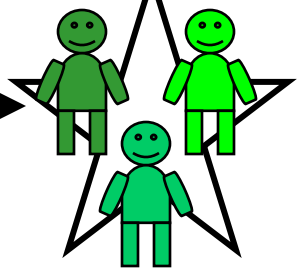


Prospects





Engagements



Opportunity Counselors (Army Ambassadors)

Cyber Recruiting





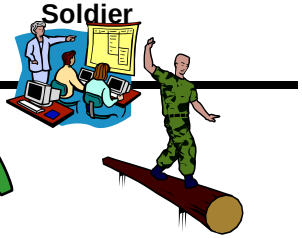
Optimize Soldier Face-to-Face time

Veteran Retiree Families

HRAP/ SRAP

Referral Program

Future Soldier



Applicant



Soldier



Shipping

Future Soldier Training



Processing

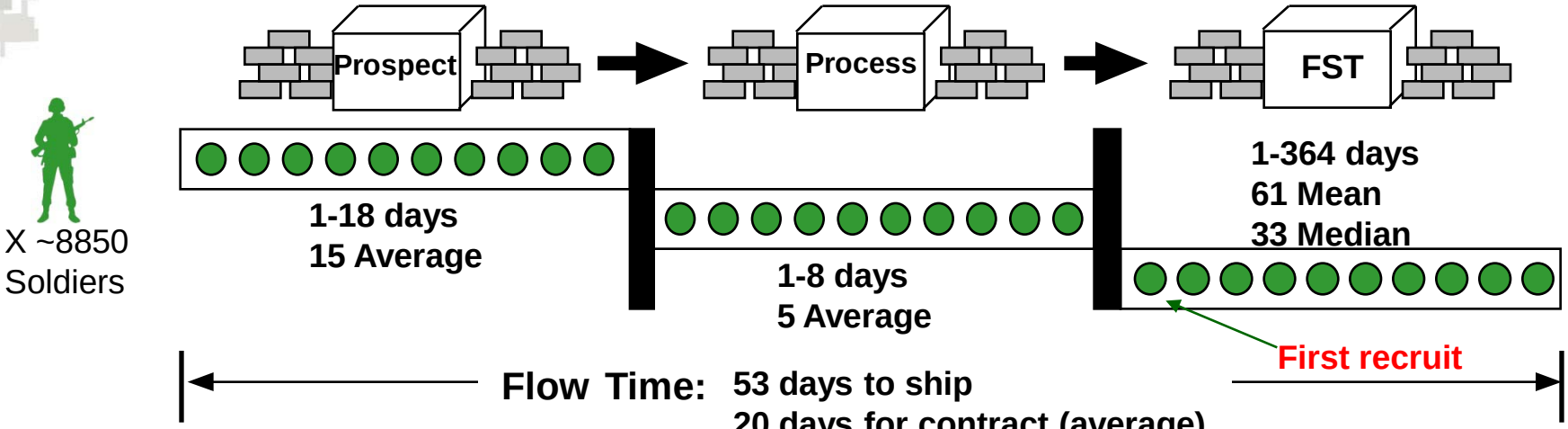
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Streamlining the Recruiting Process

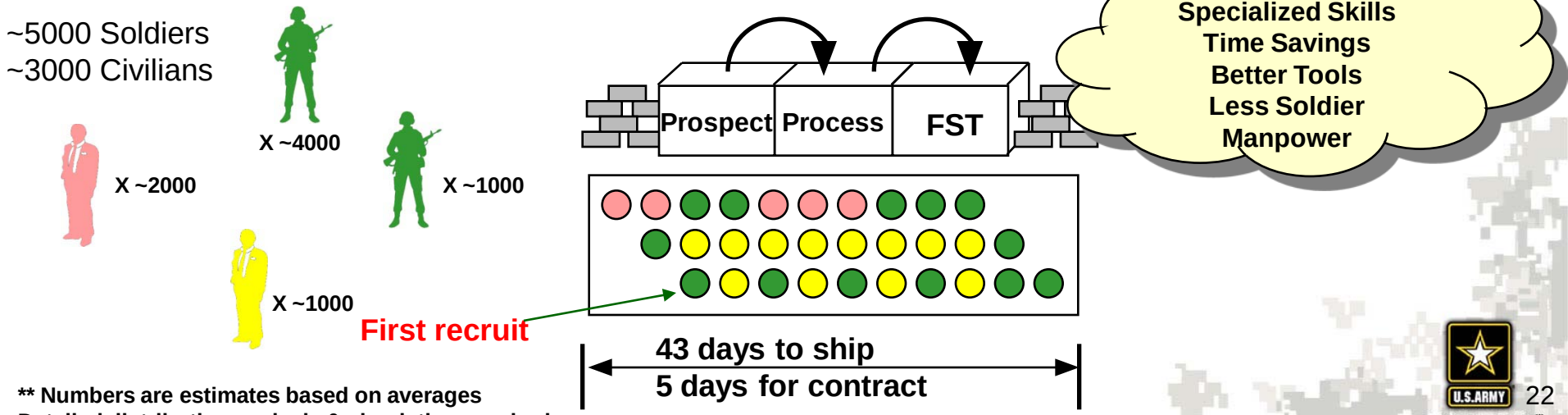
(Division of Labor/Specialization of Skills/Substitution of Civilian for Military Manpower)

Division of Labor Specialization Of Skills

• Historical Processing



• Future Processing

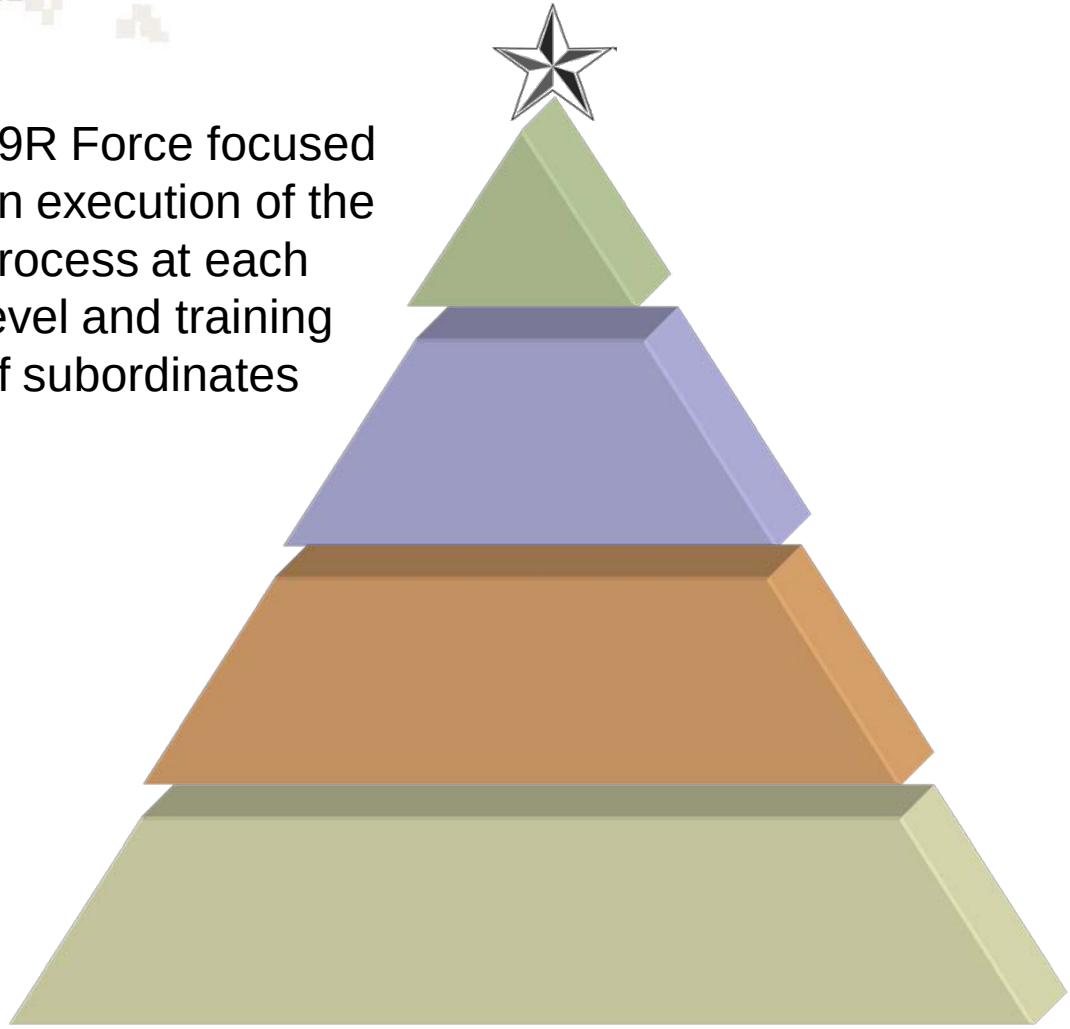


** Numbers are estimates based on averages
Detailed distribution analysis & simulation required

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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

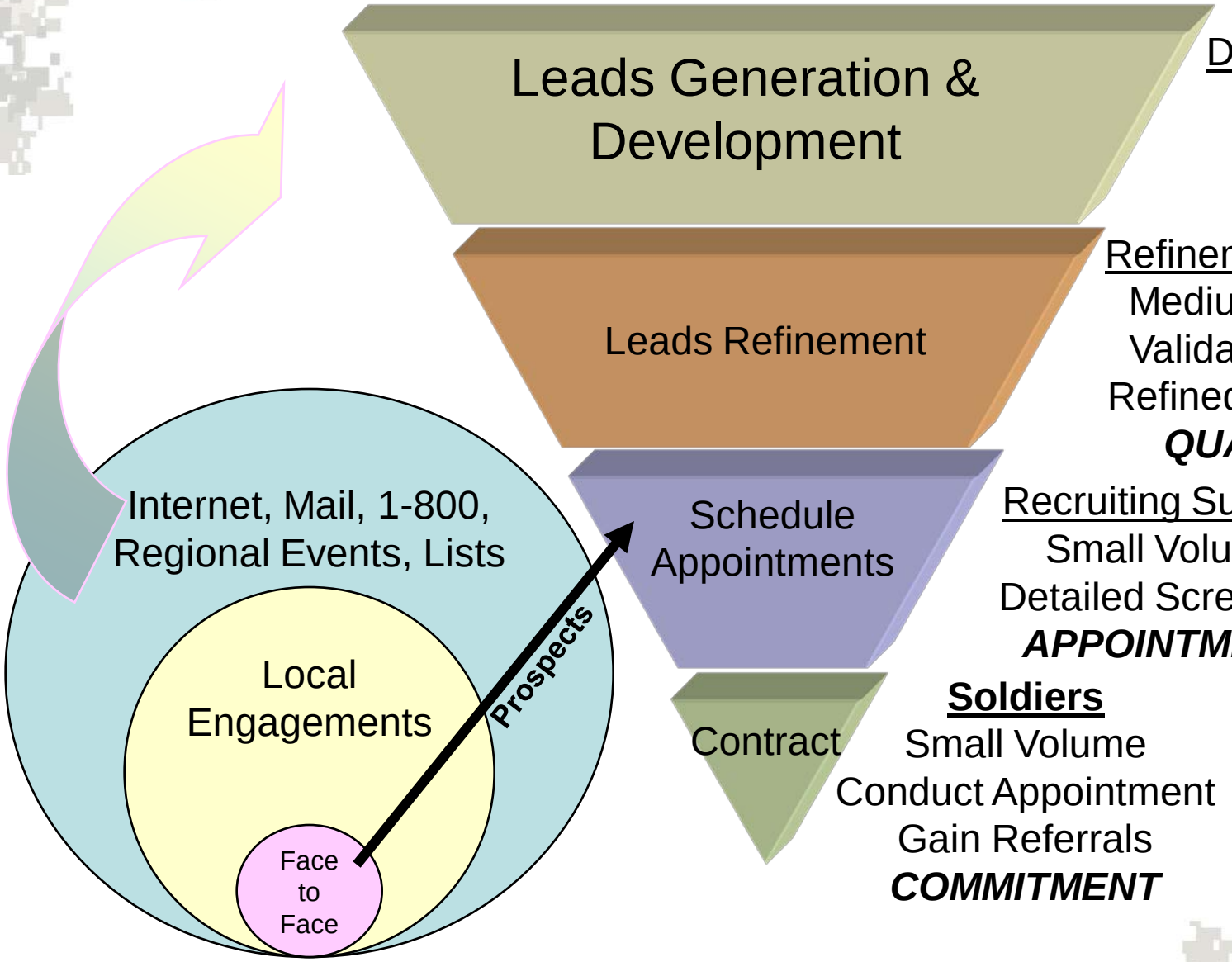
Recruiter
Focused at individuals, high schools, 2 & 4 year colleges, and local events

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)



Development Center
Large Volume
Simple Screening
INTERESTED

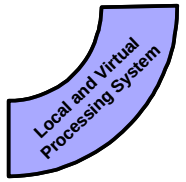
Refinement Center
Medium Volume
Validate Interest
Refined Screening
QUALIFIED

Recruiting Support
Small Volume
Detailed Screening
APPOINTMENT

Soldiers
Small Volume
Conduct Appointment
Gain Referrals
COMMITMENT

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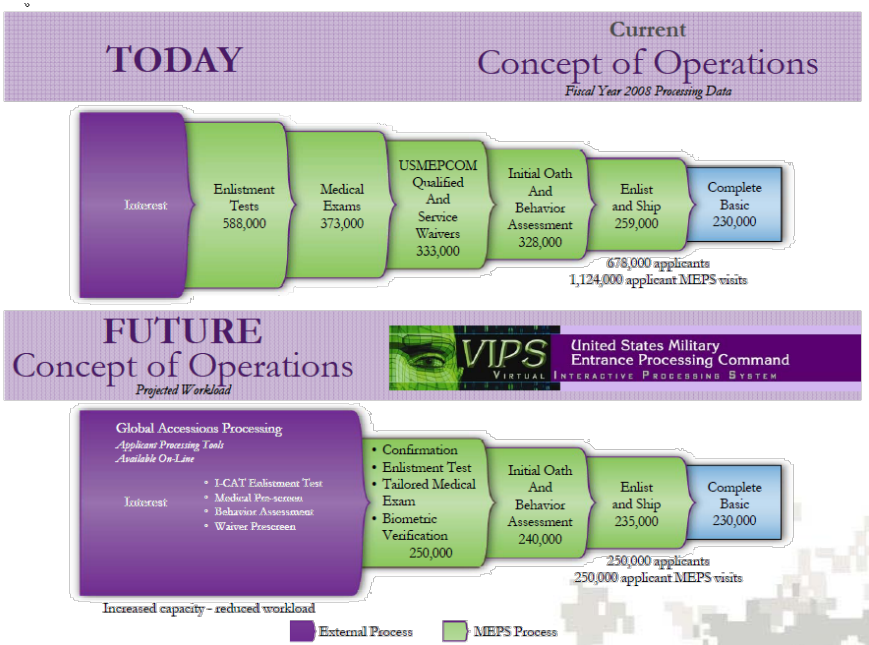
Local and Virtual Processing System



- **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**



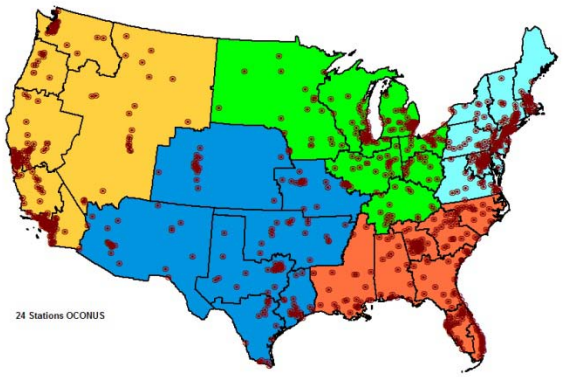
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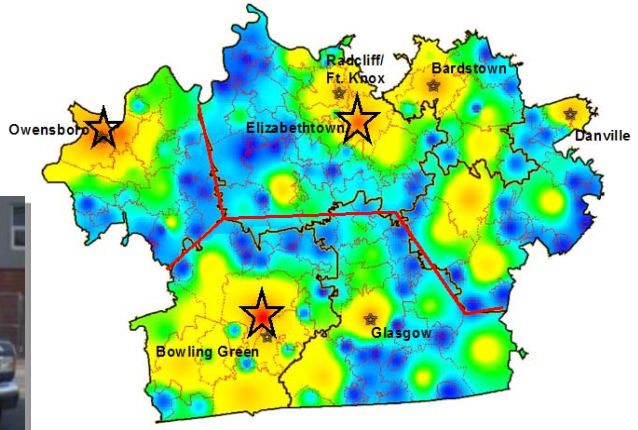
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Efficient Facility Support Plan

- 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

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Information Technology

Seamless Information Technology & Innovative Equipment

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





Community Marketing Team

Event Plans



Grassroots Advisory



Total Army Team **(RA/AR/ARNG/ Officer/Enlisted/ Units/Veterans)**



Prospects

Cyber Recruiting

Referral Program

HRAP/ SRAP

Veteran/ Retiree

Future Soldier

Soldier

Shipping

Future Soldier Training

Processing

- **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

Standard Center Model

1 Center CDR	79R SFC
1 Asst. CDR (80%)	79R SSG
3 RA Recruiters	Detailed
1 AR Recruiter	Detailed
1 FS Leader	Detailed
3 Rec. SPT Team	DA Civilian

1,000 Army Opportunity Centers

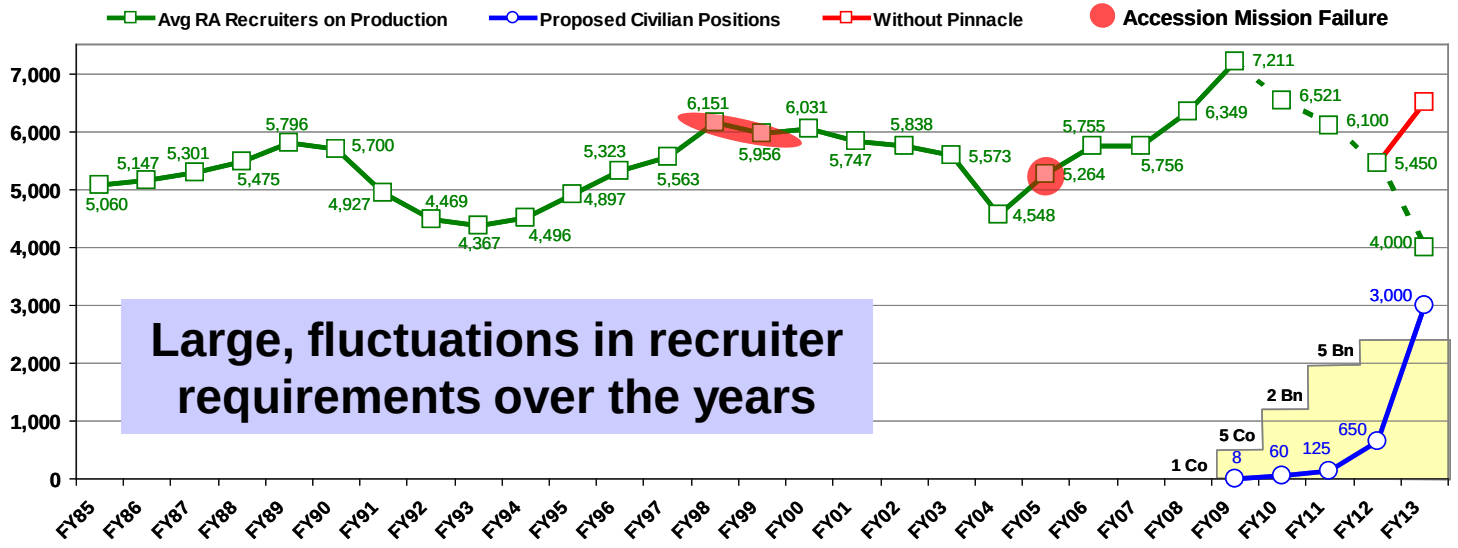
79R Station Level Restructure

Current

782 Stn. CDRs
1,251 Recruiters

Future

1,000 Center CDRs
800 Asst. Center CDRs
No 79R "Recruiters"



Large, fluctuations in recruiter requirements over the years

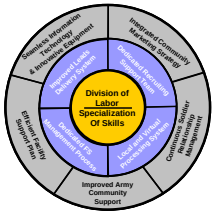
- Maintains a balance in Military Downsizing and Civilian Growth
- Aligns with DA Recruiter Reduction goals
- Reduces fluctuations in Soldier Requirements
- Resizes the 79R Force reducing approximately 230 positions

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

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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

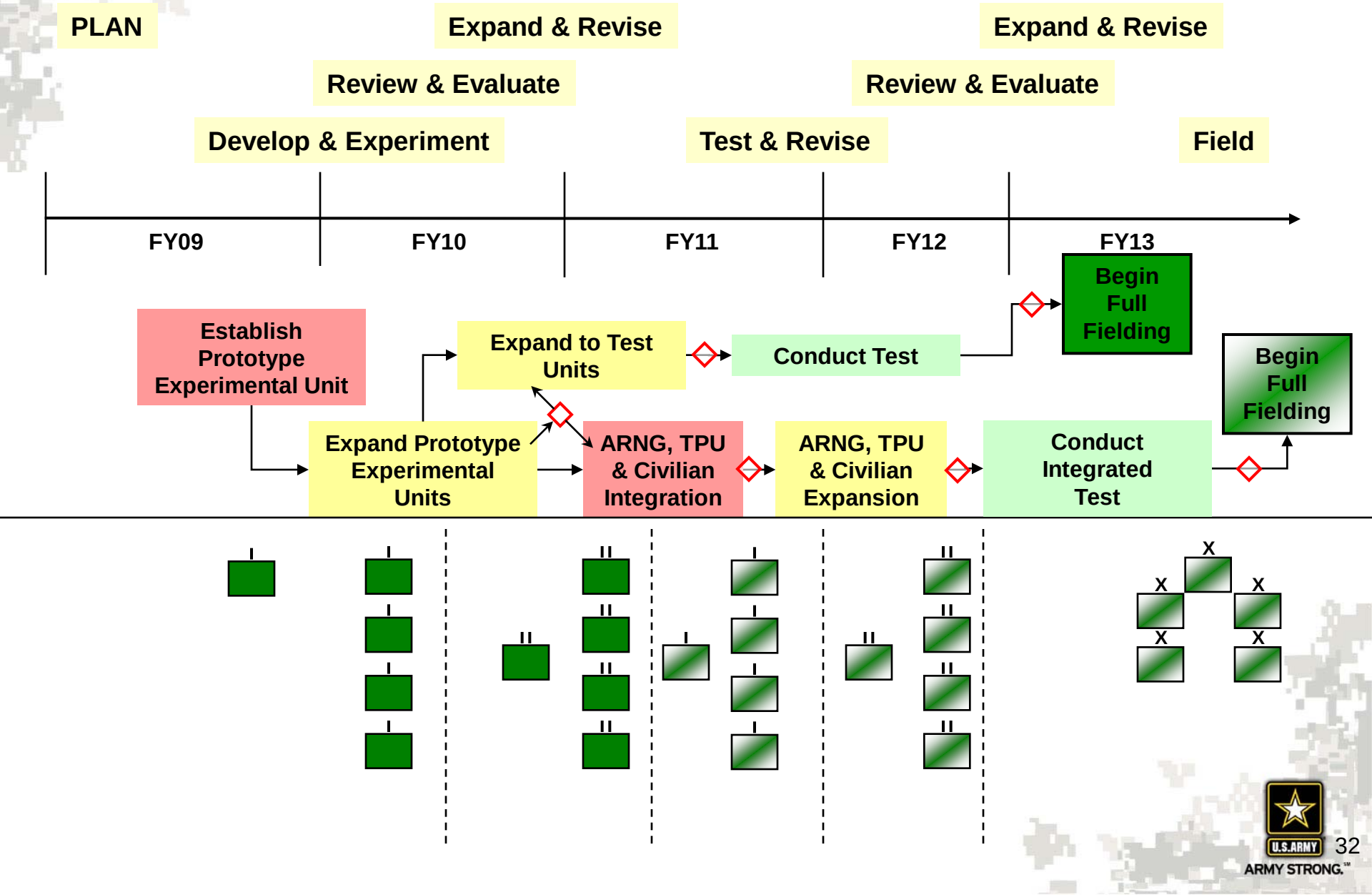
	FY09	FY10	FY11	FY12
Core	**$120K**	**$3.4M**	**$5.9M**	**$18.8M**
Enabling	**$200K**	**$0.9M**	**$2.0M**	**$4.0M**
Enhancing *	**$168K**	**$1.1M**	**$1.7M**	**$5.5M**
Total	$488K	$5.4M	$9.6M	$28.3M
Pinnacle Structure	**1 Company**	**5 Companies**	**2 Battalions**	**5 Battalions**

* Facility costs removed as they are a projected realignment of current facility projected costs

Full Pinnacle Cost @ FOC ~$175-250 Million

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Extended Timeline



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**

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US Army Recruiting Command

Tactical Segmentation – a practical application



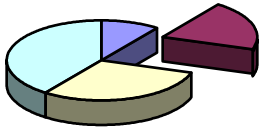
Accessions Research Consortium

Mitch Stokan, USAREC G-2

1 Sep 2009

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Targeting



Assess

Market

Set & achieve objective

Must Keep (Sustain/Exploit success)

Must Win (Create success)

Target

Geographical Area

Events/COIs/etc.

Schools (HS & Colleges)

Customize message

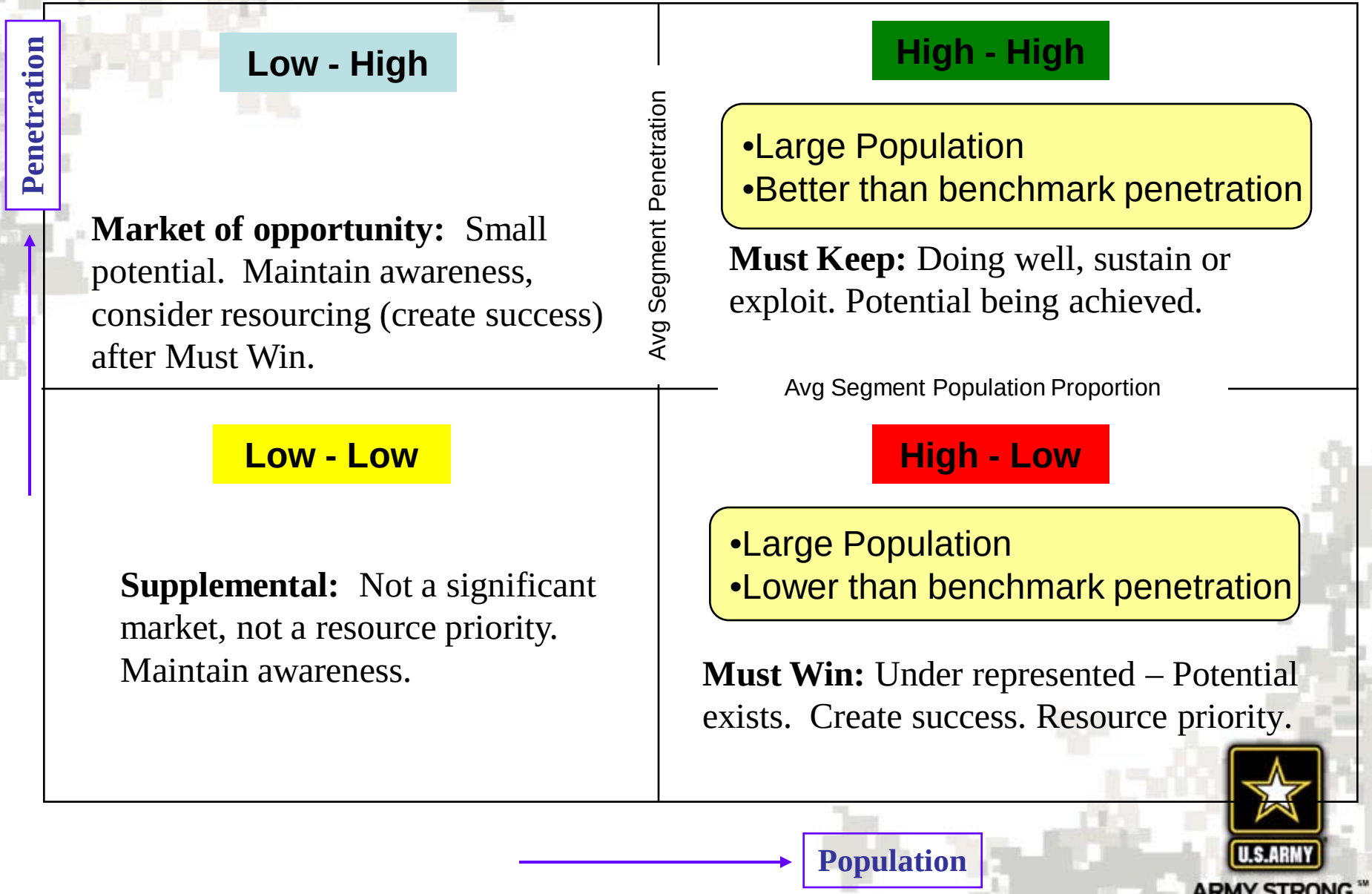
Allocate resources

Marketing

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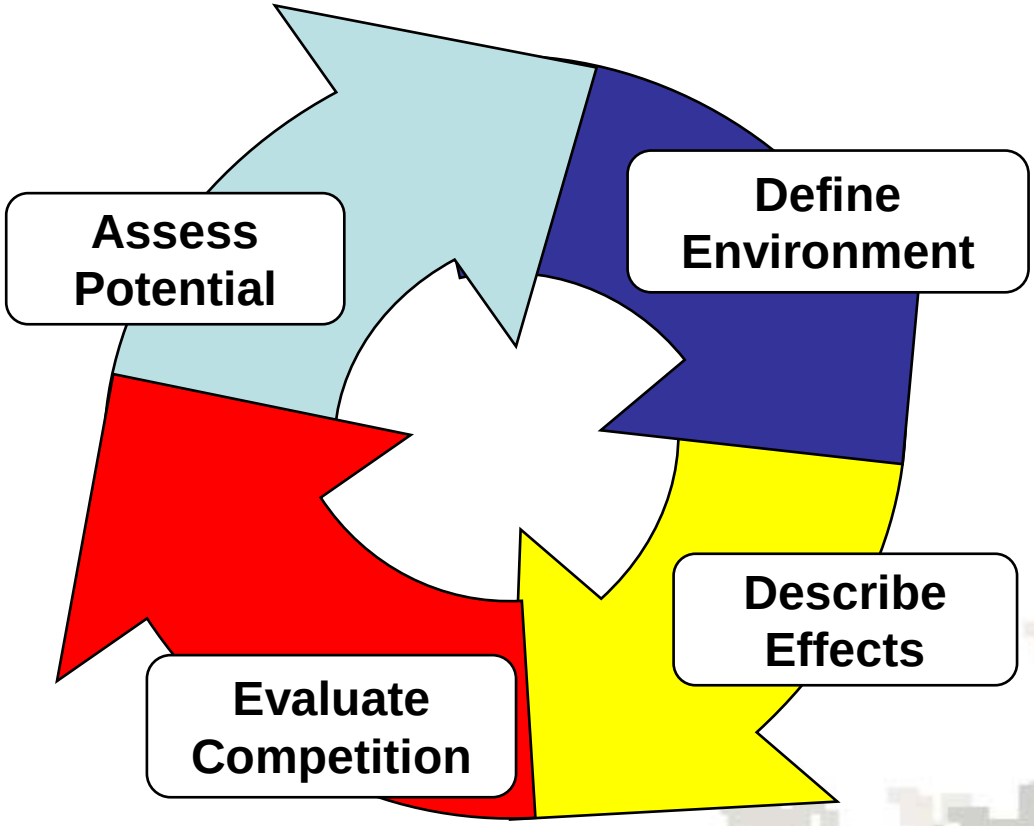
Market Types, Resourcing Strategy & Potential



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IPE: Assess Market Potential

Determine who is being recruited versus who is available to be recruited while considering competitive influences



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Assess Market Potential (Segment Index)

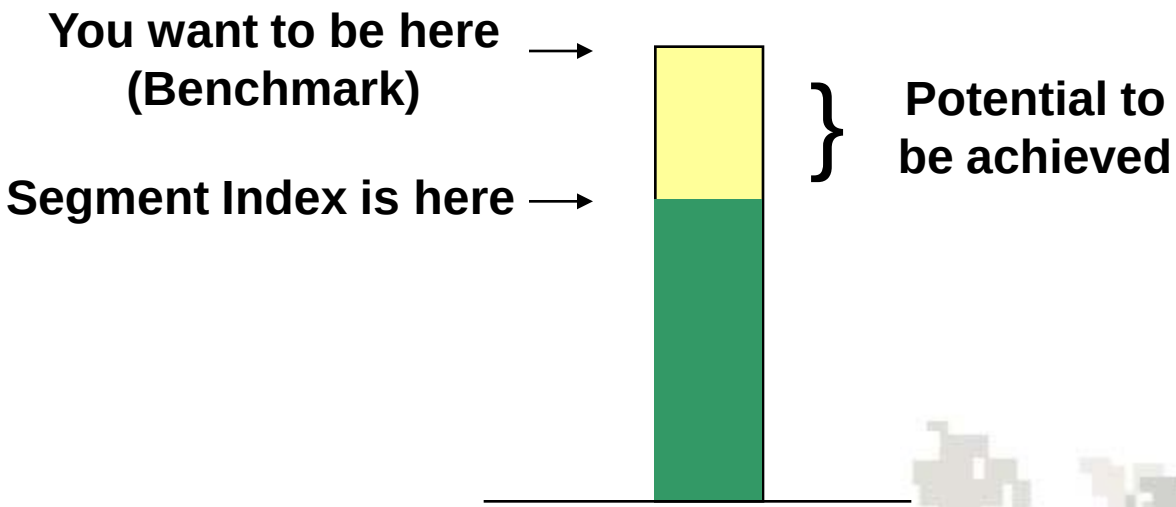
- a. For each category,
  - Crosswalk segment production with representation to calculate the Segment Index:

$$\text{Segment Index} = \frac{\text{Production by Segment}}{\text{Population by Segment}}$$

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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



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Assess Market Potential (cont) (Calculate Potential)

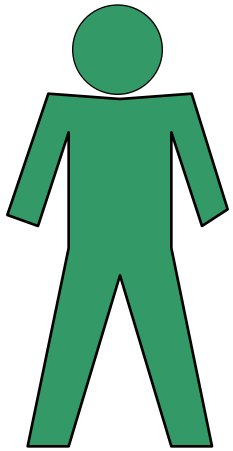
- c. For each category,
  - Determine potential for each segment by comparison with a benchmark index:
    - Segment Index < benchmark : Where can we improve (under-represented)
    - Segment Index > benchmark: Where can we exploit (over-represented)
- d. Determine beneficial markets by aggregating potential across categories
  - Determine dominant segments
  - Look for commonality for messaging across segments

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Segmentation & Messaging

Exposure
& Awareness

Attributes



Segments
- Demographic
- Lifestyle
- Psychographic

Resonate with a specific attribute of the prospect

Customized message

G-2 Web Q: Tactical Segment Report

PD	TS	TS SEQ#	%TS	%TS R	% PRD	% PRD R	AFC
200903	20	1	8.85	8.85	9.38		
200903	27	2	7.67	16.52	3.31		
200903	35	3	7.44	23.96	8.28		
200903	37	4	5.54	29.49	1.93		
200903	24	5	4.23	33.72	2.62		
200903	36	6	4.21	37.93	2.90		
200903	23	7	4.02	41.96	5.52		
200903	18	8	3.84	45.79	1.79		
200903	11	9	3.58	49.38	.55		
200903	03	10	3.38	52.75	3.59		
200903	NULL				26.21		
200903	20	1	8.85	8.85	9.38	9.38	
200903	35	3	7.44	16.29	8.28	17.66	
200903	23	7	4.02	20.31	5.52	23.17	
200903	25	21	1.71	22.02	4.00	27.17	
200903	03	10	3.38	25.39	3.59	30.76	
200903	04	26	1.57	26.96	3.59	34.34	
200903	27	2	7.67	34.63	3.31	37.66	
200903	36	6	4.21	38.84	2.90	40.55	
200903	24	5	4.23	43.07	2.62		

% PRD: %TS Production

TS – Tactical Segment 1-39

%TS – Percentage of that TS in the specified RSID

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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.

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SAMA Calculations

Station			
TS	Population	Contracts	Penetration
1			Contracts/Pop
2			
...			
39			

Company			
TS	Population	Contracts	Penetration
1			Contracts/Pop
2			
...			
39			

$$PotentialPenRate_{TS} = Max\left(PenRate_{RS}, PenRate_{RTC}\right)$$

ZIP 1			
TS	Potential Pen Rate	Population	E (V)
1			
2			
...			
39			
		TS Potential	Σ
Uncoded			
		Army Volume Potential	Σ

$$TotalArmyVolPot_{ZIP} = TSPotential_{ZIP} + 4YrAvgNotCoded_{ZIP}$$

ZIP Code Types and Strategies

	Total DoD Potential		**Army Share Of Potential**
Must Keep	>= 12	AND	>= 50%
Must Win	>= 12	AND	< 50%
Market of Opportunity	4 >= Total DoD Potential <12	-	-
Supplemental	< 4	-	-

- 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.

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Must KEEP Zip Code - Market Production Assessment

Note: Target Production Remaining having a Negative Value indicates that the Army Potential Production for that Zip Code has been exceeded.

Pct YTD Rctg Days: 41.02%

RSID	NAME / ZIP CODE	Total DoD Potential Data						YTD Market Share Data (As Of RCM: DEC)						Targeted Production (Army Prod As Of: 12-Feb-08)				
		TS TOTAL	NOT CODED	ARMY VOL POT	DoD (-) VOL	TOT DoD POT	ARMY SHARE OF POT	CAT	AR	AF	MC	NA	DoD	Army Tgt Prod	Tgt Prod Achv	% Tgt Prod Achv	Tgt Prod Remaining	% of Lead Line
1A1D	ALBANY																	
	12205	4	5.5	10	10	20	50.62%	Vol	2	0	2	1	5	10	2	20.01%	8	48.78%
									40.00%	0.00%	40.00%	20.00%						
								GA	0	0	0	0	0					
									0.00%	0.00%	0.00%	0.00%						
								SA	1	0	1	0	2					
									50.00%	0.00%	50.00%	0.00%						
	12203	17	1	18	5	23	79.23%	Vol	2	2	3	0	7	18	4	22.07%	14	53.81%
									28.57%	28.57%	42.86%	0.00%						
								GA	2	1	2	0	5					
									40.00%	20.00%	40.00%	0.00%						
								SA	0	1	0	0	1					
									0.00%	100.00%	0.00%	0.00%						
1A1D	ALBANY (2 Zip Codes)	22	7	28	15	43	64.93%	Vol	4	2	5	1	12	28	6	21.34%	22	52.02%
									33.33%	16.67%	41.67%	8.33%						
								GA	2	1	2	0	5					
									40.00%	20.00%	40.00%	0.00%						
								SA	1	1	1	0	3					
									33.33%	33.33%	33.33%	0.00%						
Total	(2 Zip Codes)	22	7	28	15	43	65.98%	Vol	4	2	5	1	12	28	6	21.34%	22	52.02%
									33.33%	16.67%	41.67%	8.33%						
								GA	2	1	2	0	5					
									40.00%	20.00%	40.00%	0.00%						
								SA	1	1	1	0	3					
									33.33%	33.33%	33.33%	0.00%						

SAMA – Tactical Segmentation Report

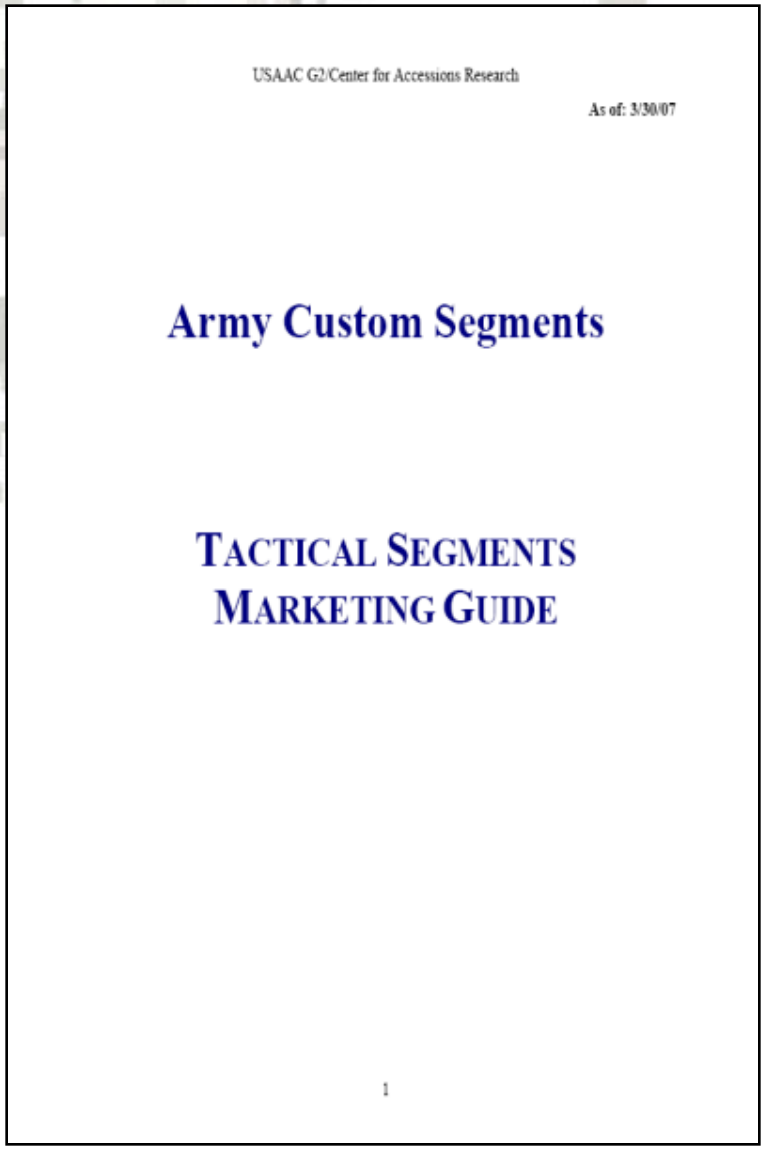
Tactical Segmentation Market Report **Recruiting Year 2009**

As Of: 22-Apr-2009

1G - USA RCTG BN NEW YORK CTY

Tactical Segment	Strategic Segment	Ts Population	Ts Population Percent	YTD Production	YTD Production Percent	Current Index	YTD Production Previous Yr	YTD Production Previous Yr Percent	YTD Production Previous Yr Index	Average Production 4 Yr	Average Production 4 Yr Percent	Average Production 4 Yr Index
01	01	22,405.97	1.59%	6	0.98%	0.62	3	0.45%	0.28	4	0.51%	0.32
02	01	12,041.91	0.86%	2	0.33%	0.38	0	0.00%	0.00	0	0.00%	0.00
03	02	5,216.45	0.37%	4	0.66%	1.77	1	0.15%	0.40	0.25	0.03%	0.09
04	02	8,394.91	0.60%	0	0.00%	0.00	0	0.00%	0.00	0	0.00%	0.00
05	02	52,047.79	3.70%	0	0.00%	0.00	0	0.00%	0.00	0	0.00%	0.00
06	02	11,949.09	0.85%	1	0.16%	0.19	0	0.00%	0.00	0	0.00%	0.00
07	02	69,246.42	4.92%	8	1.31%	0.27	0	0.00%	0.00	1	0.13%	0.03
08	03	100,325.01	7.13%	0	0.00%	0.00	0	0.00%	0.00	0	0.00%	0.00
09	03	6,516.64	0.46%	3	0.49%	1.06	2	0.30%	0.65	1.75	0.22%	0.49
10	03	3,314.97	0.24%	0	0.00%	0.00	0	0.00%	0.00	0	0.00%	0.00
11	03	179,607.08	12.77%	0	0.00%	0.00	0	0.00%	0.00	0	0.00%	0.00
12	03	33,872.15	2.41%	17	2.79%	1.16	4	0.60%	0.25	5	0.64%	0.27
13	03	20,656.79	1.47%	2	0.33%	0.22	1	0.15%	0.10	1.75	0.22%	0.15
14	04	2,323.93	0.17%	4	0.66%	3.97	0	0.00%	0.00	0.25	0.03%	0.19

Army Custom Segments


USAAC G2/Center for Accessions Research

As of: 3/30/07

Army Custom Segments

TACTICAL SEGMENTS
MARKETING GUIDE

1

Send

- *the **right message***
- *in the **right medium***
- *to the **right target***
- *at the **right time.***

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Backup



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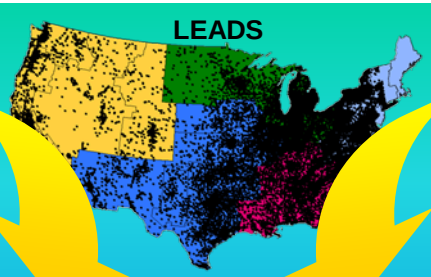
Why Segment?

- 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

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Market Intelligence in Recruiting
Synchronizing Efforts through Segmentation







National
- Generate Awareness
- Increase Interest
- Generate Leads

Brigade
- Plan Recruiting Ops
- ID Priority of Effort
- Develop Marketing Plans

MARKETING

OPERATIONS

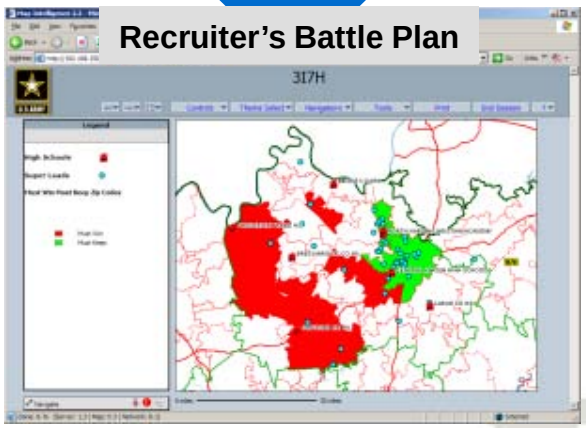
Develop & Refine Leads
Priority Model
LRC
Super Leads

Local
- Communicate the Army Message
- Develop Community Relations
- Develop COIs & Partners

Battalion
- Plan Recruiting Ops
- ID Must Win/Must Keep ZIPs & Schools
- Develop Local Events

Events, Partnerships, COIs, PR
- Provide face-to-face interaction
- Create a positive experience
- Generate Leads

Station
- Develop Detailed Prospecting Plans
- Execute Local Events
- Gather HS Lists
- 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

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Snapshot: ACS Tactical Segment 1

Hispanic 16-20 HS and early college students from mid to low economic status.

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

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.”

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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!

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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

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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

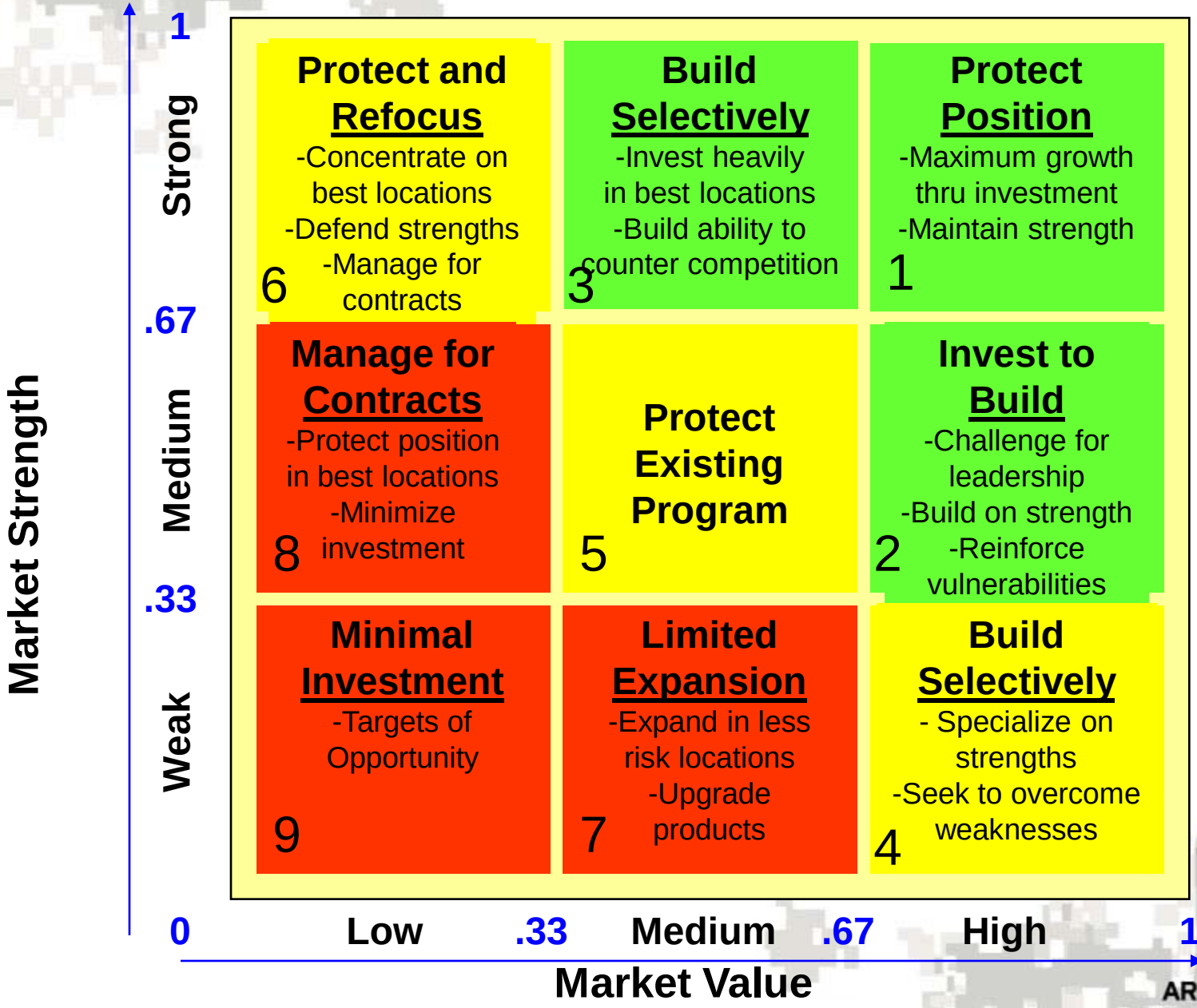
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Target Board Intent

- 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

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Recruiting Market Strategic Targeting Matrix (STarMat)



Adapted from "Analysis for Strategic Decision Making", George Day

STarMat and Must Win/Must Keep

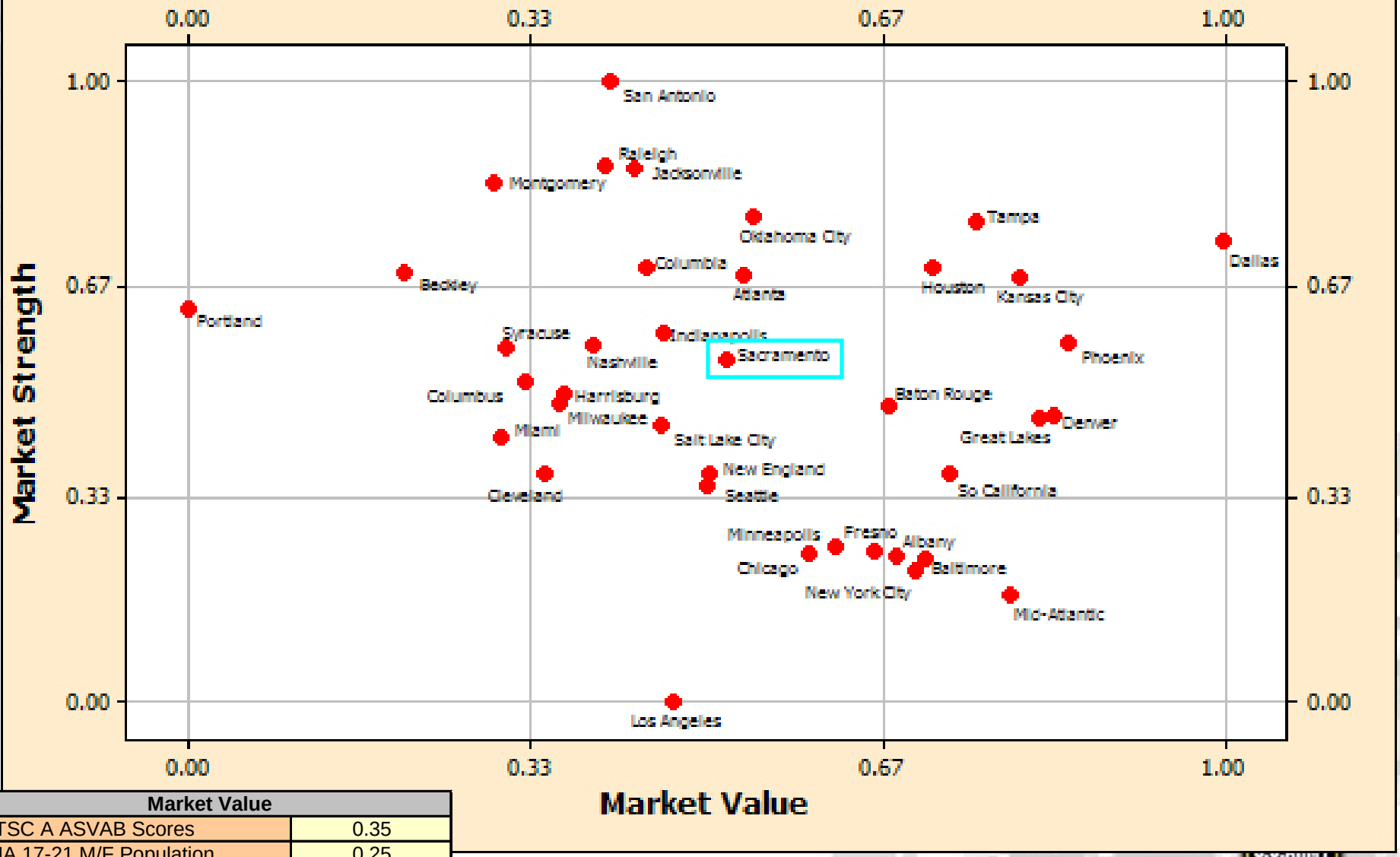


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Market Strength	
% Gross Mission Accomplishment	0.50
% Army Market Share	0.20
DOD Penetration	0.30

Priorities		
6	3	1
8	5	2
9	7	4

COA #3: Matrix Plot of Market Value vs Market Strength

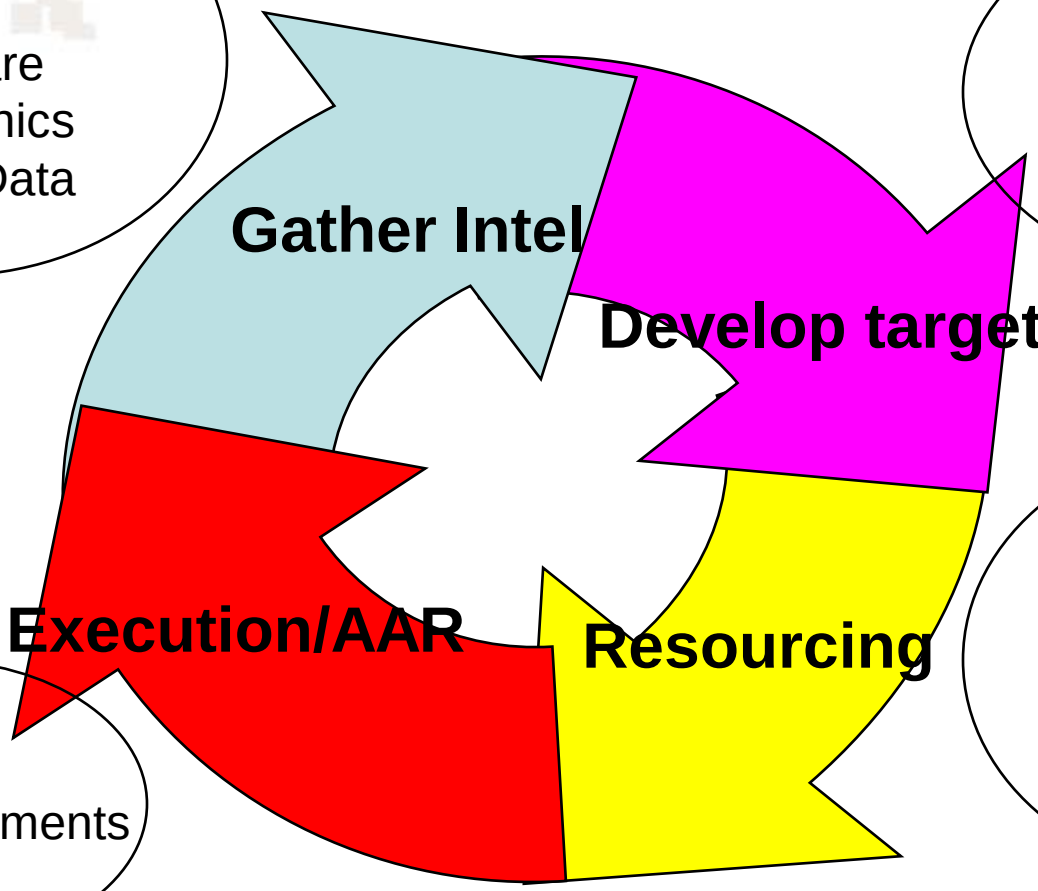


Market Value	
% TSC A ASVAB Scores	0.35
QMA 17-21 M/F Population	0.25
% Propensed (Potential)	0.40

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Targeting Cycle

- USAREC Targeting Board
- Market share
- Demographics
- Historical Data



- Identify Targets/Events
- Identify HS/Colleges
- Message/ Programs (Smart)

- USAREC Assets
- BDE/BN Assets
- ADSW, TAIR,ECT
- AD Dollars
- PSA
- Radio Interview

- ROI
- Goals
- Achievements
- AAR

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SAMA Calculations



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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:

$$PotentialPenRate_{TS} = \frac{4\text{YrAvgContracts}_{TS}}{TSPop_{TS}}$$

- For each TS, determine the best rate by comparing the RS to RTC:

$$BestPotentialPenRate_{TS} = Max\left(PotentialPenRate_{RS}, PotentialPenRate_{RTC}\right)$$

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Step 2: Determine the Army Volume Potential for each TS by ZIP

- Multiply the BestPotentiaPenRate by the TS Population for each TS by ZIP

$$TSPotential_{ZIP} = \sum_{TS=1}^{39} BestPotentialPenRate_{TS} * TSPop_{ZIP,TS}$$

- Determine the 4 year average uncoded contracts
- Calculate Army Volume Potential

$$ArmyVolumePotential_{ZIP} = TSPotential_{ZIP} + 4YrAvgNotCoded_{ZIP}$$

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Step 3: Determine the Army Share of Dod Volume Potential for each ZIP

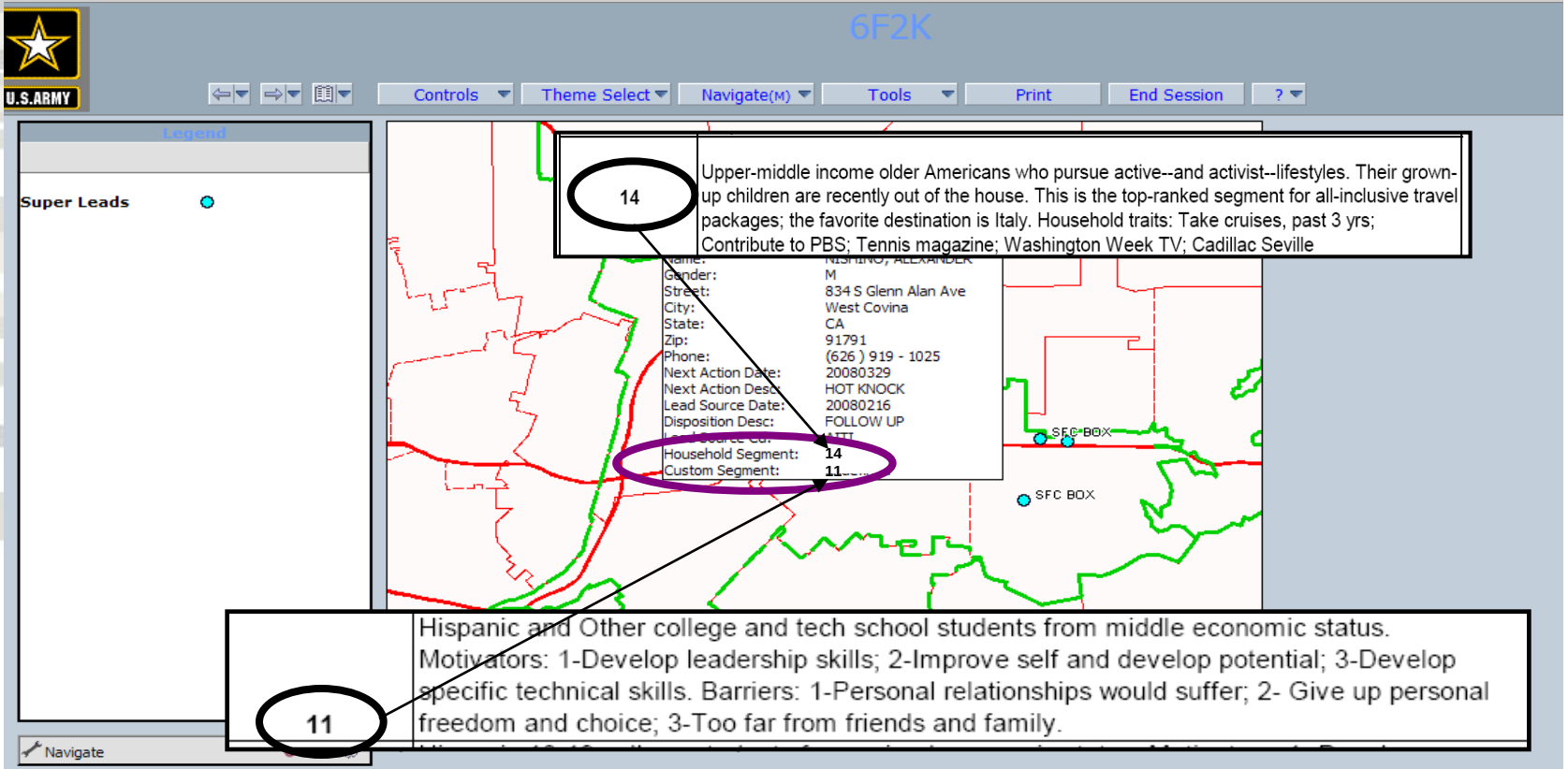
- Calculate 4 year average Other DoD Volume
- Calculate the Total DoD Volume Potential

Total DoD Potential = Army Vol Potential + Other DoD Volume

- Calculate the Army Share of the Total DoD Volume Potential

$$\text{Army Share of Potential} = \frac{\text{Army Vol Potential}}{\text{Total DoD Potential}}$$

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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.

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Spatial Analysis
in brief

Elizabeth Hagensen
Center for Accessions Research
USAAC G2/9

What is spatial analysis?

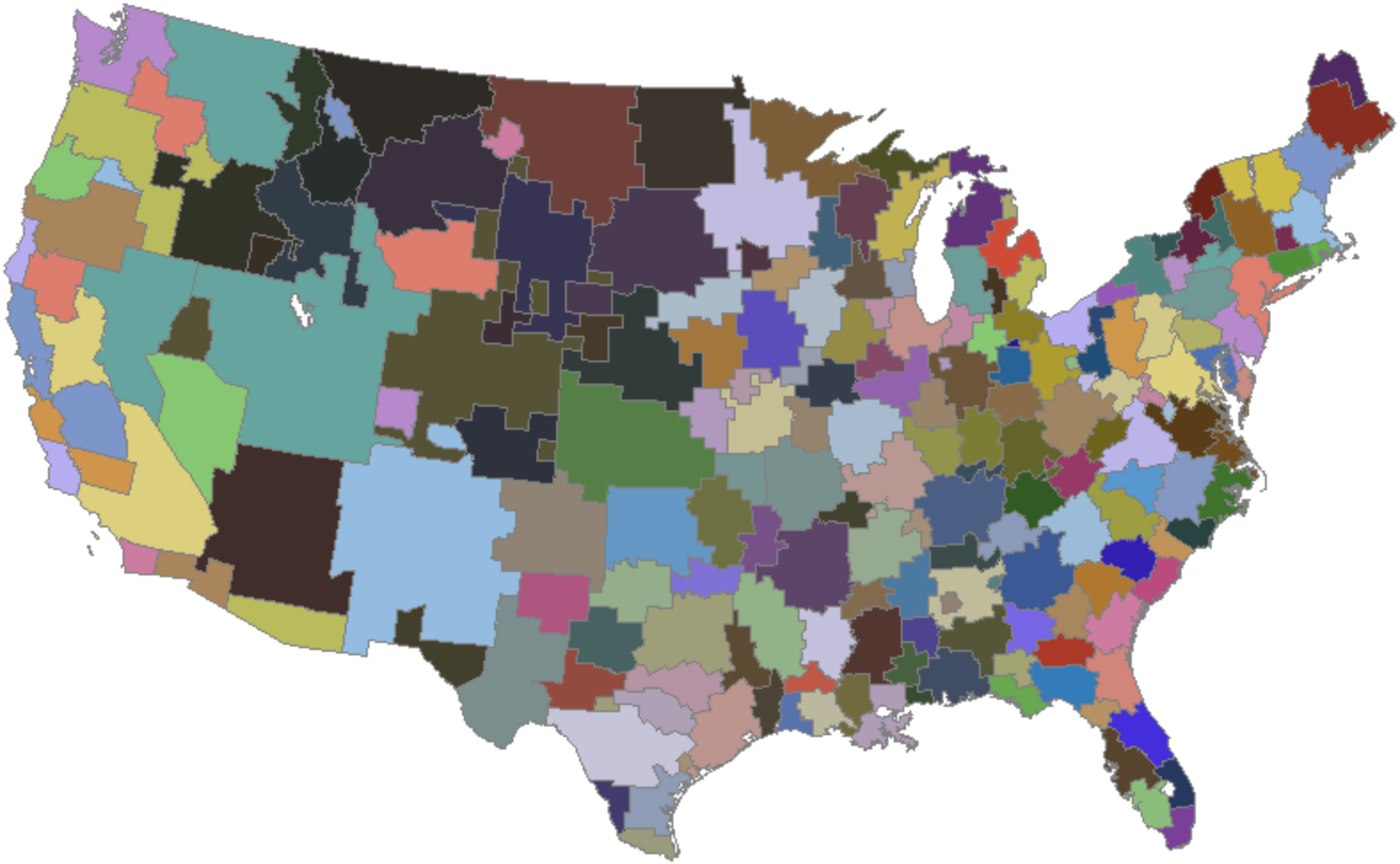
An empirical examination of the relationship between a phenomenon and place

- 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

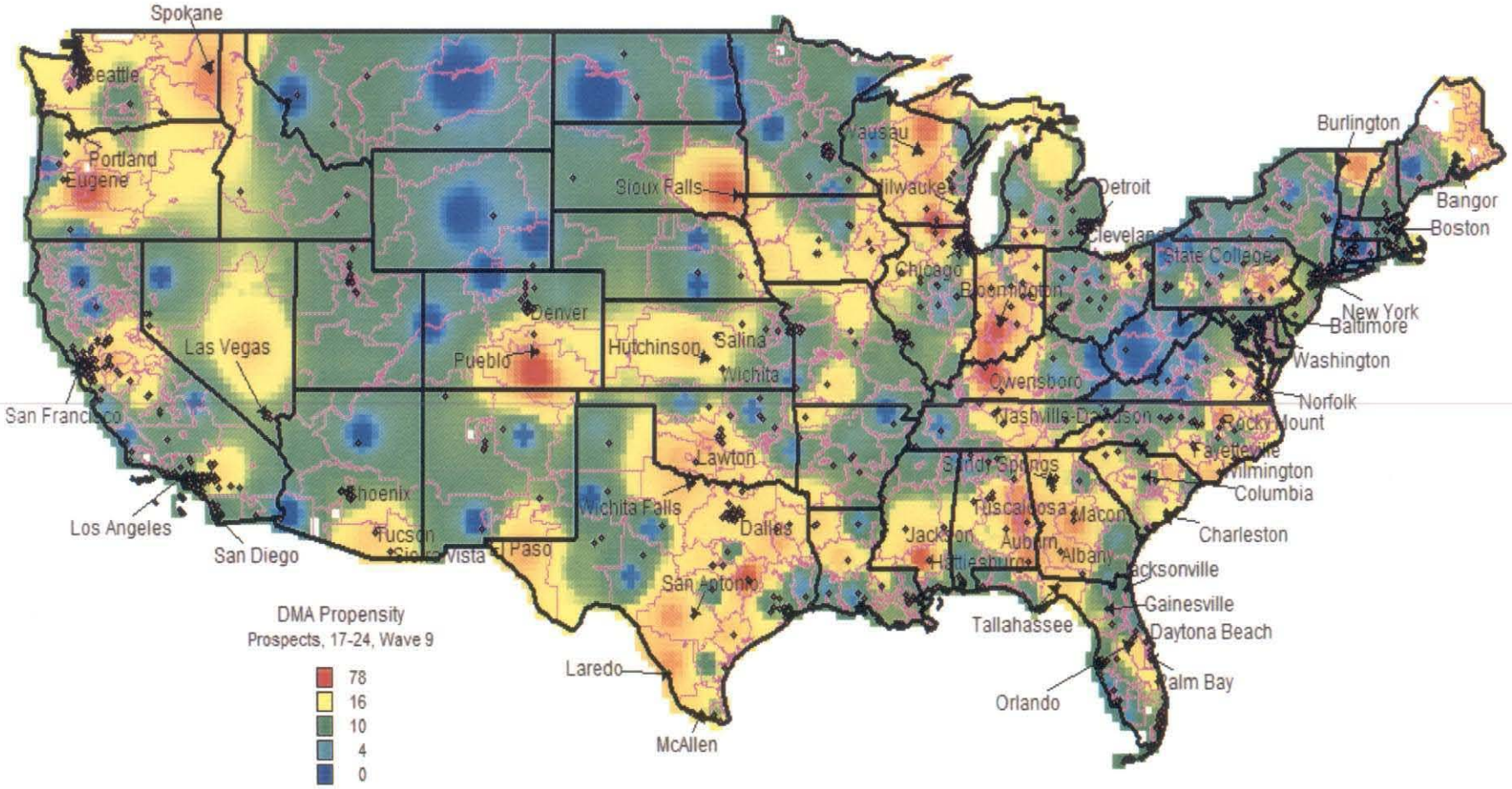
- Brief overview of spatial analysis
- Brief overview of ‘special considerations’
- Questions

[redacted] Boundary Map

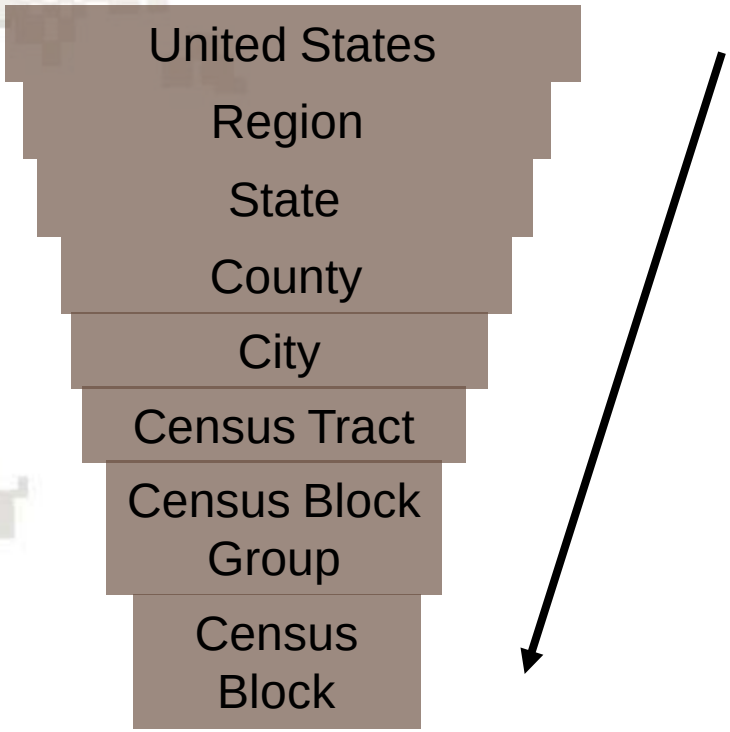


Basic terminology

- Enumeration units
- Aggregate
- Autocorrelation
- Interpolation
- Hotspots
- Raster/vector data types
- Adjacency
- MAUP
- Buffer
- Local
- Global
- Point, line, polygon
- Attribute
- Classification


Spokane
Seattle
Portland
Eugene
Sioux Falls
Wausau
Milwaukee
Detroit
Cleveland
Burlington
Bangor
Boston
State College
Chicago
Bloomington
New York
Baltimore
Washington
Norfolk
Rocky Mount
Fayetteville
Wilmington
Columbia
Charleston
Jacksonville
Gainesville
Daytona Beach
Palm Bay
Orlando
Tallahassee
Macon
Albany
Auburn
Jackson
Tuscaloosa
Shreveport
Nashville-Davidson
Owensboro
Denver
Pueblo
Hutchinson
Salina
Wichita
Las Vegas
San Francisco
Los Angeles
San Diego
Phoenix
Tucson
Sierra Vista
El Paso
Lawton
Wichita Falls
Dallas
San Antonio
Laredo
McAllen
DMA Propensity
Prospects, 17-24, Wave 9
78
16
10
4
0

Geographic Hierarchy



Scale

&

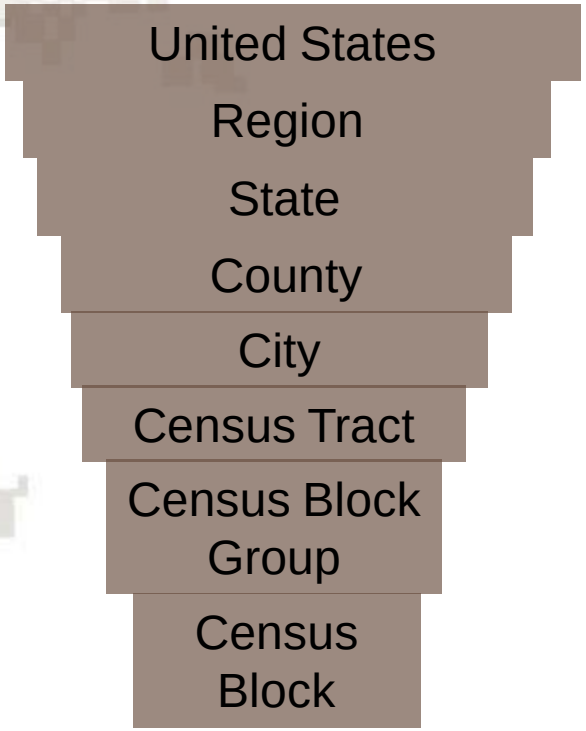
Precision

Modifiable Areal Unit Problem

The arbitrary and modifiable nature of area units can influence observed values, analysis, and modeling results

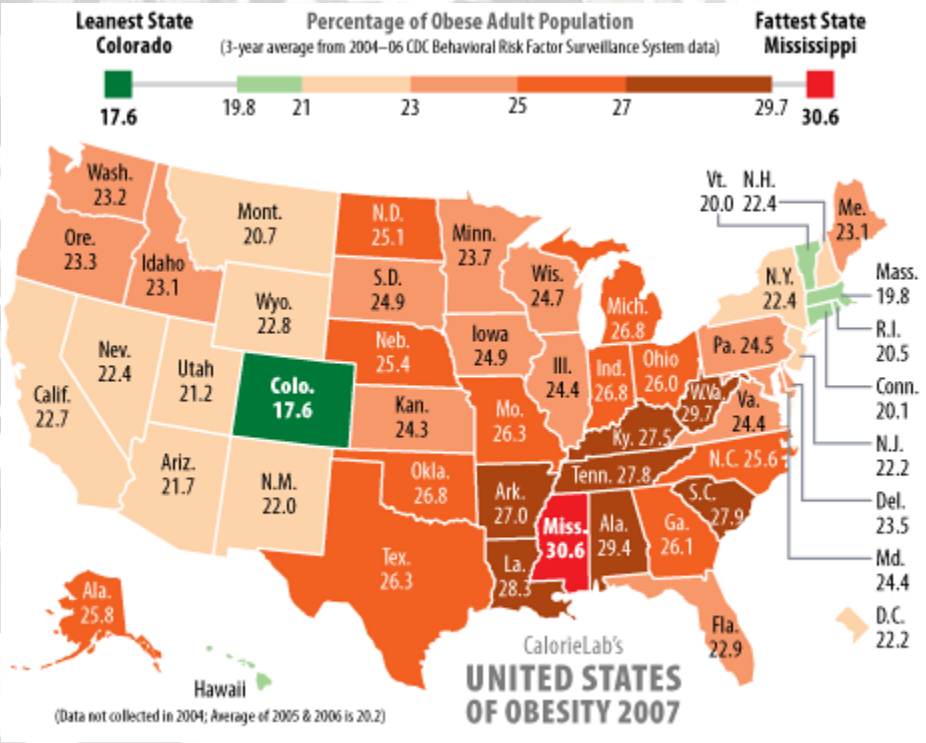
Scale:	homogeneity of variance assumed across large enumeration units; exaggerated distributions; conceal underlying patterns
Boundary:	Arbitrary; can overlap Physical Social Geopolitical Hierarchical = nested
Pattern:	Assumes even distribution across place Assumes uniform directionality Do not abruptly end at boundary end

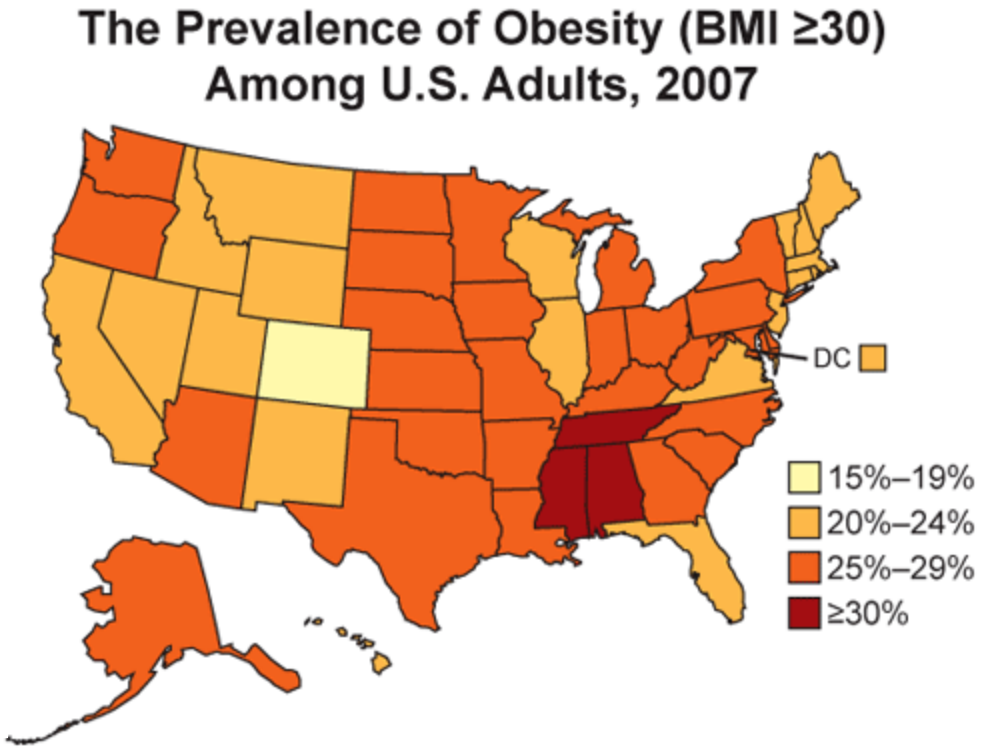
Geographic Hierarchy



Facts at this level

may not be true at this level







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Classification

- Unique Values
- Equal Interval
- Equal Frequency
- Natural Breaks (Jenks)
- Standard Deviation
- Manual

Best Practices

No less than four

No more than six

Logical divisions of data

No empty classes

Mutually exclusive

All exhaustive

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: compactness
  - 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

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_o, H_a)

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Human Research Protection Refresher Training

2009 Accessions Research Consortium (ARC) Hampton, Virginia 1-3 September 2009

Purpose & Outline

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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

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I. Background: The Common Rule 32 CFR 219

Common Rule Subparts

32 CFR 219 – Policy for Protection of Human Research Subjects, 18 June 1991

- **The Common Rule**, "Federal Policy for the Protection of Human Subjects," Subpart A
- **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

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- **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

ARMY STRONG[sm]

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

ARMY STRONG[sm]

- 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"**

ARMY STRONG[sm]

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

ARMY STRONG[sm]

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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Email: melanie.clark@usaac.army.mil
melanie.newton.clark@us.army.mil

Army Accessions Research Consortium

Neural Networks in Selection Research

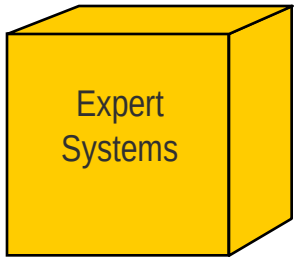
David J. Scarborough, Ph.D.

Scientist at Large

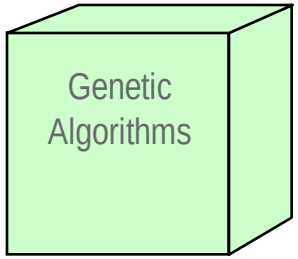
Kronos Hiring Solutions Group

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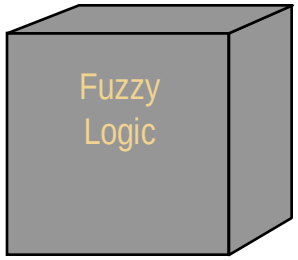
Current applications of artificial intelligence



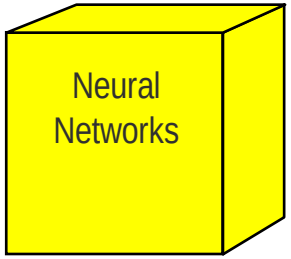
Logistics planning, internet routing, financial analysis, credit rating, customer service decision support, commodities trading, computer aided design and manufacturing, ***employee selection***, ***psychological assessment interpretation***, medical diagnosis, air traffic control, inertial navigation, software help and installation programs, software engineering



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



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

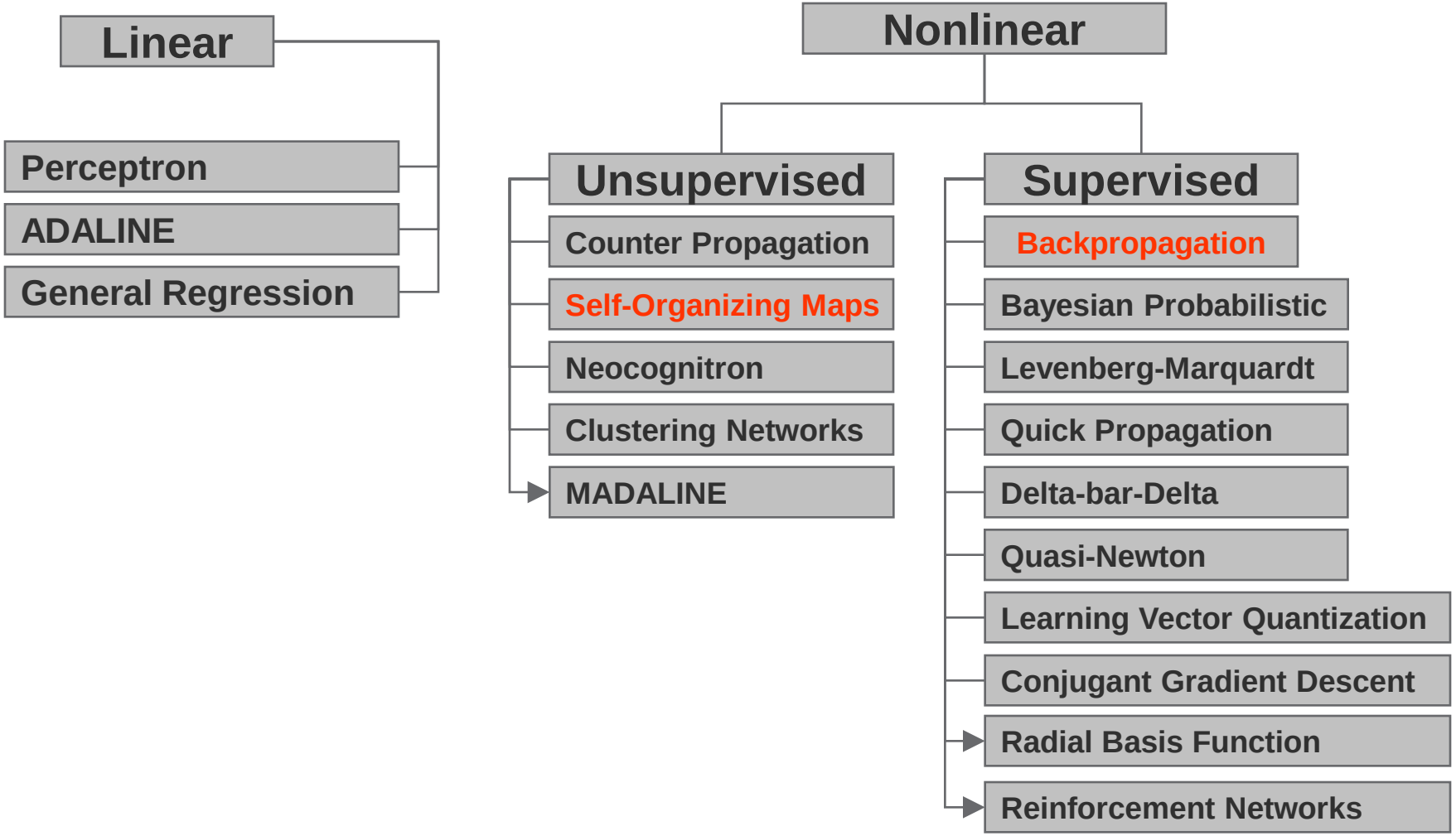


Actuarial risk assessment, marketing research, missile guidance systems, DNA sequencing, satellite and sonar imaging, investment analysis, voice and handwriting recognition, manufacturing, scheduling, quality control, real-time process control, currency arbitrage, commodities trading, airline route scheduling, policy analysis, medical diagnosis, horse racing, gambling, ***employee selection***, child abuse risk assessment

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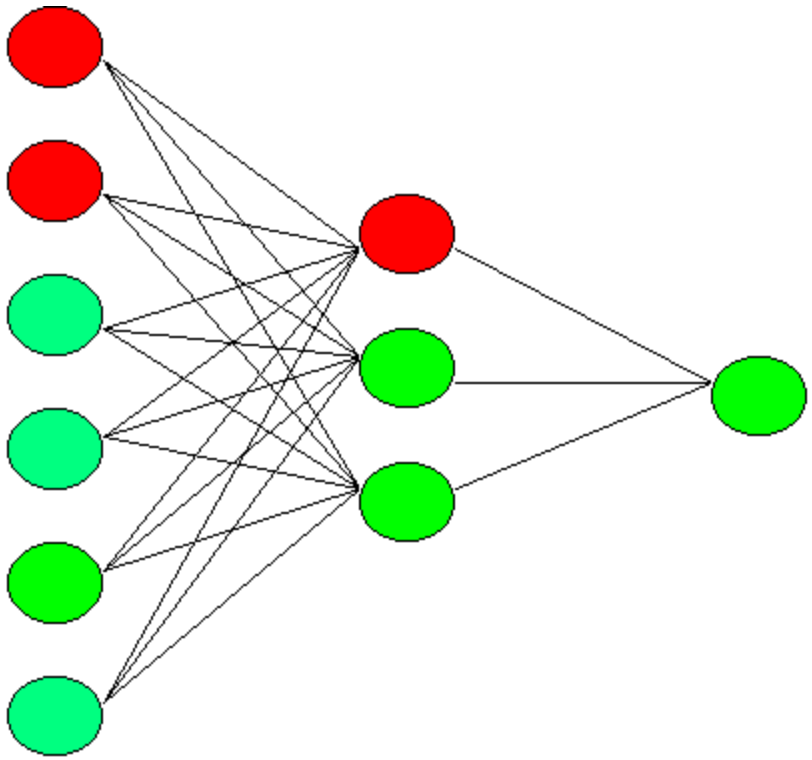
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Types of feed-forward networks



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Types of modern neural nets: Feed forward networks



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.

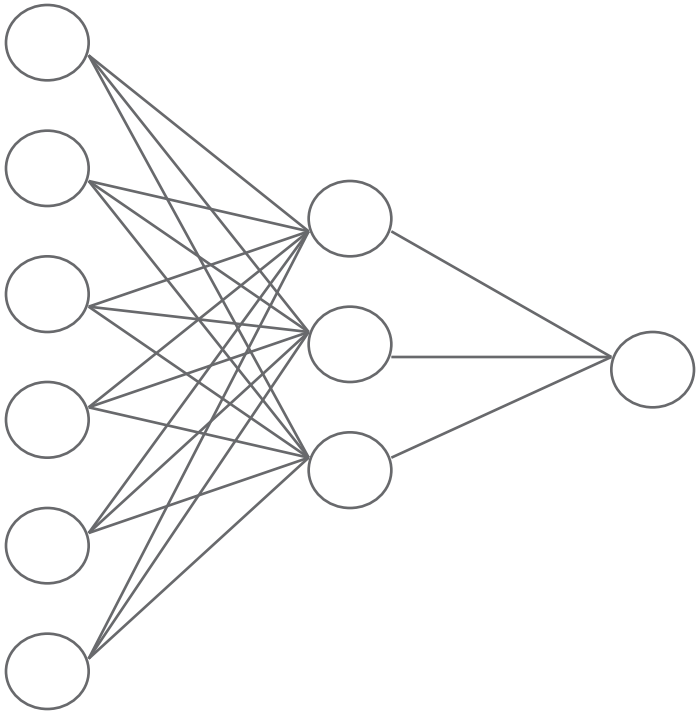
In feed forward networks data flow is in one direction, from input to output. Connection weights and node outputs are independent of values in successive nodes.

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Using neural nets for employee selection

Input Predictors

- Experience
- Ability
- Attitudes
- Personality
- Biodata



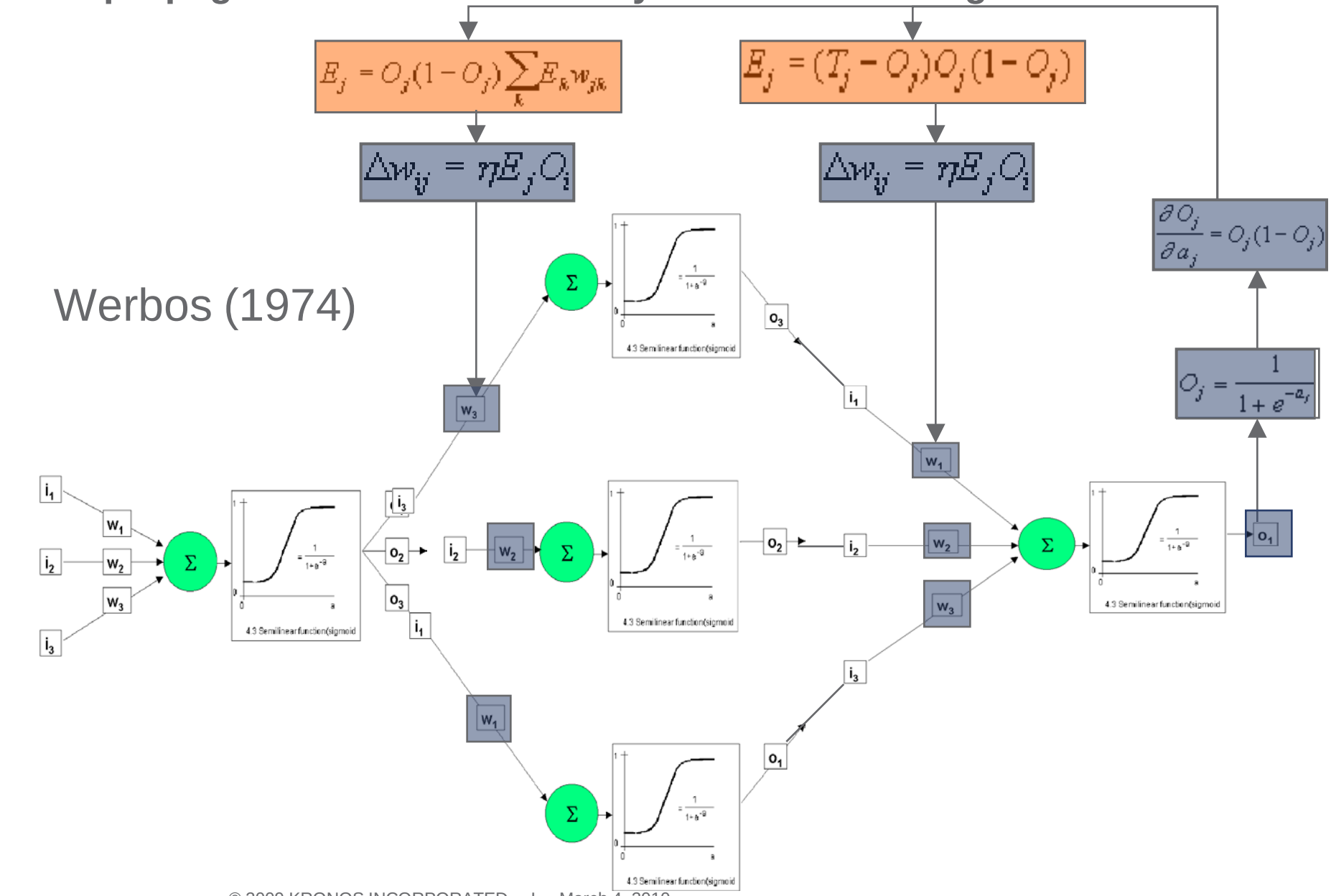
Output Criteria

- ☑ Performance
- ☑ Tenure
- ☑ Reliability
- ☑ Delinquency

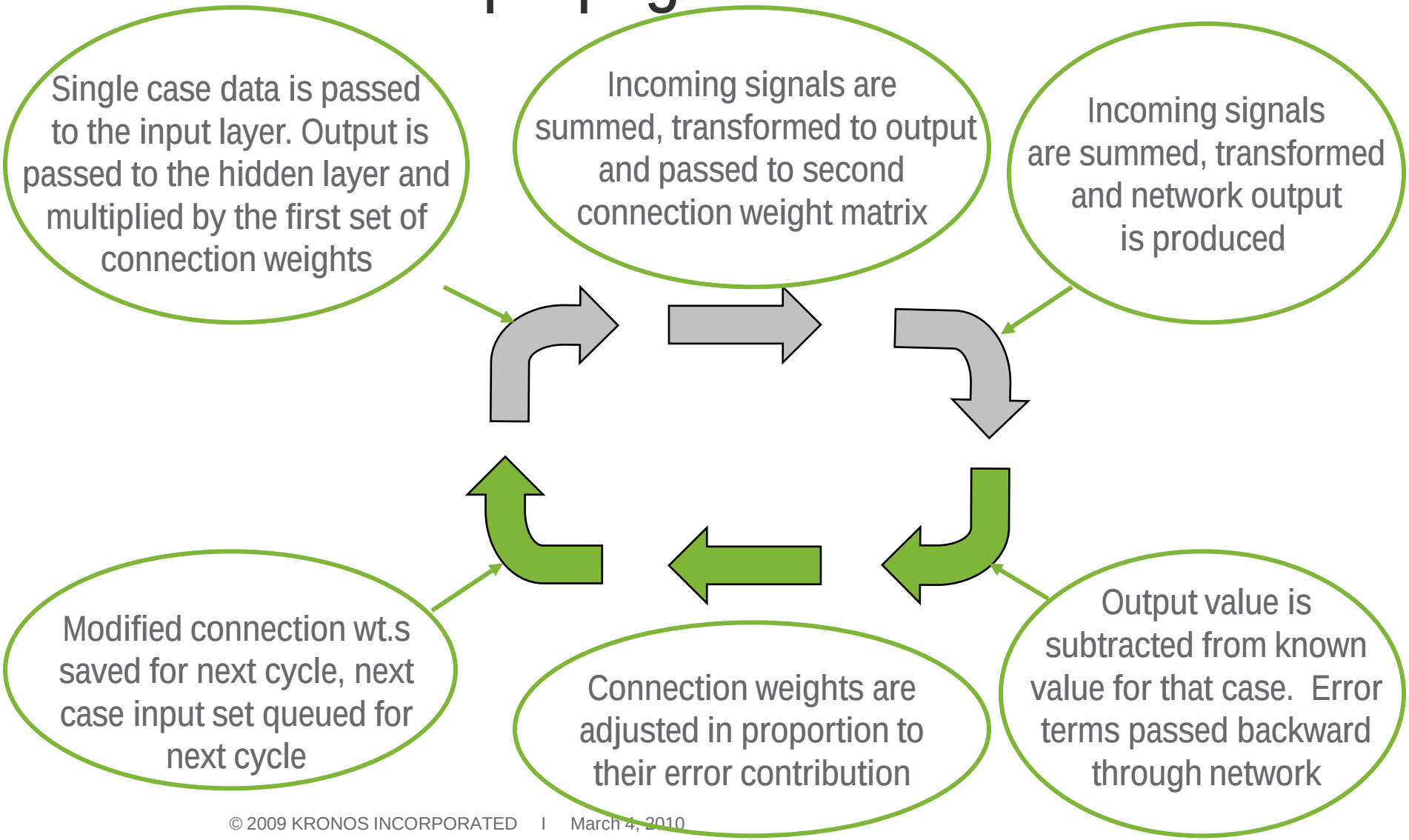
Scarborough, D. 1995. *An evaluation of backpropagation neural network modeling as an alternative methodology for criterion validation of employee selection testing*. Doctoral dissertation, University of North Texas.

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Backpropagation of error to modify hidden node weights

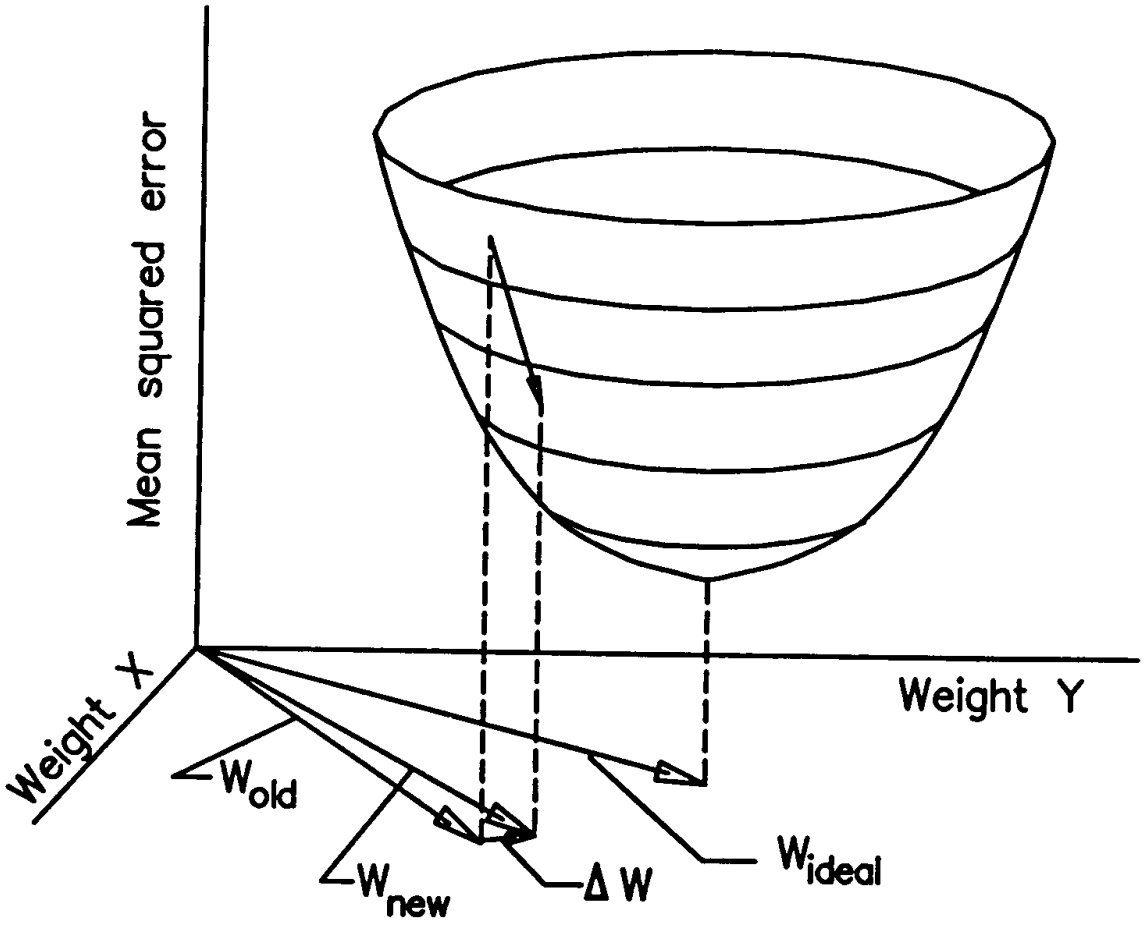


Training cycle for a three-layer backpropagation network



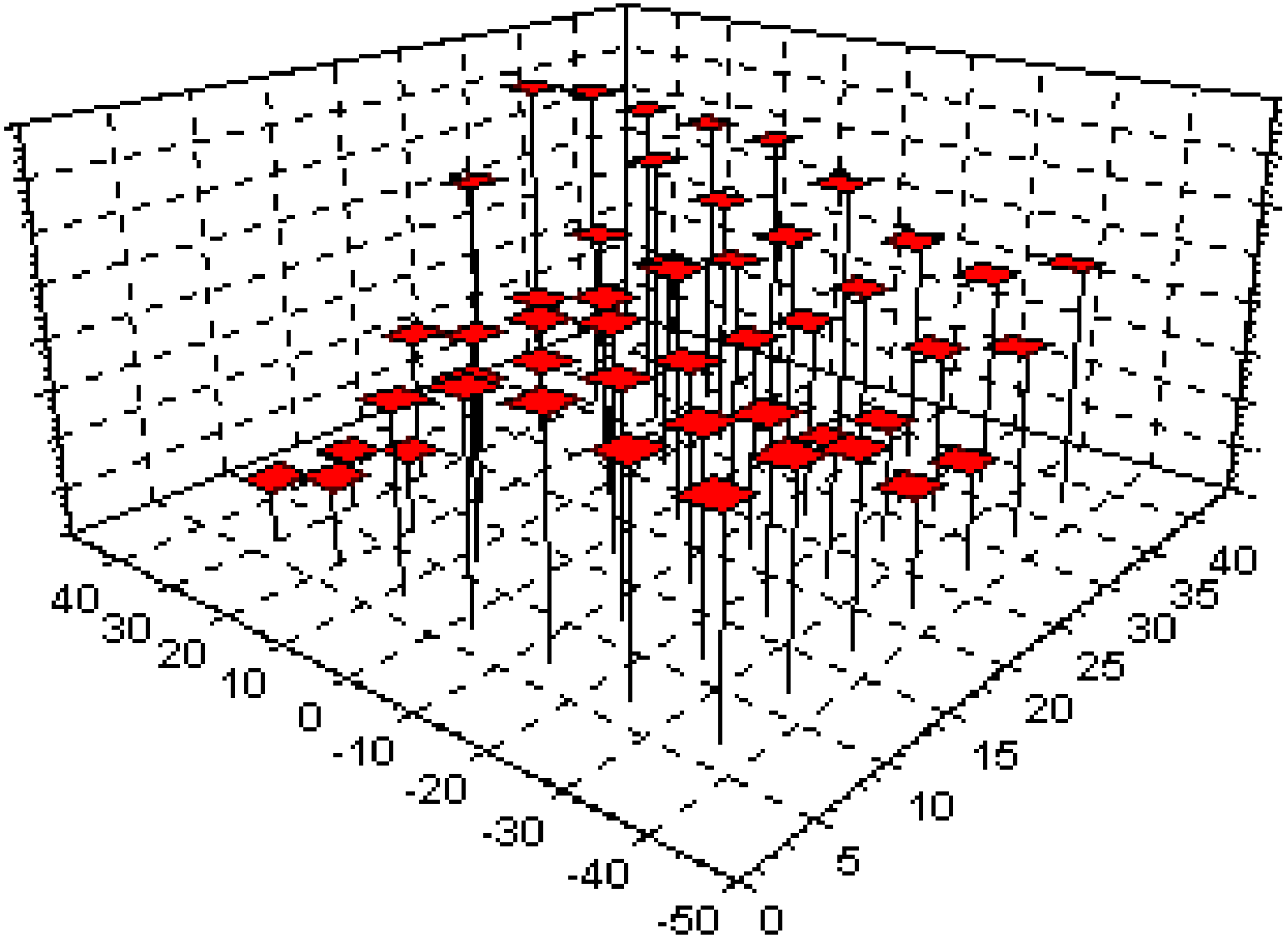
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Geometric representation of gradient descent algorithm toward lowest mean squared error solution



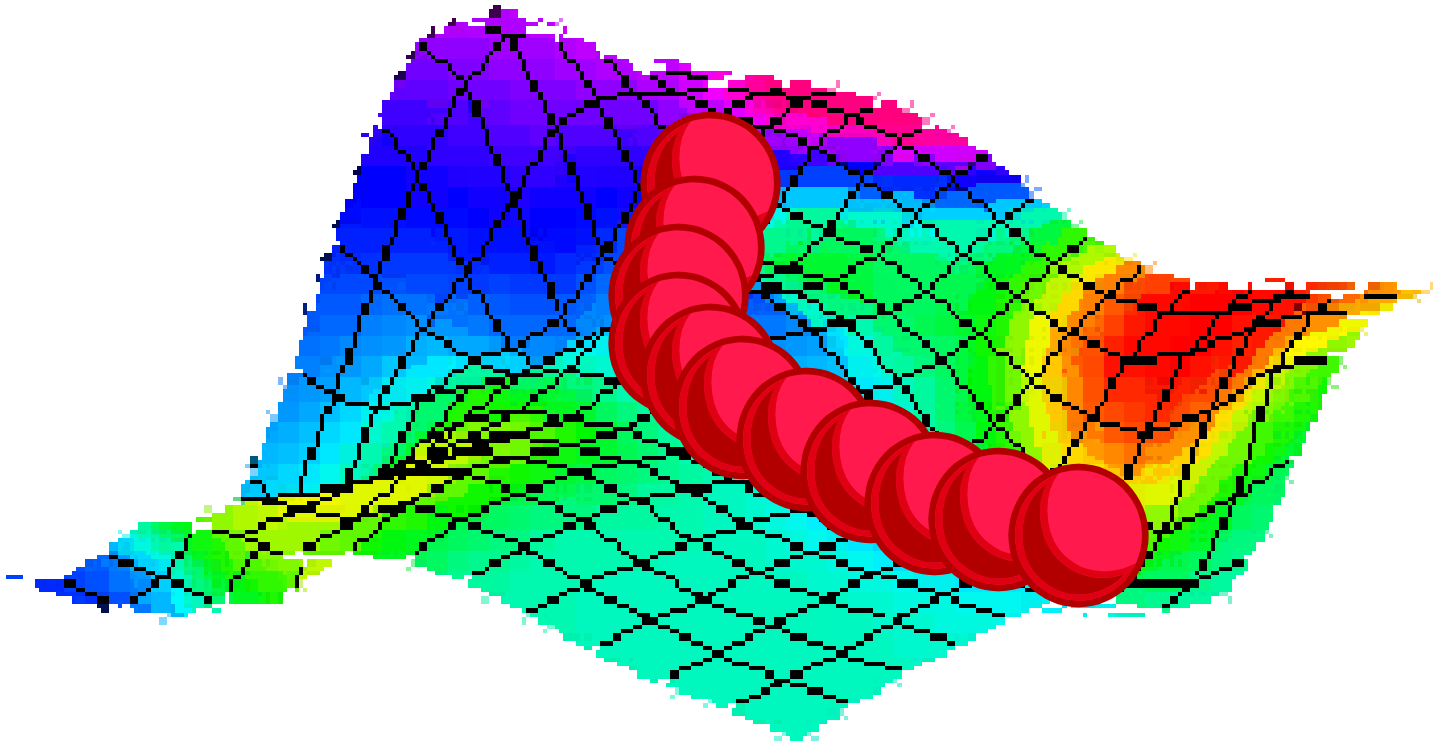
Gradient descent of the connection weight matrix under the Delta rule (Caudill and Butler 1990).

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Energy surface

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Gradient descent of weight matrix on the energy surface

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In the social sciences, neural nets can be applied to:

Classification

Sorting people or objects into categories using measures of defining characteristics

Statistical corollaries:

Discriminant analysis

Multi-dimensional scaling

Cluster analysis

Ranking

Identifying the ordinal position of people or objects on an unknown independent variable using related dependent variables

Statistical corollaries:

Non-parametric rank correlation analysis

Kruskal-Wallace rank sum test

Prediction

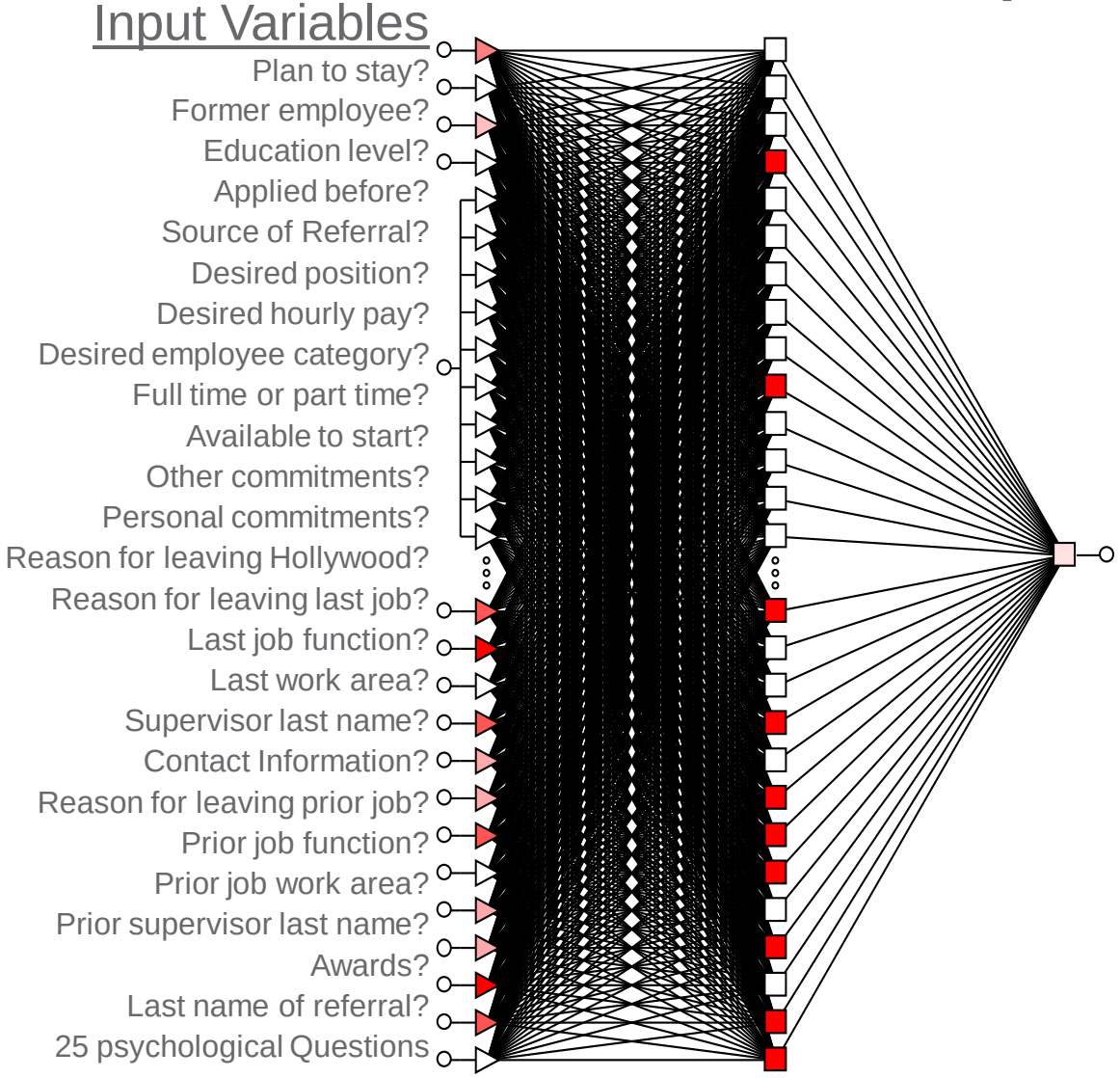
Estimating the amount of an unknown independent variable using related dependent variables

Statistical corollaries:

- Linear and nonlinear multiple regression
- Structural equation modeling

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A neural model trained to estimate tenure in days of video rental service personnel



Quickprop network
47 input variables
36 hidden layer nodes
1 output node
Activation: hyperbolic tangent function
3000 Training epochs

Output = Tenure in days

Performance on New Data

Error Mean: 39.9388

Correlation with Tenure: 0.5151

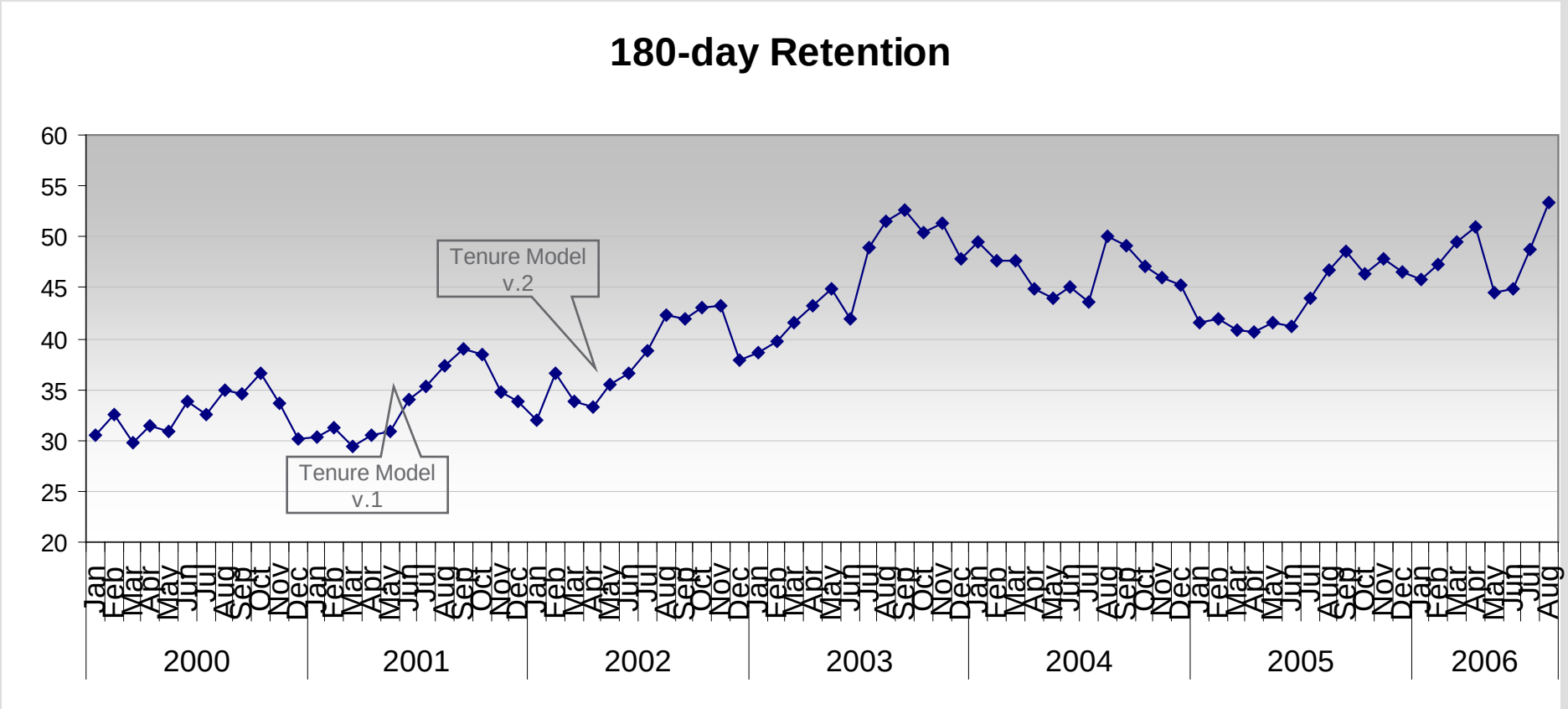
Significance ($p<0.01$)

Development Sample N=2495

Independent test sample N = 600

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ANN Tenure Model #2- Longitudinal trend on average length of service



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3. You sometimes find it hard to make upyou 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 ce

Experimental Item Storage

Term code prediction (accept/reject)

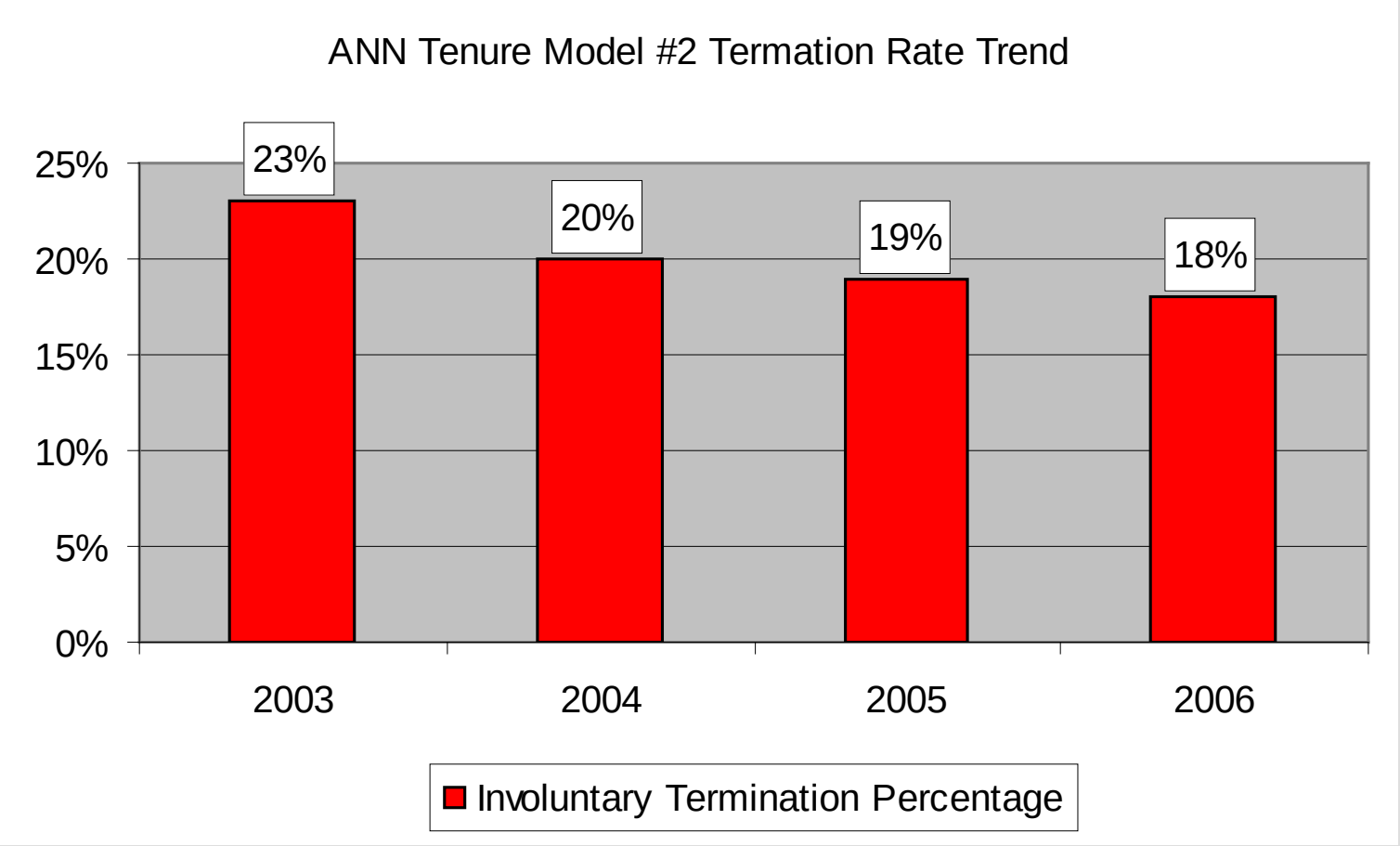
Tenure prediction

Output Threshold values:
Term Code Reject = Red
Term code Accept +Tenure Reject = Yellow
Term code Accept +Tenure Accept = Green

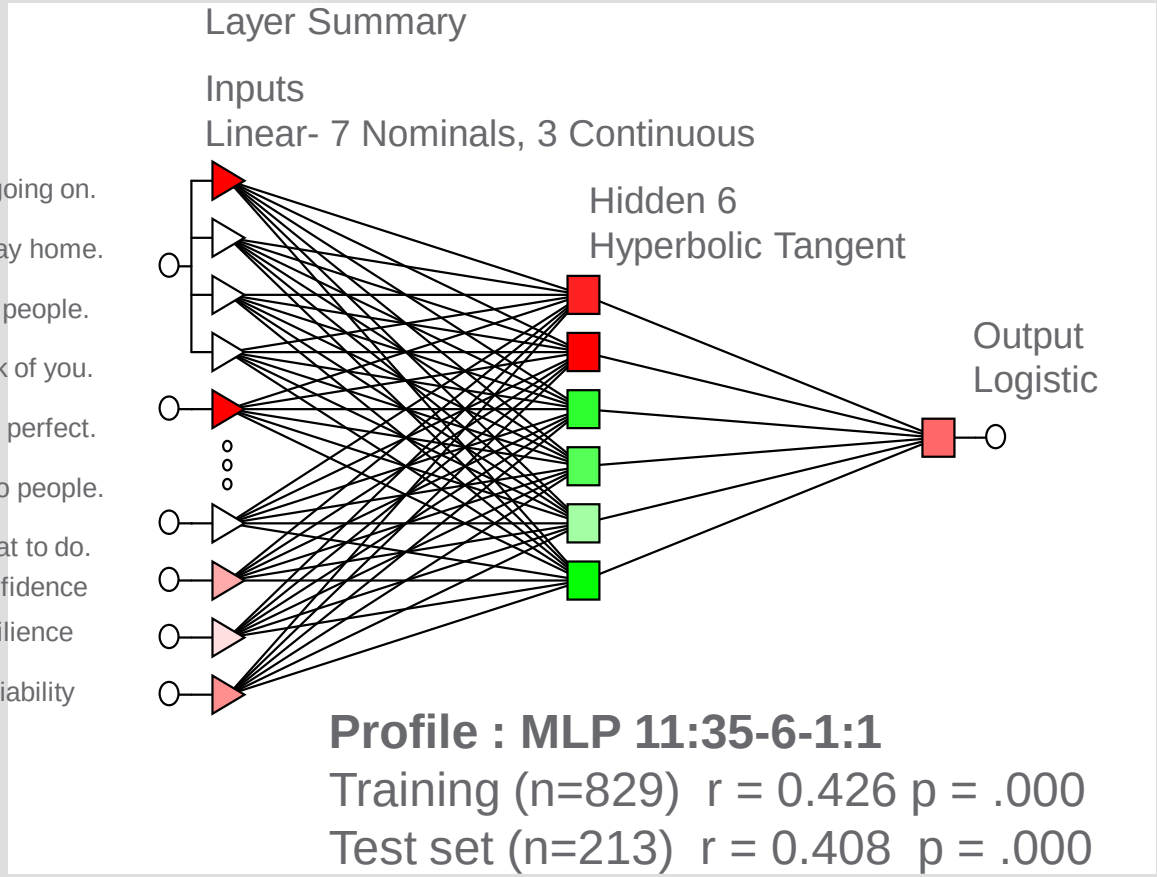
When deployed, each incoming applicant assessment record will be parsed and computationally pre-processed for presentation to the neural engine. Each neural net will produce a prediction that will be combined and converted to a traditional Red/Yellow/Green score output that can be normed by client and industry.

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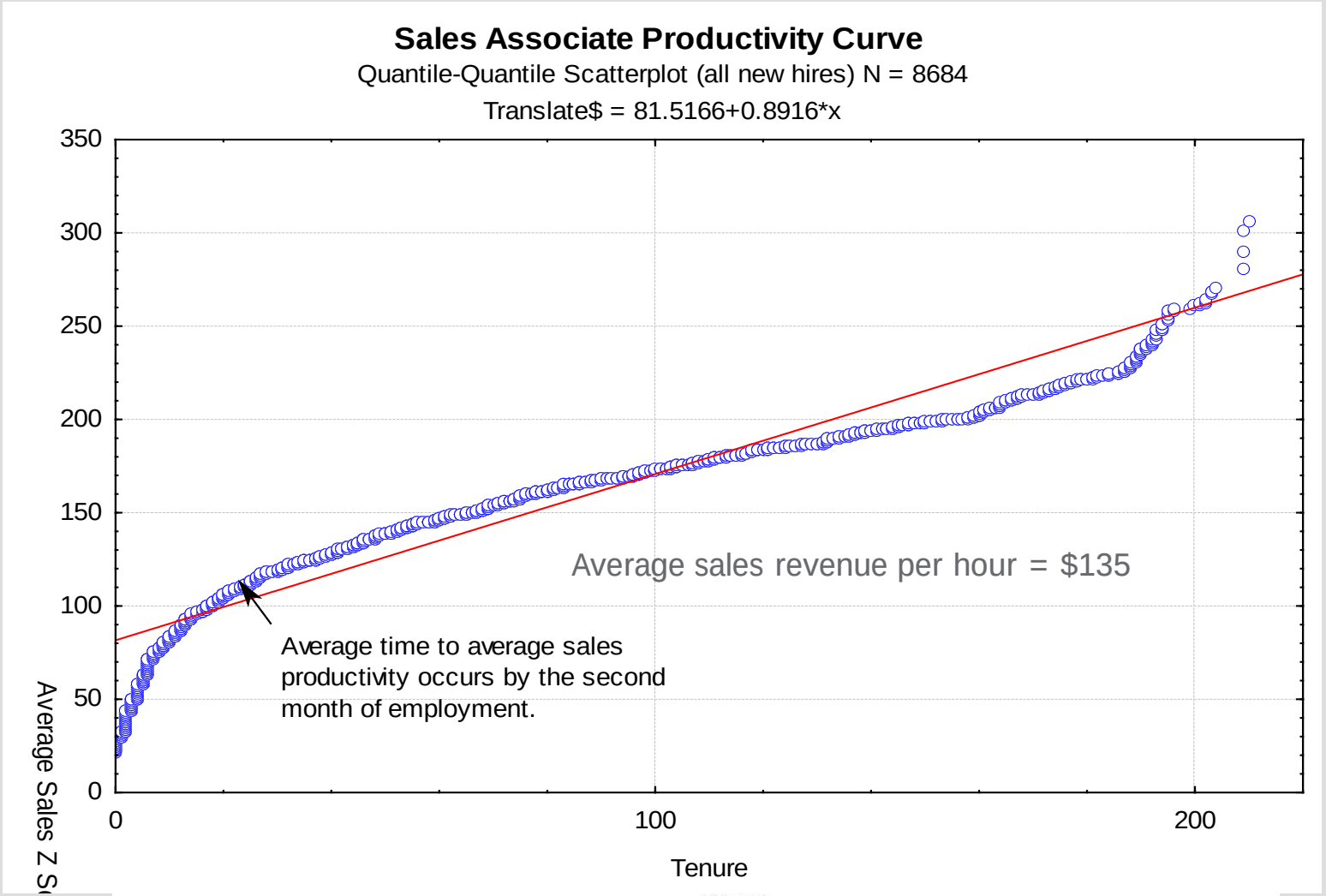
Involuntary termination trend among grocery store clerks



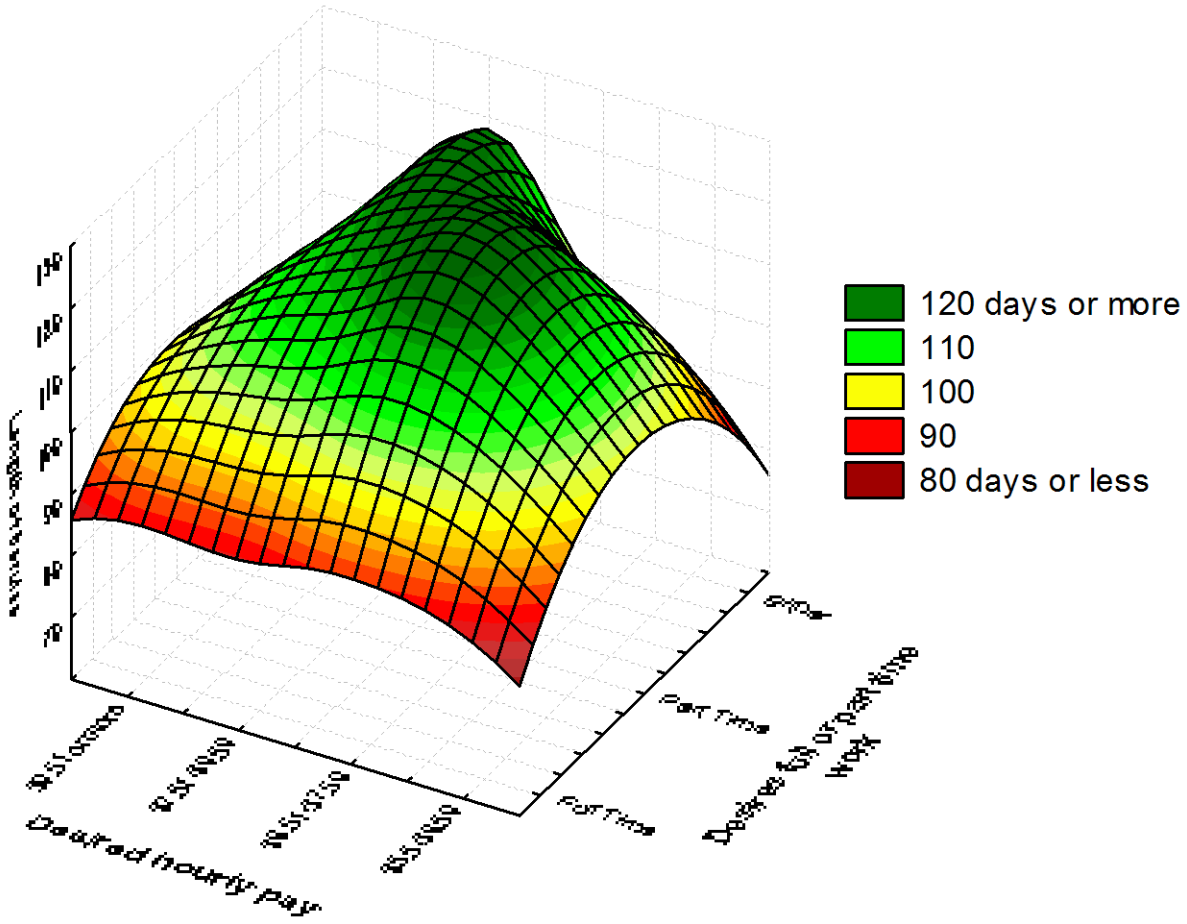
ESNN trained to estimate sales productivity



Sales Productivity ANN#3



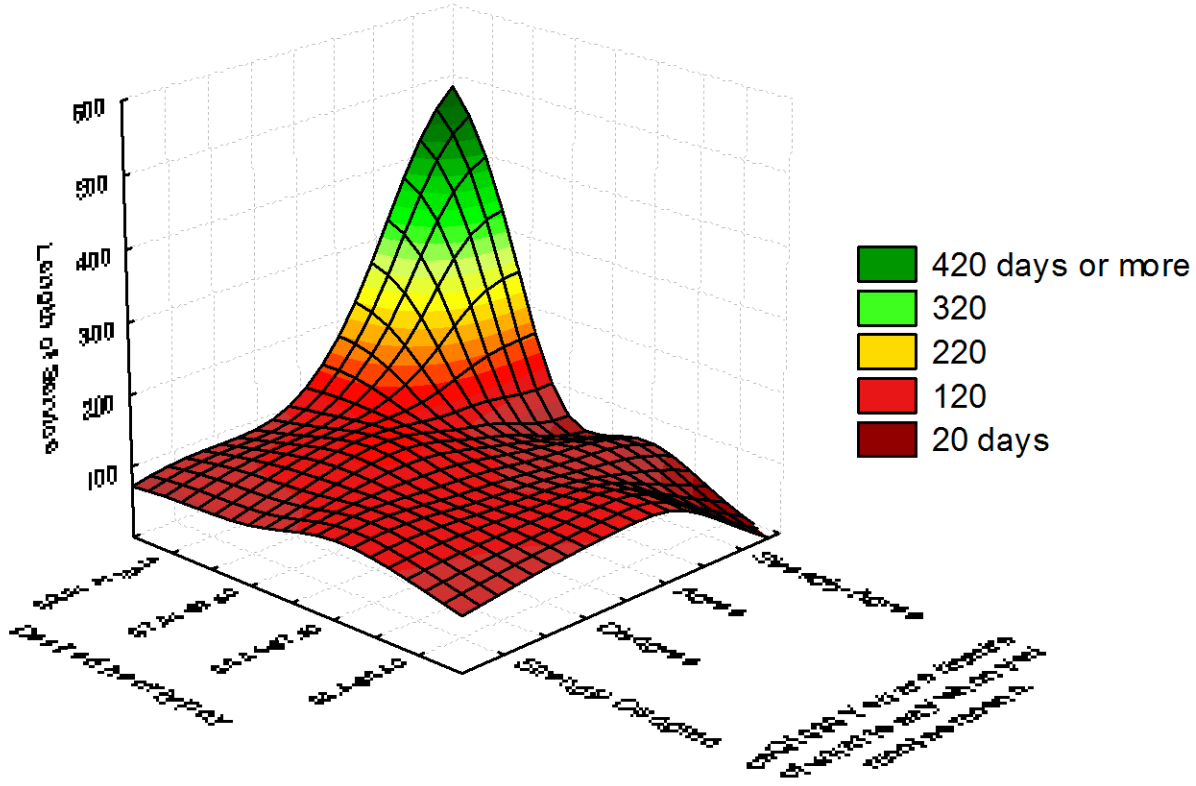
Data mining is a set of procedures for revealing



Desired hourly pay and Desires full or part time work (n = 1117)

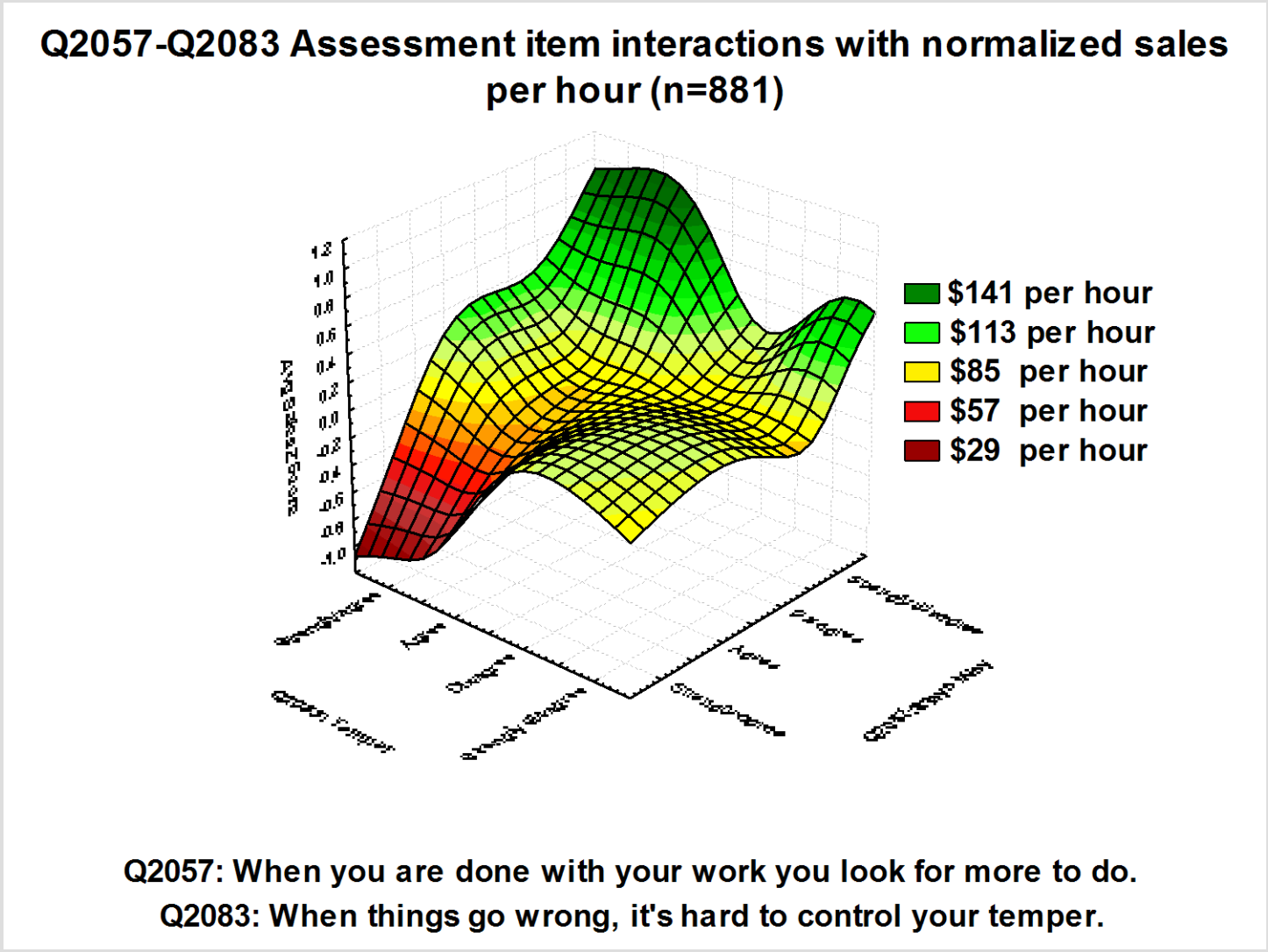
expected and unexpected patterns in data.

Biodata and Personality interactions with length of service (n= 1117)



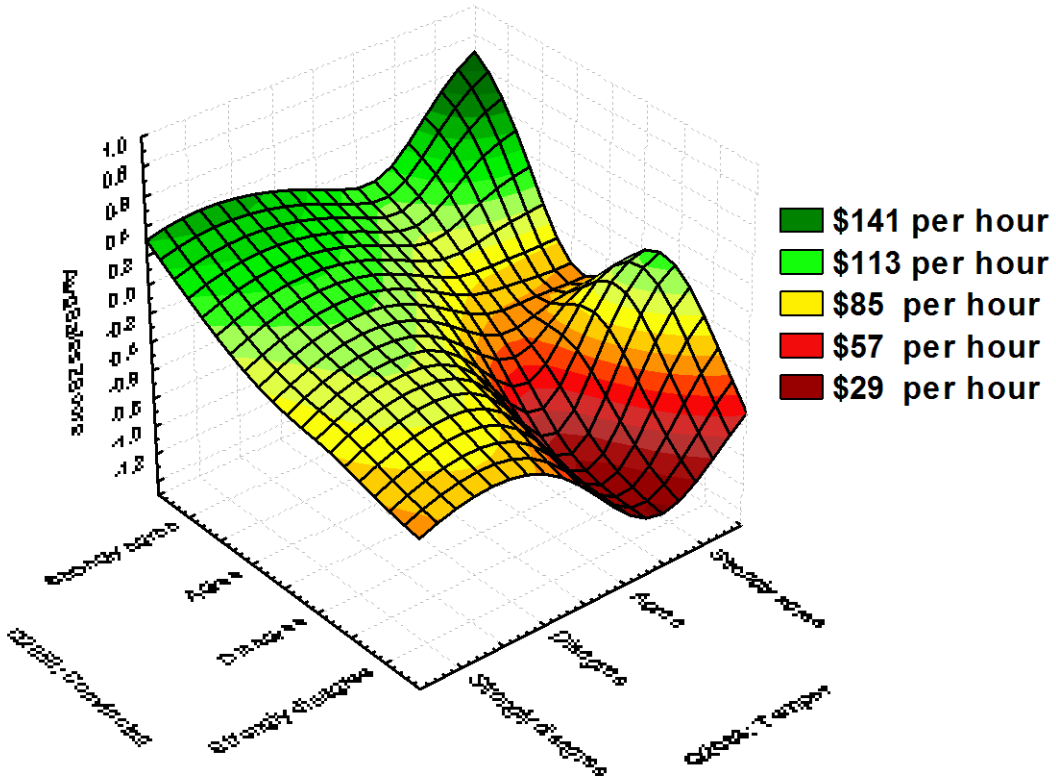
Desired hourly pay and CSQ1030
"You are unsure of what to say you first meet someone." (n = 1117)

Employee selection neural networks (ESNN) are



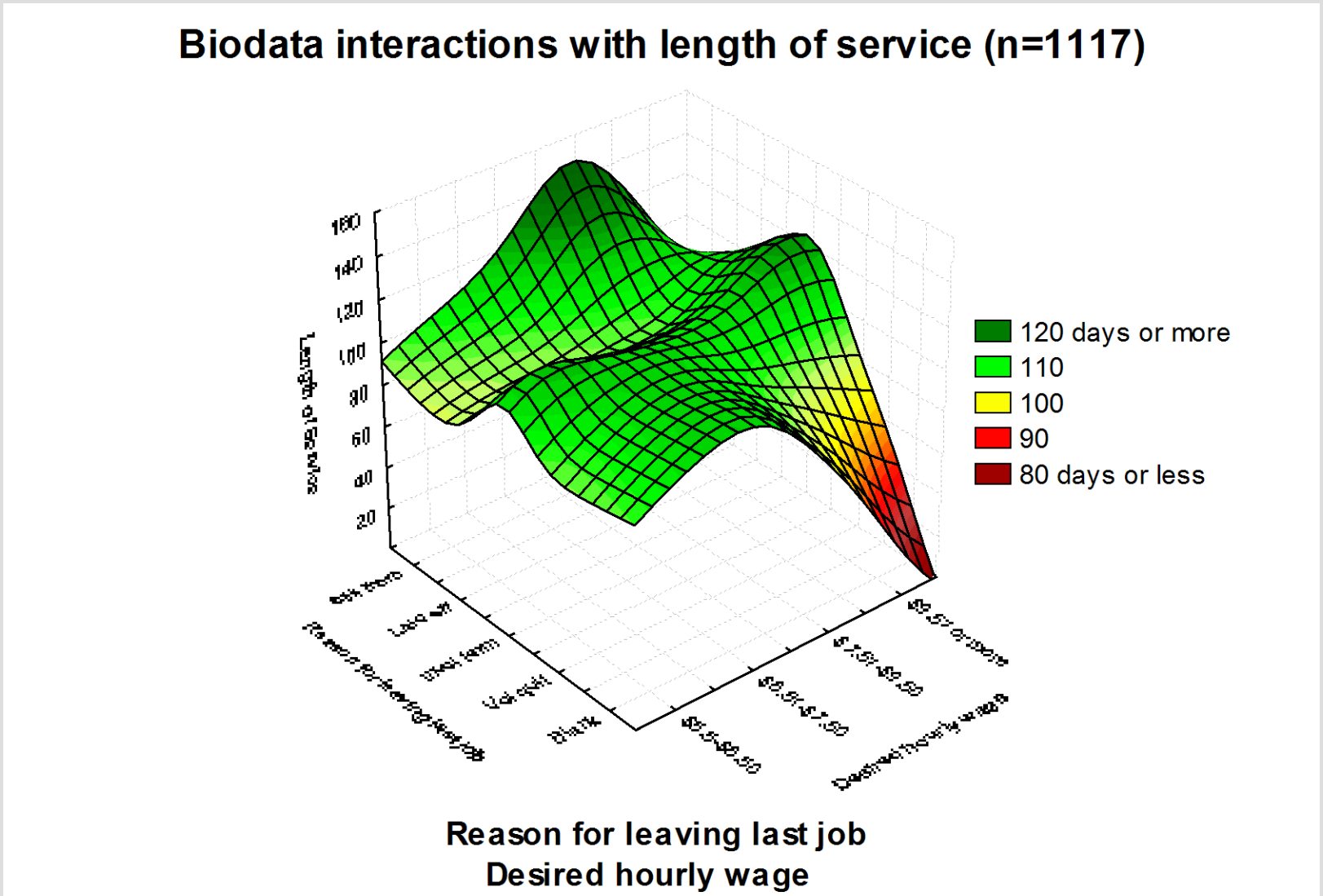
developed to simulate the observed relationships

Q2058-Q2083 Assessment item interactions with normalized sales per hour (n=881)

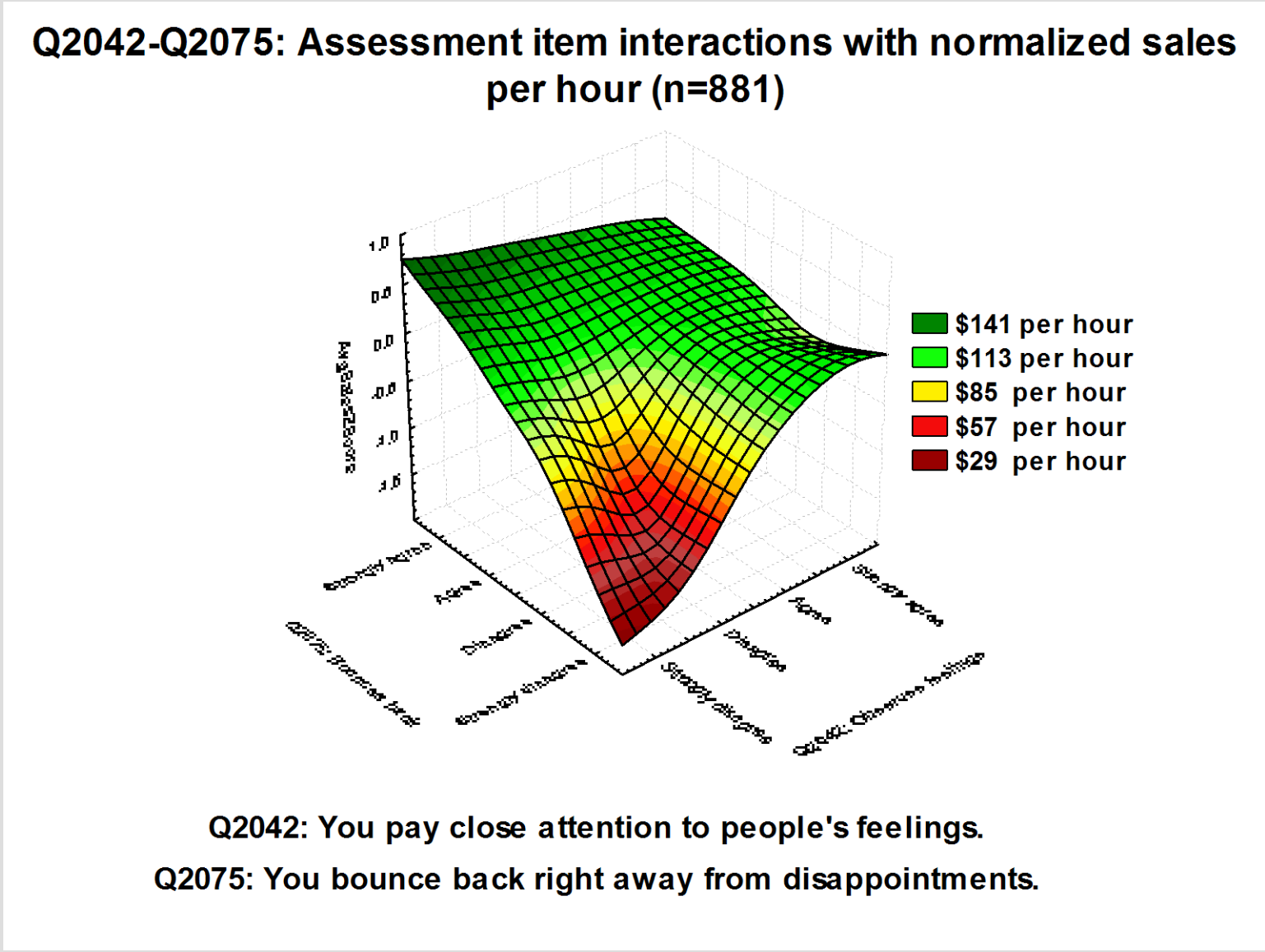


Q2058: You are skilled at convincing people.
Q2083: When things go wrong, it's hard to control your temper.

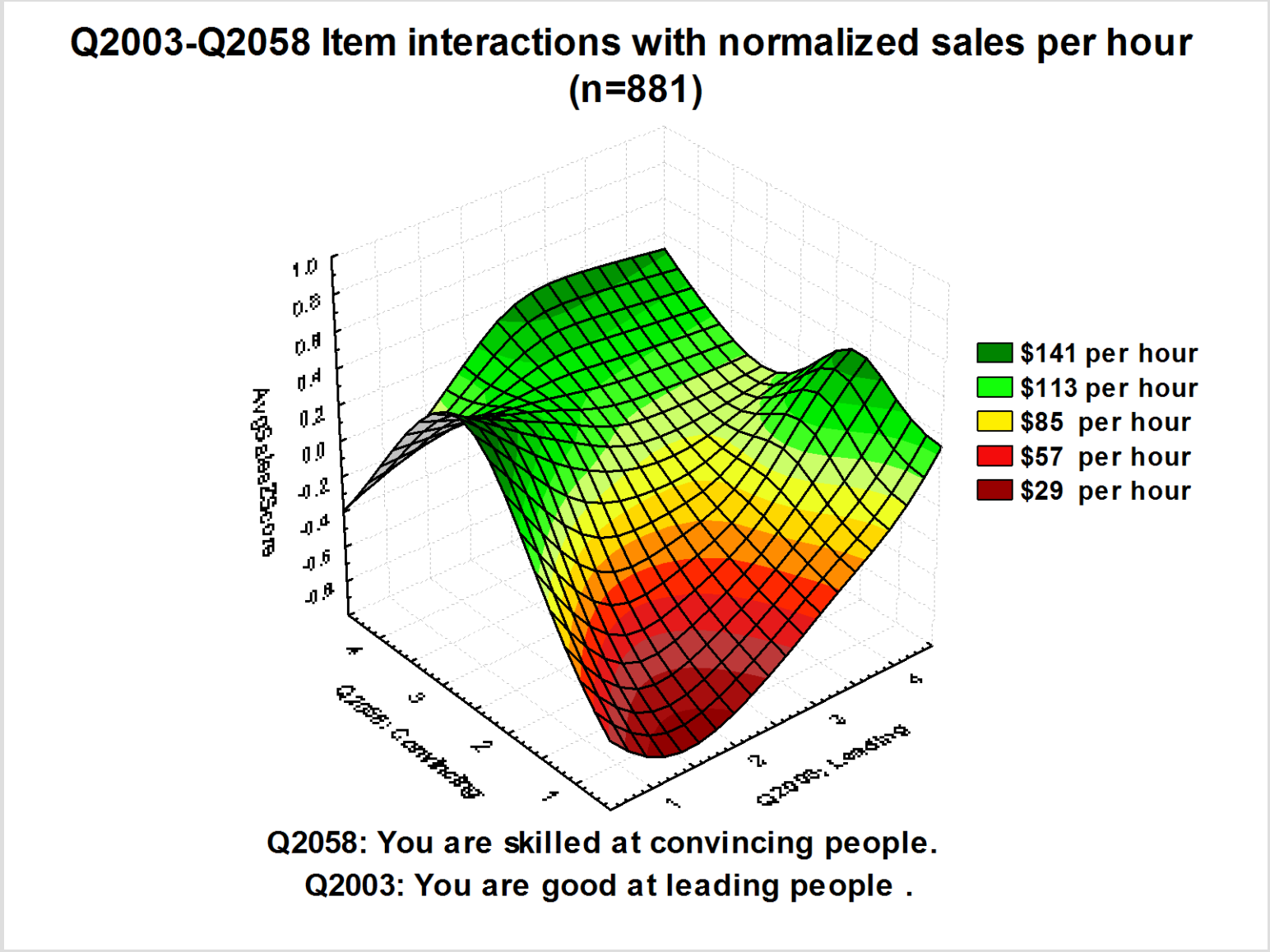
between applicant data and employee performance.



ESNN's are then converted to software



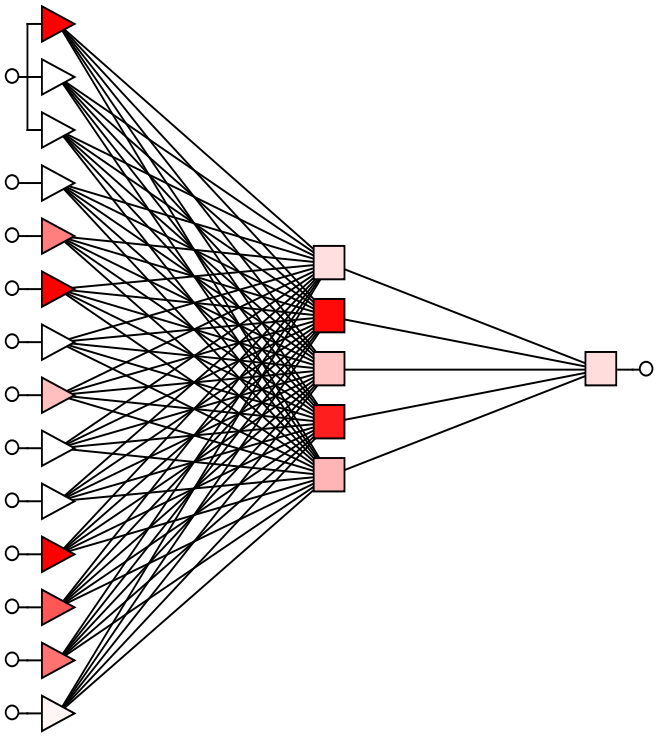
and embedded in the decision support system.



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

September 1-2, 2009

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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:

Neural System	Approximate number of neurons	Typical number of connections (per neuron)
Human Brain	100,000,000,000	1000 to 10,000
Dragonfly	10,000	1000
Computer neural systems	1,000	100-300

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.

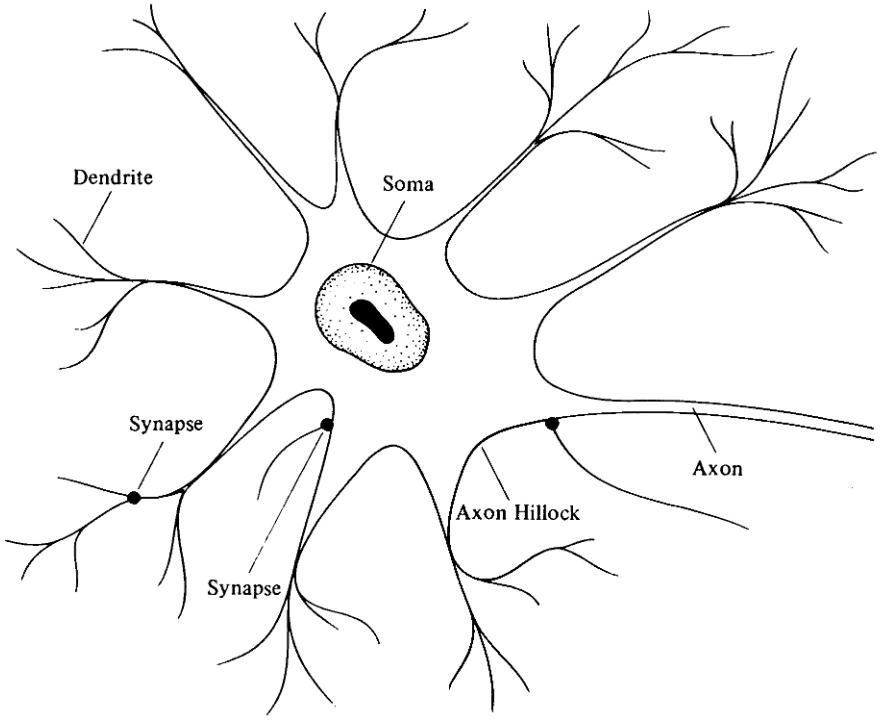


Figure 1. Biological neuron (Caudill 1992)

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.

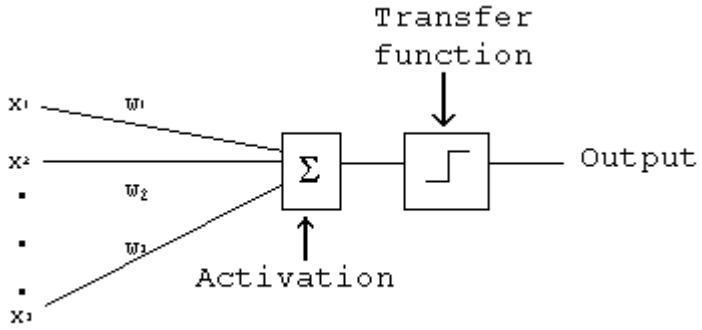


Figure 2. The McCulloch-Pitts/Perceptron neuron (Wasserman 1989)

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.

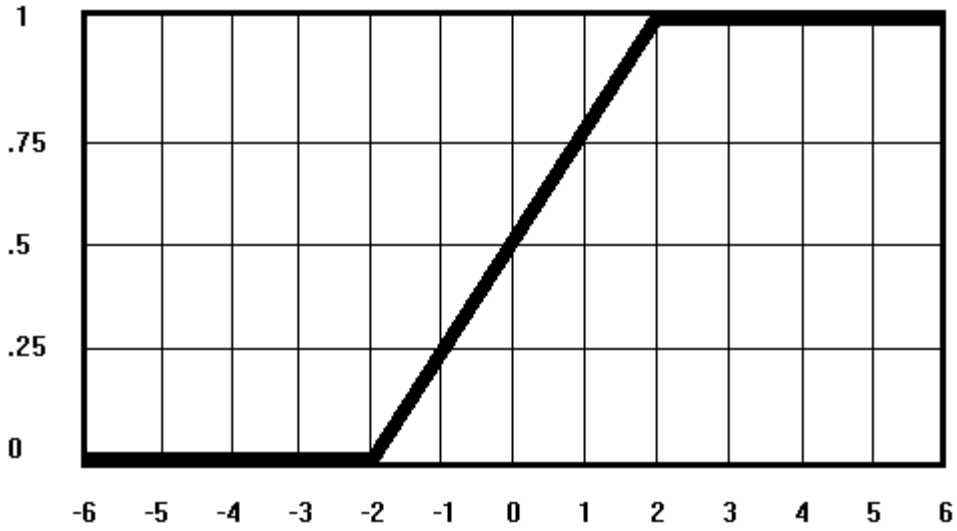


Figure 2-3. Linear threshold function with .25 gain

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.

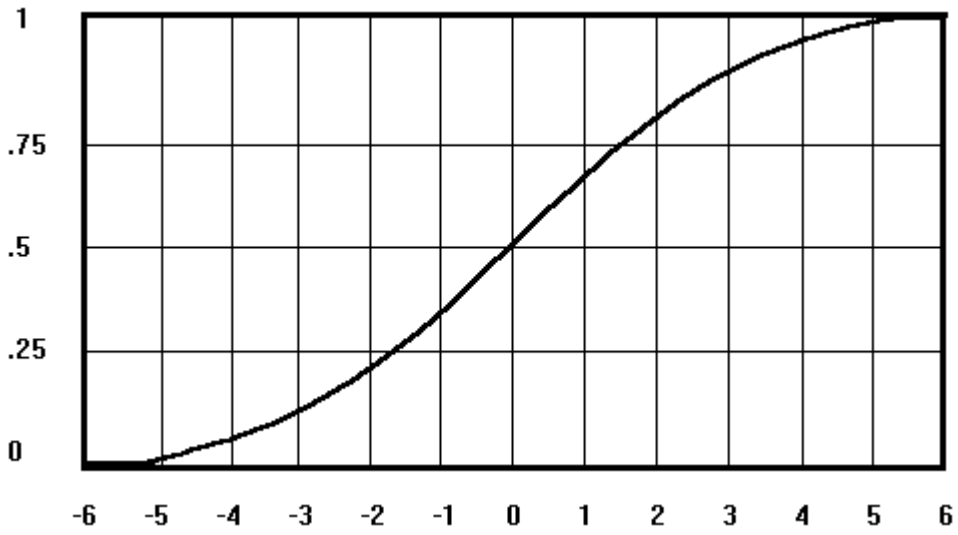


Figure 4. Sigmoid transfer function with .25 gain

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).

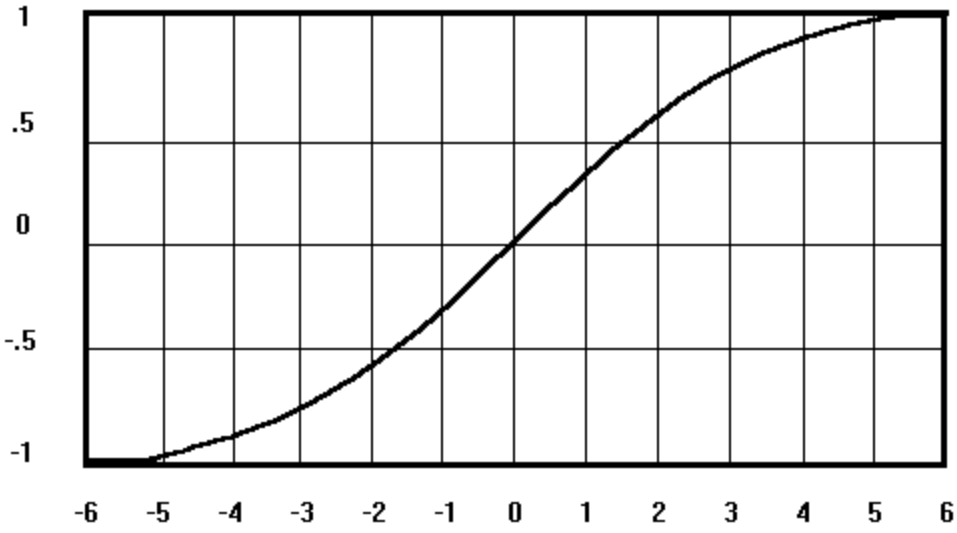


Figure 5. Hyperbolic tangent function with .5 gain

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).

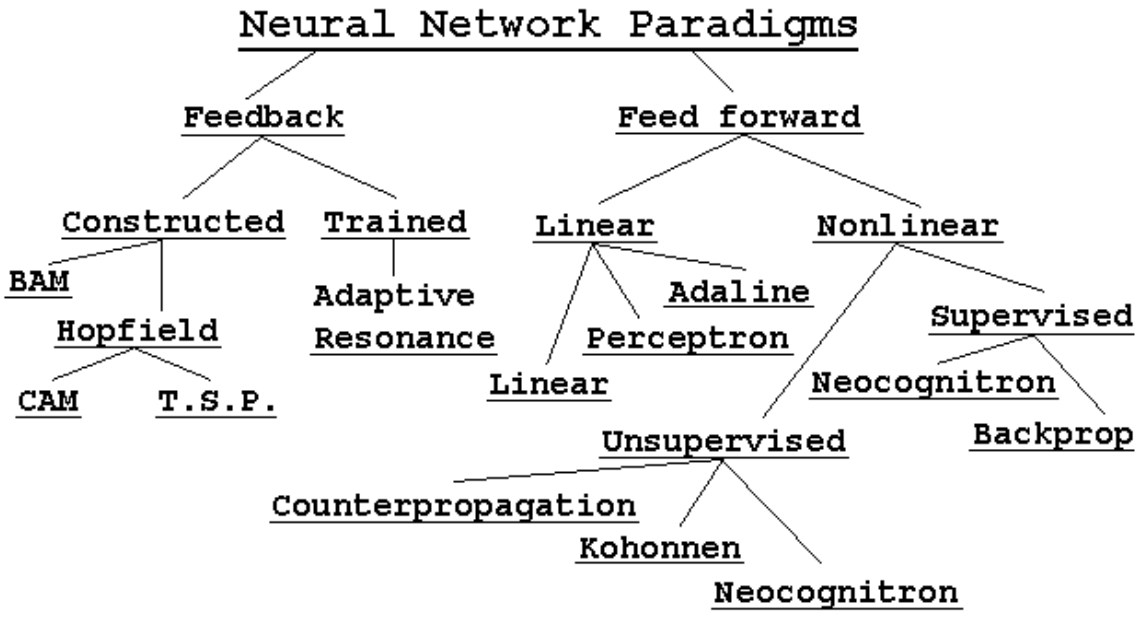


Figure 6. Neural network paradigms (Lawrence 1993)

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.

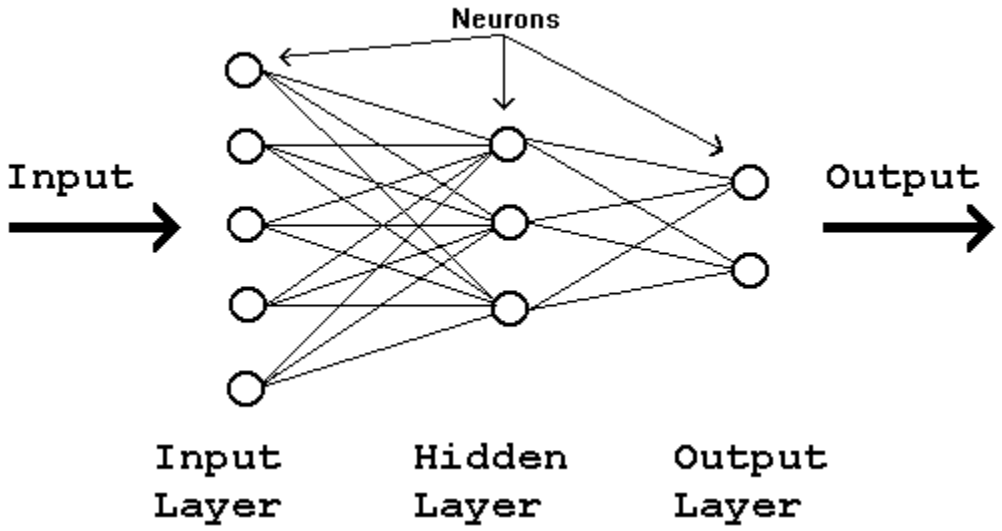


Figure 2-7. A fully connected feed-forward network

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).

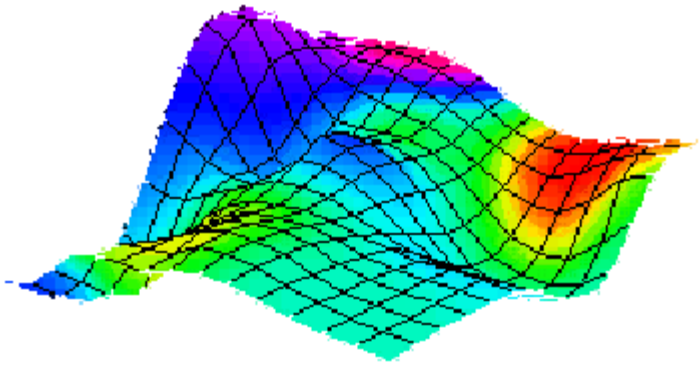


Figure 8. Computational energy surface

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:

$$net_i = \sum_{j=1}^{n} (w_{ij} * o_j)$$

where:

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.

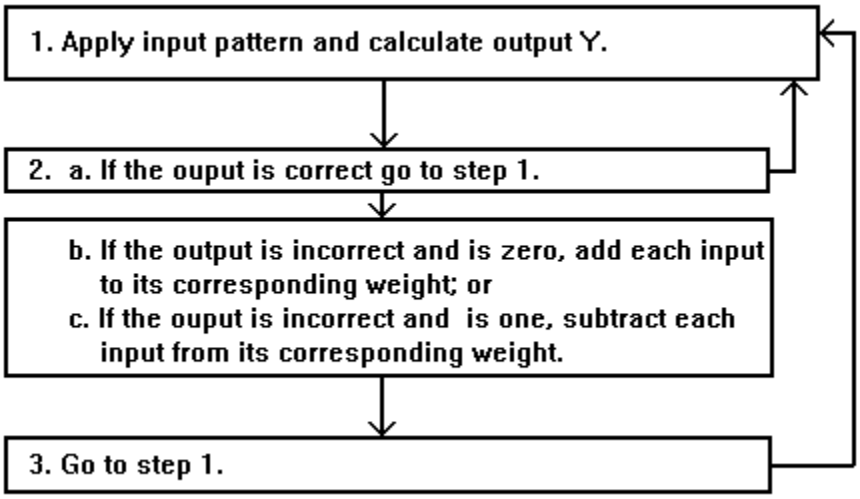


Figure 9. Summary of Rosenblatt's supervised training procedure for perceptron networks(Wasserman 1989).

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 ADELINE, 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 ADELINE 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: Δw_{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 η is the learning rate.

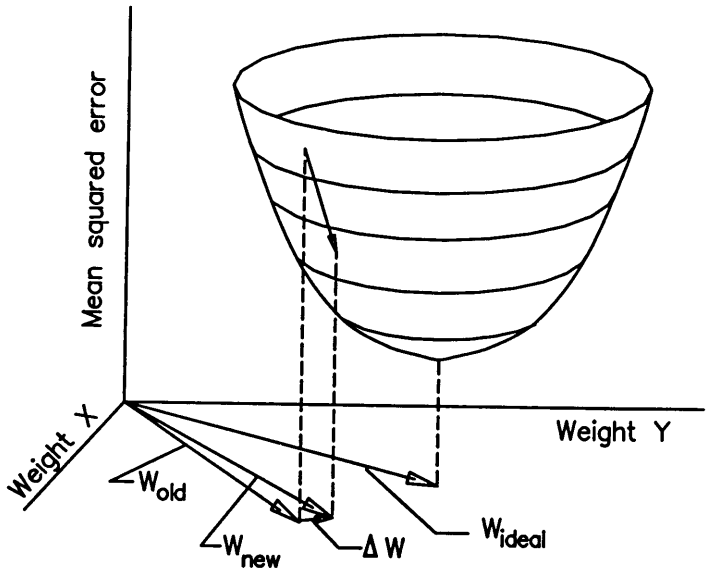


Figure 10. Gradient descent of the connection weight matrix under the Delta rule (Caudill and Butler 1990).

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 hyperparabolid 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, η. If η 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 η are recommended for high levels of system uncertainty and high dimensionality. Larger values of η 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. Backpropagaton 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

literature of the 1950's (White 1989). Werbos (1974), published the theorem as "dynamic feedback" in his Harvard University dissertation in political science and applied it in political forecasting. Parker (1982) derived the same equations as "learning logic" in a product licensing report for Stanford University in 1982. Y. Le Cun (1986) is also commonly cited as a co-inventor of backpropagation. Rumelhart, Hinton and Williams (1986) popularized the generalized delta rule in the Parallel Distributed Processing volumes of the late 1980's and ensured a broad interdisciplinary audience for neural networks.

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.

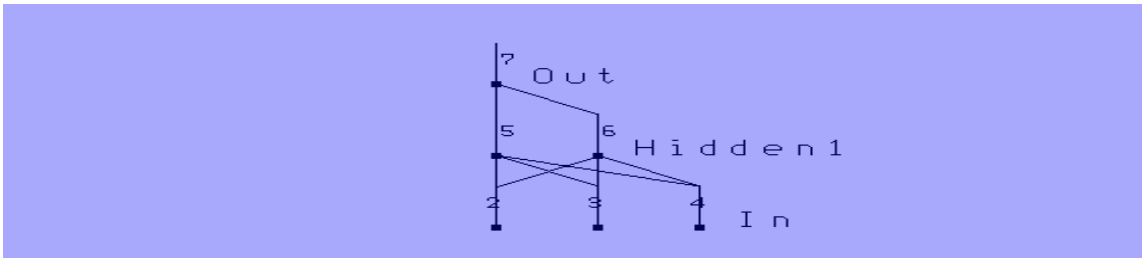


Figure 2-11. A simple backpropagation network

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

$$\Delta_p W_{ji} = \eta(T_{pj} - O_{pj})X_{pi} = \eta\varepsilon_{pj}X_{pi}' \qquad (1)$$

where; η 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 jth component of the output pattern for pattern p, O_{pj} is the jth element of the actual output pattern produced by the neural network for the input pattern p, X_{pi} is the value of the ith element of the input pattern, the error term $\varepsilon_{pj} = T_{pj} - O_{pj}$, and $\Delta_p W_{ji}$ is the change to be made to the weight from the ith to the jth 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

$$E_p = \text{constant}\sum(T_{pj} - O_{pj})^2 \qquad (2)$$

so the adjustment to the weight from the ith to the jth element of pattern P is given by

$$\Delta_p W_{ji} = -(\text{constant}) * (\delta E_p/\delta W_{ji}). \qquad (3)$$

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

$$O_{pj} = F_j(NET_{pj}) \qquad (4)$$

and F_j is differentiable and non-decreasing. The error term for an output neuron (ε_{pj}out) is given by

$$\varepsilon_{pj}\text{out} = (T_{pj} - O_{pj})F_j'(NET_{pj}) \qquad (5)$$

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

$$\varepsilon_{pj}in = F_j'(NET_{pj})\sum\varepsilon_{pk}W_{kj}. \quad (6)$$

For the sigmoid transfer function in which

$$O_{pj} = 1/(1 + e^{-netpj}), \quad (7)$$

the derivative is given by

$$\delta O_{pj}/\delta NET_{pj} = O_{pj}(1-O_{pj}). \quad (8)$$

For the hyperbolic tangent transfer function in which

$$O_{pj} = (e^{netpj} - e^{-netpj})/(e^{netpj} + e^{-netpj}), \quad (9)$$

the derivative is given by

$$\delta O_{pj}/\delta NET_{pj} = 4/(e^{netpj} + e^{-netpj})^2 \quad (10)$$

Thus, $$\varepsilon_{pj}out = (T_{pj} - O_{pj})O_{pj}(1-O_{pj}) \quad (11)$$

and, $$\varepsilon_{pj}in = O_{pj}(1-0_{pj}) \sum\varepsilon_{pk}W_{kj}. \quad (12)$$

The connection weights are then updated using:

$$W_{ji}(new) = W_{ji}(old) + \eta * \varepsilon_{pj} * O_{pi}. \quad (13)$$

A common modification to the generalized delta rule includes the use of a scalar constant known as a momentum term (α), shown as:

$$W_{ji}(new) = W_{ji}(old) + \eta * \varepsilon_{pj} * O_{pi} + W_{ji}(old) * \alpha \quad (14)$$

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 deta, 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.

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Excerpt from:

Scarborough,D. & Somers, M. (2006). Neural networks in organizational research: Pattern recognition applications in organizational behavior, APA Books. Washington

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 unobtrusive, 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[1] 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

[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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'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, Tibshariani, 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

[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[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

[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.

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Session 1
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- 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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- Defense Technical Information Center (DTIC)
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  - Registration
  - Overview of online systems and information resources
- Tips to Start You Searching (Private STINET)

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- What's new at DTIC
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  - DoDTechipedia
- Create bibliographies and alerts/saved searches

Session 1

Session 1

- Defense Technical Information Center (DTIC)
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- User Code – Your account number assigned to you and sent by email when registration is complete. You will need this number to order documents.

DTIC's Online Systems and Resources

DTIC Information Systems Plan for 3 Sites

- DTIC Online Public http://www.dtic.mil
  - DTIC Homepage
  - Search DTIC public release documents
  - Includes a “Google-like” search for .mil and .gov sites
  - Public access information only - no registration
- DTIC Online Access Controlled (DOAC - Coming Soon)
  - Combines Private STINET, the R&E Portal and TEMS
  - Registration required
- DTIC Online SIPRNET (unclassified site went live March 2009) http://www.dtic.smil.mil
  - Link to Classified STINET (registration required)

Current
DTIC Limited Systems

- Private STINET (https://dtic-stinet.dtic.mil) Will remain during first releases of DOAC
  - Registration required
  - DTIC Primary collections (TR, RS, IR&D) – Link to TEMS (Total Electronic Migration System) collection (IACs_
  - Shopping cart/bibliographies/scheduled searches-alerts/commercial databases
  - Includes sanitized citations to classified reports
- TEMS (https://tems-iac.dtic.mil) Will remain during first releases of DOAC
  - Collections of the DTIC-sponsored Information Analysis Centers
  - Research organizations chartered by DoD to identify, analyze, and utilize Scientific and Technical Information in specific technology areas, and to develop information and analysis products for the Defense Science and Engineering community.

Current
DTIC Limited Systems

- R&E Portal (https://rdte.osd.mil) Will be removed when DOAC is live – Sites and information will be located to DOAC
  - Budget information
  - Planning information
- DoDTechnipedia (https://www.dodtechipedia.mil) Link will be provided on DOAC
  - Collaboratively-produced encyclopedia on DoD scientific and technical issues

DTIC on the SIPRNET

- DTIC Online SIPRNET UNCLASSIFIED
  - http://www.dtic.smil.mil
  - Link to Classified STINET (registration required)
- Classified STINET https://dtic-stinet.dtic.smil.mil
  - https://dtic-stinet.dtic.smil.mil
  - All TR, RS, and IR&D
  - Classified citations and some full text classified documents
- DoDTechnipedia SIPRNET
  - https://www.dodtechipedia.smil.mil
  - Collaborate in the SIPRNET environment
- TEMS (Total Electronic Migration System) Secret
  - https://ctems.dtic.smil.mil
  - Collections of the DTIC-sponsored Information Analysis Centers

DTIC on the SPIR

Current DTIC Online presence on the SIPRNET

- Launched March 2009
- Available to all SIPRNET users – No registration required
- Same look and basic features as DTIC Online Public on NIPRNET
- DTIC Online SIPRNET UNCLASSIFIED



Classified STINET



- Classified STINET on SIPRNET
  - Requires Classified registration & SIPRNET access
    - Secret Clearance (Minimum)
    - SIPRNET workstation
    - SIPRNET email address (needed to register)
  - Includes most resources found on Private STINET
  - DTIC collections
    - Full Technical Report (TR) Database including classified citations and full text to some reports
    - Full Research Summaries (RS) Database
    - Full Independent Research and Development Database (IR&D)
      - *DoD personnel access only*

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

DTIC Online
http://www.dtic.mil

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Search: DoD Sites & Collections | GO | More Search Options

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- Technical Reports
- DTIC Web Site
- MultiSearch

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The Defense Technical Information Center (DTIC®) serves the DoD community as the largest central resource for DoD and government-funded scientific, technical, engineering, and business related information available today .
Read more ..

Quick Links

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FeedBack



Preventive Medicine

Army Spc. Matthew B. Hintermaier sorts through insects caught in a light trap at Forward Operating Base Kalsu, Iraq, July 10, 2009. After sorting the insects, Hintermaier puts the sand flies and mosquitoes into small vials to be sent to Baghdad for disease testing. U.S. Army photo by Pfc. Bethany L. Little

Full Story

















Search options

Homepage
Simple Search – 4 Options



- Click on the Info Icon for content of each search option.
- DTIC Online Access Controlled (DOAC) will have similar search features.

MultiSearch option

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Search | MultiSearch | nanotechnology and medicine | GO | More Search Options

- DoD Sites & Collections
- Technical Reports
- DTIC Web Site
- MultiSearch

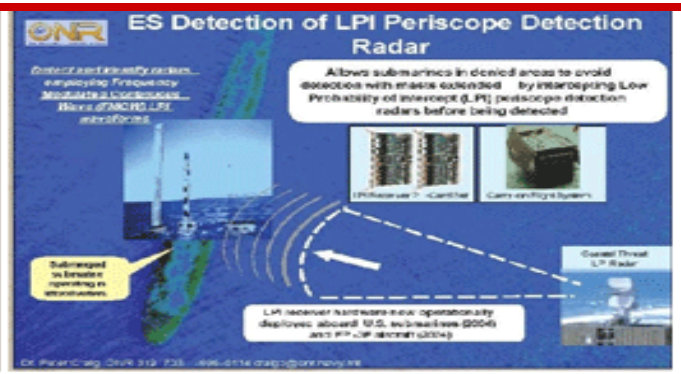
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Font size: A A

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Read more ..

Quick Links



Detection and Identification of LPI and Advanced-Waveform Radio Frequency Emitters The objective of this DTO was to develop and demonstrate receiver and signal processing techniques suitable for detection and

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Browse DTIC A-Z

Interest Areas

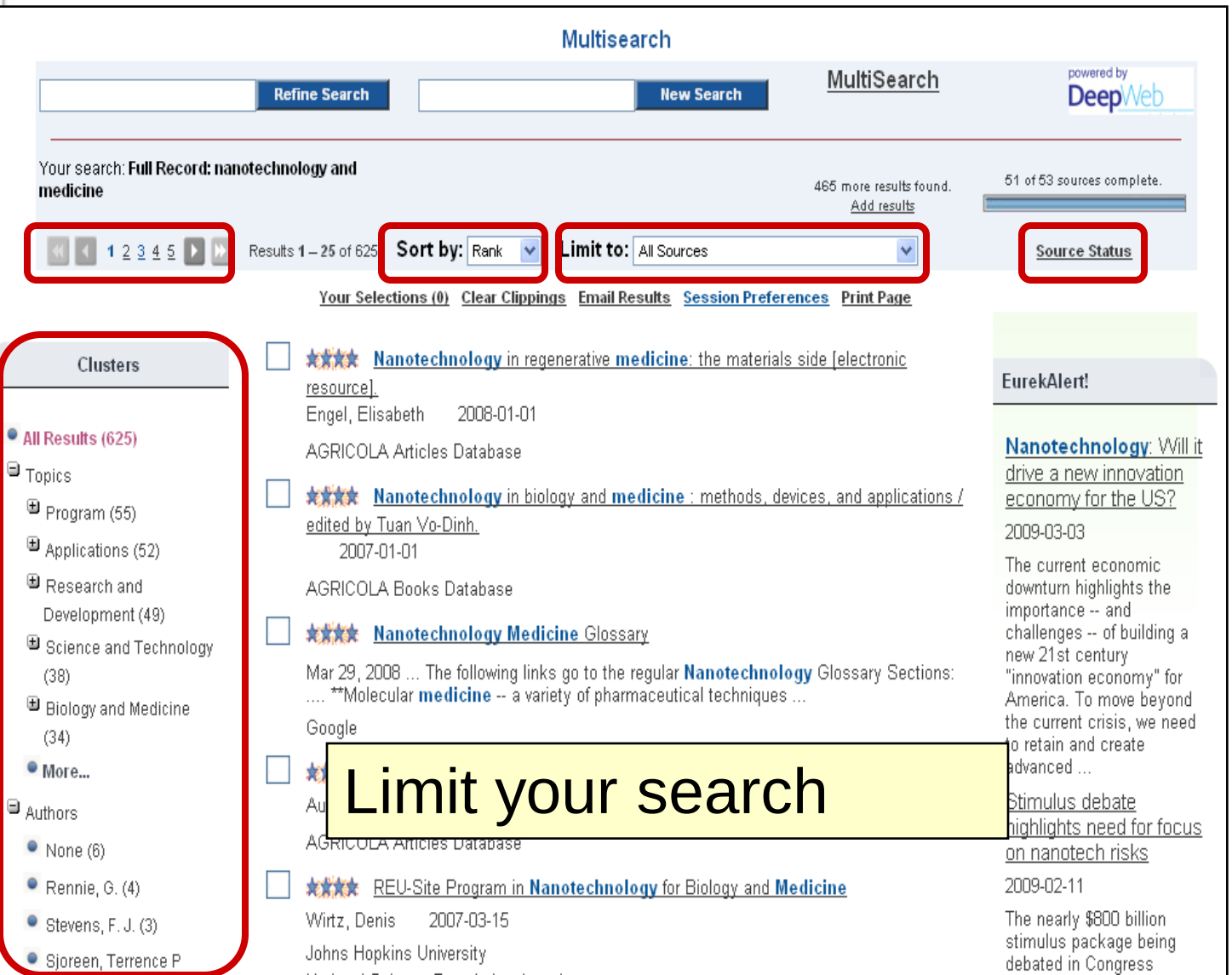
Search DTIC Collections

DoDTechipedia

DTIC 2009 Conference
April 6 - 8, 2009

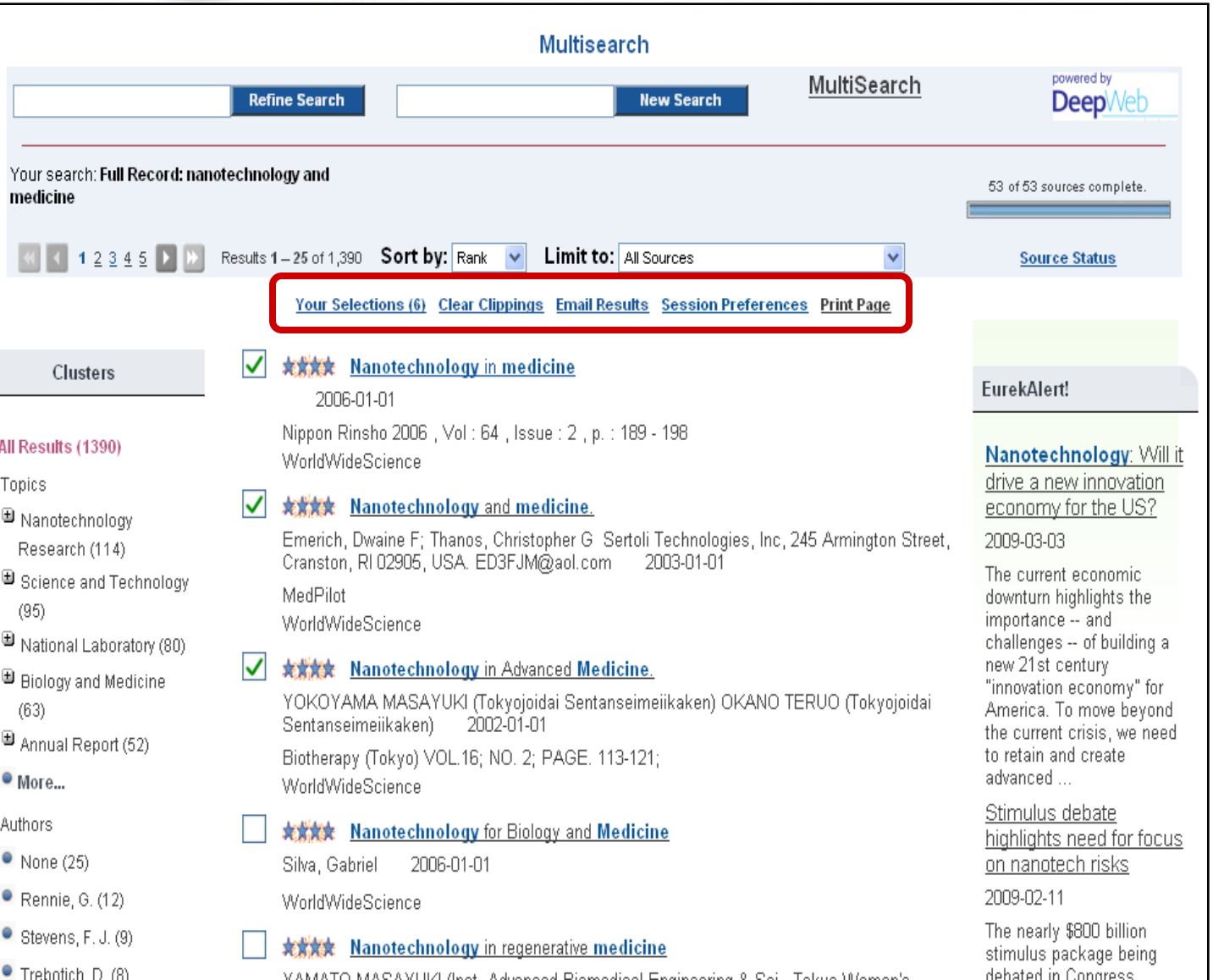
MultiSearch – searches more than 400 DoD, federal, commercial & international S&T sources

MultiSearch - Navigation



- Navigate the pages
- Sort by Rank, Date, Title or Author
- Default to All Sources or select a source and its results
- List results by source

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- Mark and view selections
- Clear selections
- Change number of results per page
- Email results
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DTIC CARES

Customer and Relationship Experiences (CARES)



www.dtic.mil

- Submit feedback on DTIC's products and services
- Real-time evaluation allows DTIC to monitor customer satisfaction levels
- Captures suggestions, inquiries and contact information
- Accessible through DTIC Online Public

We welcome your feedback…

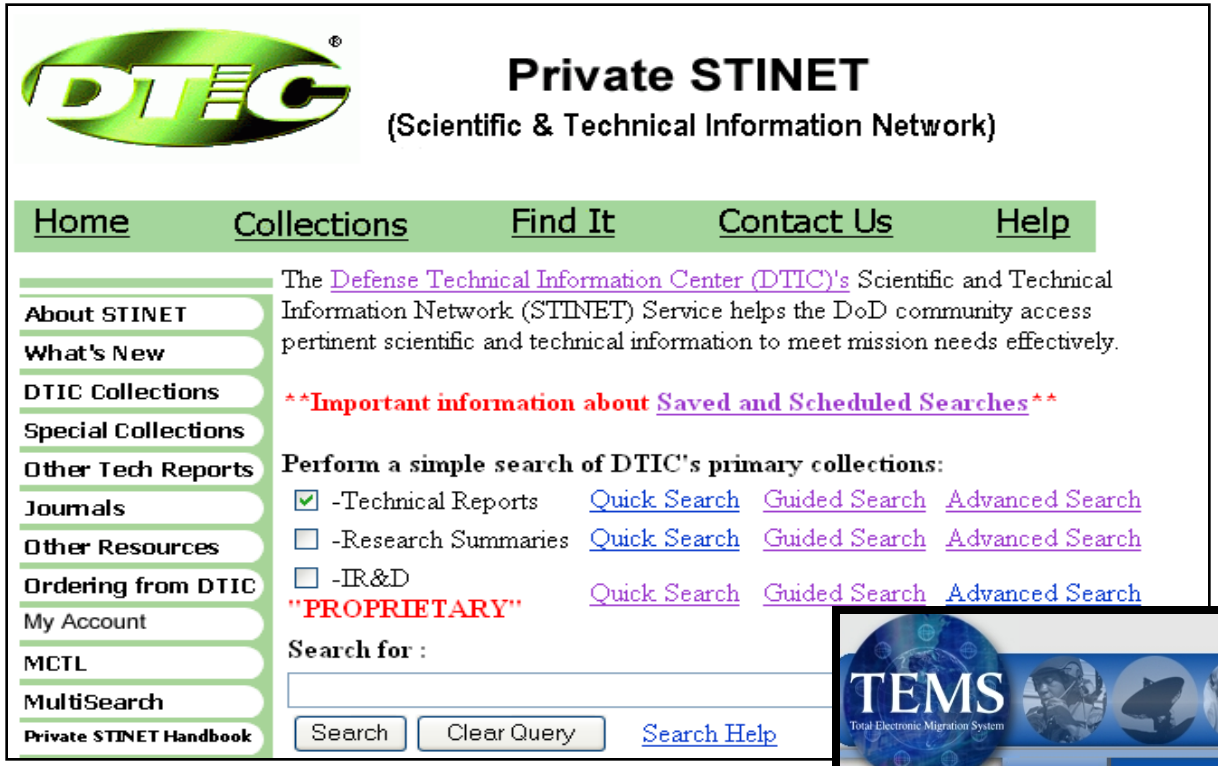
Because DTIC CARES.

Information for the Defense Community DTIC®

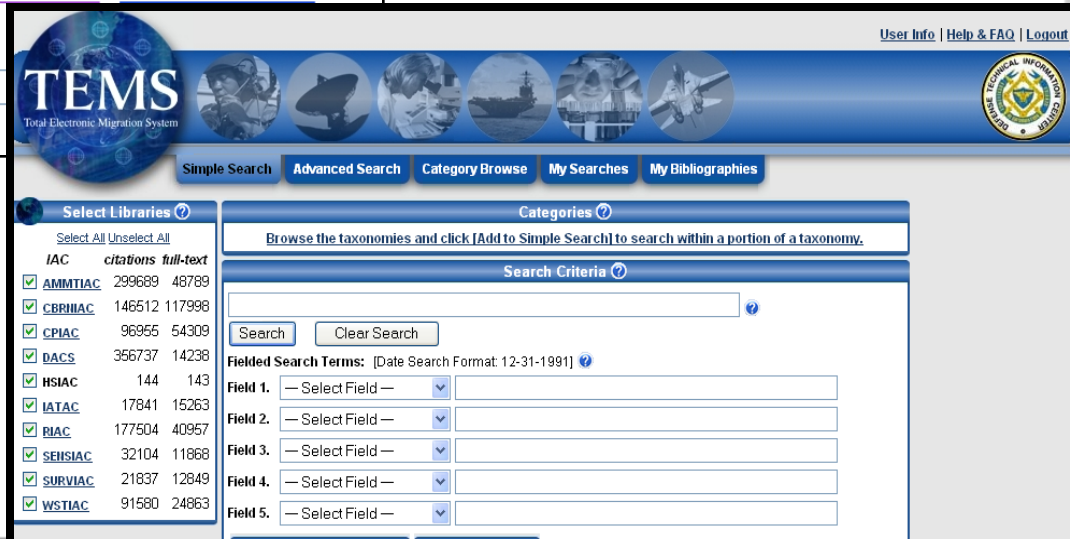
Quick Look at the DTIC Online Sites & Content

- 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

Private STINET
https://dtic-stinet.dtic.mil



Private STINET will continue during the first phases of DTIC Online Access Controlled (DOAC).



TEMS will remain with a link from DOAC.

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

R&E Portal:

- Budget and Finance
- People

Technical Reports (TR)

- Over 2 million citations, 540,000+ online documents.
- Research reports, journal articles, conference papers, etc.
- Mostly reporting Defense-sponsored research, development, testing and evaluation.
- The collection began with documents captured during World War II.
- Availability: Private STINET https://dtic-stinet.dtic.mil

Find the TR Search Pages Quick, Guided & Advanced



Private STINET

(Scientific & Technical Information Network)

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☐ -Research Summaries	Quick Search	Guided Search	Advanced Search
☐ -IR&D "PROPRIETARY"	Quick Search	Guided Search	Advanced Search

Search for :

Search | Clear Query | Search Help

https://dtic-stinet.dtic.mil

Technical Reports: Sample Record

Full Text Availability:
View Full Text (pdf)
File: /U2/a437829.pdf
Size: 16.4 MB
ProxyURL/Handle: http://handle.dtic.mil/100.2/ada437829

Accession Number:
ADA437829

Citation Status:
Active

Citation Classification:
Unclassified

Field(s) & Group(s):
061300 - MICROBIOLOGY
060800 - FOOD, FOOD SERVICE AND NUTRITION
150603 - CHEMICAL, BIOLOGICAL AND RADIOLOGICAL WARFARE

Corporate Author:
AUBURN UNIV AL

Unclassified Title:
(U) Phage-Coupled Piezoelectric Biodetector for Salmonella Typhimurium

Title Classification:
Unclassified

Descriptive Note:
Doctoral thesis

Personal Author(s):
Olsen, Eric V.

Report Date:
Aug 2005

Media Count:
323 Page(s)

Cost:
$14.60

Report Number(s):
CI04-1238
XC-AFIT

Monitor Acronym:
XC

Monitor Series:
AFIT

Report Classification:
Unclassified

Distribution Statement:
Approved for public release; distribution is unlimited.

Descriptors:
(U) *BIOLOGICAL DETECTION, *IMMUNOASSAY, *SALMONELLA TYPHIMURIUM, QUICK REACTION, PROTEINS, FOOD, PIEZOELECTRIC TRANSDUCERS, MICROBALANCES, BACTERIOPHAGES, BLOOD COUNTS, ELECTRON MICROSCOPY, BIOLOGICAL CONTAMINATION, FILAMENTS

Identifiers:
(U) *BIOSENSORS, FLOW CYTOMETRY, WESTERN BLOT IMMUNOASSAY, ELISA(ENZYME LINKED IMMUNOSORBENT ASSAY)

Identifier Classification:
Unclassified

Abstract:
(U) 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 biorecognition. 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 procedure, 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 10) - 10(exp 11) filamentous phage particles converted to spherical forms (spheroids) by chloroform denaturation were immobilized as phage coat 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 biodetectors that may ultimately be suitable for continuous food and environmental monitoring devices, diagnostic assays, and biosorbents.

Abstract Classification:
Unclassified

Distribution Limitation(s):
01 - APPROVED FOR PUBLIC RELEASE

Source Code:
046850

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 Quick, Guided & Advanced



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☐ -Research Summaries	Quick Search	Guided Search	Advanced Search
☐ -IR&D "PROPRIETARY"	Quick Search	Guided Search	Advanced Search

Search for :

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Research Summaries Sample Record

Accession Number:
DF912447
Agency Digraph:
DF - DEPARTMENT OF THE AIR FORCE
Activity Code:
FRA
Status of Effort:
COMPLETED
Performance Method:
CONTRACT
Performance Type:
RDT&E WORK UNIT (RDTE)
Date of Summary:
11 OCT 2005
Date of Preceding Summary:
2 MAR 2004
Start Date of Effort:
9 JUN 1997
End Date:
30 SEP 2003
Effort Security Classification:
UNCLASSIFIED
Record Security Classification:
UNCLASSIFIED
Distribution Code:
A - DISTRIBUTION UNLIMITED
Distribution Reason:
PB - PUBLIC RELEASE
Title:
A MICRO HYDROGEN-AIR CELL
Search Data:
AKN26F970108
Responsible Organization:
Activity: AIR FORCE RESEARCH LAB ROME NY
Component: MULTI-TECHNOLOGY INTEGRATION
Location: ROME NY 13441-4114
Geopolitical Code: 3623
Source Code: 434694
Responsible Individual Information:
Name: KOZIARZ, WALTER A
Office Symbol/Code: AFRL/IFTC
Phone Number: 315-330-2536
DSN Number: 587-2536
Performing Organization:
Activity: CASE WESTERN RESERVE UNIV CLEVELAND OH

Objective Classification:
UNCLASSIFIED
Objective:
EVALUATE THE MEMS DESIGN PROCESS AND PERFORM THE NECESSARY RESEARCH TO ESTABLISH NEW MICROCIRCUIT BATTERY TECHNOLOGY. FUNCTION: EVALUATE DESIGN TOOLS AND DEMONSTRATE SINGLE CHIP INTEGRATED MICRODEVICE TECHNOLOGY DEFICIENCY: DETERMINE THE LIMITATIONS IN THE CURRENT MEMS DESIGN PROCESSES THAT ARE LIMITING THE EFFECTIVE DESIGN AND APPLICATION OF SINGLE CHIP SYSTEMS. CONTRIBUTION: THE ABILITY TO DESIGN INTEGRATED MICRODEVICES (SYSTEMS) THAT WILL GREATLY ENHANCE THE FUNCTIONALITY AND AT THE SAME TIME REDUCE THE COST OF FUTURE DOD WEAPON SYSTEMS.
Approach Classification:
UNCLASSIFIED
Approach:
PERFORM A DESIGN OF A SINGLE CHIP MICRODEVICE HYDROGEN-AIR FUEL CELL AS AN ALTERNATIVE BATTERY TECHNOLOGY FOR INTEGRATED MICRODEVICE SYSTEMS. THE DESIGN PROJECT WILL ALSO ASSESS THE APPLICATION OF THE COMPOSITE CAD TOOLS FOR MIXED TECHNOLOGY SYSTEMS. (EARLY PROGRESS REPORTING BEGINS HERE) (9810)THIS RESEARCH IS LEADING TO THE DEVELOPMENT OF MICRO FUEL CELLS WITH ENERGY LEVELS OF OVER TEN TIMES AND PULSE POWER OF OVER 100 TIMES THAT OF THIN FILM BATTERIES. RECENTLY SEVERAL DESIGN AND PROCESSING CHANGES HAVE BEEN MADE TO THE SILICON SUBSTRATE, WHICH HAVE REDUCED STRUCTURAL WEAKNESSES. TO ACCELERATE THE FUEL CELL POWER UNIT DEVELOPMENT, NEW CERAMIC SUBSTRATES WERE ALSO FABRICATED. CONSIDERABLE EFFORTS ARE BEING MADE TO DEVELOP CATALYST/ISOMER INKS WITH ACCEPTABLE ANODE AND CATHODE CHARACTERISTICS THAT ARE ALSO SUITABLE FOR THICK FILM PRINTING. CONDUCTION IN CARBON INKS AT LOW HUMIDITY WAS ACHIEVED, BUT INCREASING THE POROSITY OF THE CARBON INKS IS A CURRENT TECHNICAL CHALLENGE. NEWLY SYNTHESIZED POLYMER ELECTROLYTES THROUGH WHICH HYDROGEN IONS CAN DIFFUSE AT LOW RELATIVE HUMIDITIES, AND WHICH ALSO HAVE LOW PERMEABILITY TO HYDROGEN AND OXYGEN DIFFUSION, ARE BEING EVALUATED. EXTREMELY FAST ABSORPTION/DESORPTION KINETICS WERE ACHIEVED WITH NEWLY DEVELOPED PALLADIUM INKS, WHICH WILL BE USED FOR ON BOARD STORAGE OF HYDROGEN AS A HYDRIDE. STRATEGIES ARE BEING DEVELOPED TO INCREASE THE VOLUMETRIC ENERGY DENSITY OF THE FUEL STORAGE BLOCK.
Progress Classification:
UNCLASSIFIED
Progress:
(JUL 01) THIS RESEARCH WILL LEAD TO THE DEVELOPMENT OF MICRO FUEL CELLS WITH ENERGY LEVELS OVER TEN TIMES AND PULSE POWER OF OVER 100 TIMES THAT OF THIN FILM BATTERIES. POTENTIAL APPLICATIONS INCLUDE MICRO SENSORING, MONITORING AND DATA TRANSMISSION DEVICES. THE FUEL CELL AND HYDRIDE ENERGY STORAGE SYSTEM WILL BE INVESTIGATED FOR OPTIMIZED PERFORMANCE. DELIVERABLES INCLUDE A PROTOTYPE MICRO FUEL CELL POWER UNIT AND AN INTEGRATED MICRO FUEL CELL/ENERGY STORAGE DEVICE. THIS EFFORT ACCOMPLISHED ITS INTENDED GOALS OF DEMONSTRATING AN OPERATIONAL MICRO FUEL CELL. DARPA MTO HAS DECIDED TO FUND A TWO YEAR

OPPORTUNITIES CONTINUE TO BE INVESTIGATED. NEXT MILESTONE: PREPARE/PUBLISH FINAL TECHNICAL REPORT. (OCT 2005) ABSTRACT FROM FINAL REPORT: THE OBJECT OF THIS PROJECT IS TO PRODUCE A MICROFABRICATED HYDROGEN-AIR FUEL CELL BY COMBINING MICROFABRICATION TECHNIQUES, POLYMER ELECTROLYTE FUEL CELL TECHNOLOGY, AND METAL HYDRIDE FUEL STORAGE. THE RESULT WILL BE A DEVICE CAPABLE OF PROVIDING ON-BOARD ELECTRICAL POWER FOR MICROELECTRONIC CIRCUITS, SENSORS, AND ACTUATORS WITH ENERGY STORAGE AND POWER DELIVERY CAPABILITIES CONSIDERABLY GREATER THAN THAT OF THIN-FILM BATTERIES. INTEGRATED PACKAGES OF FUEL CELLS (UP TO THREE CELLS IN SERIES) AND FUEL STORAGE/HYDROGEN GENERATION HAVE BEEN SUCCESSFULLY FABRICATED AND TESTED. EACH OF THE MAJOR MILESTONES HAS BEEN ACHIEVED AND THE FABRICATION YIELDS AND DEVICE PERFORMANCE HAVE BEEN IMPROVED. WE HAVE ALSO BEEN LOOKING FOR INSERTION OPPORTUNITIES AND PARTNERS WITH WHICH TO DEVELOP THIS TECHNOLOGY. RECENTLY, WE HAVE SIGNED AN AGREEMENT OF COLLABORATION WITH THE ASHLAWN GROUP, LLC, , OF ALEXANDRIA, VA TO DEVELOP THIS TECHNOLOGY TO PROVIDE POWER FOR "SMART" MUNITIONS.
Descriptors Classification:
UNCLASSIFIED
Descriptors:
ACTUATORS, AIR, BASE LINES, CARBON, CATALYSTS, CATHODES, CELLS, CERAMIC MATERIALS, CHIPS(ELECTRONICS), COPOLYMERS, COSTS, DATA PROCESSING EQUIPMENT, DATA TRANSMISSION SYSTEMS, DELIVERY, DENSITY, DETECTORS, DIFFUSION, EFFICIENCY, ELECTRIC BATTERIES, ELECTRIC POWER, ELECTROLYTES, ENERGY DENSITY, ENERGY LEVELS, ENERGY STORAGE, FABRICATION, FUEL CELLS, FUEL SYSTEMS, , FUELS, HUMIDITY, HYDRIDES, HYDROGEN, INKS, INTEGRATED SYSTEMS, IONS, ISOMERS, LABORATORIES, LOW HUMIDITY, MANUFACTURING, MATERIALS, MEMBRANES, METALS, METHODOLOGY, MICROCIRCUITS, MICROMINIATURIZATION, MIXING, MONITORING, ONBOARD, OPTIMIZATION, OUTPUT, OXYGEN
Identifiers:
ENERGY STORAGE, HYDRIDE ENERGY STORAGE SYSTEM, HYDROGEN-AIR FUEL CELL, MICRO DATA TRANSMISSION DEVICES, MICRO FUEL CELL, MICRO MONITORING, MICRO SENSORING, MICRO-FUEL CELL POWER UNIT, SINGLE CHIP INTEGRATED MICRODEVICE, THIN FILM BATTERY
Field(s) & Group(s):
090100 - ELECTRICAL AND ELECTRONIC EQUIPMENT
Local Control (Work Unit) Number:
E1170031
Product Number 1:
Title Classification: UNCLASSIFIED
Title: A MICRO HYDROGEN AIR FUEL CELL
Report Number: AFRL-IF-RS-TR-2005-351
Report Number: AFRLIFRSTR2005351
Domestic Technology Transfer(Civilian Applicability):
HIGH POTENTIAL FOR CIVILIAN APPLICATION
Transaction Type:
MODIFY

Office Symbol/Code: AFRL/IFTC
Phone Number: 315-330-2536
DSN Number: 587-2536
Performing Organization:
Activity: CASE WESTERN RESERVE UNIV CLEVELAND OH
Component: RESEARCH ADMINISTRATION
Location: CLEVELAND OH 44106
Geopolitical Code: 3921
Source Code: 402490
Organization Type: 1 - PRIVATE ACADEMIC EDUCATIONAL INSTITUTIONS
Principal Investigator Information:
Name: HORTON, CHARLOTTE
Office Symbol/Code: DIRECTOR RES
Phone Number: 000-UNK
DSN Number: 000-NA
1st Associate Investigator:
SAVINELL, ROBERT
2nd Associate Investigator:
WAINRIGHT, JESSE
Contract/Grant Transfer Number:
F30602972O351
Contract/Grant Effective Date:
1 JUL 1997
Contract/Grant Expiration Date:
1 JUL 2000
Contract/Grant Face Value:
$1381(Ks)
Contract/Grant Cumulative to Date Total:
$527(Ks)
Primary Funding Data:
Program Element (PE) Number: 0603739E
Program Element (PE) Number: 603739E
Project Number: E117
Task Number: 0031

Fiscal Year	Dollars(Ks)	Work Years
1997	$527	00.0
1998	$527	00.0
1999	$264	00.0

Objective Classification:
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Objective:
EVALUATE THE MEMS DESIGN PROCESS AND PERFORM THE NECESSARY RESEARCH TO ESTABLISH NEW MICROCIRCUIT BATTERY TECHNOLOGY. FUNCTION: EVALUATE DESIGN

DATA TRANSMISSION DEVICES. THE FUEL CELL AND HYDRIDE ENERGY STORAGE SYSTEM WILL BE INVESTIGATED FOR OPTIMIZED PERFORMANCE. DELIVERABLES INCLUDE A PROTOTYPE MICRO FUEL CELL POWER UNIT AND AN INTEGRATED MICRO FUEL CELL/ENERGY STORAGE DEVICE. THIS EFFORT ACCOMPLISHED ITS INTENDED GOALS OF DEMONSTRATING AN OPERATIONAL MICRO FUEL CELL. DARPA MTO HAS DECIDED TO FUND A TWO YEAR EXTENSION TO THIS WORK IN THE AMOUNT OF $300K ADDITIONAL, $1.50K IN FY02 AND $1.50K IN FY03. A BASELINE CHANGE IS IN PROGRESS SIMPLY TO EXTEND THE END-DATE TO ALLOW RECEIPT OF THE APPROPRIATE ARPA ORDER AND TO ALLOW TIME TO INITIATE AND PROCESS THE FORTH-COMING ECP TO EXTEND THE PERIOD OF PERFORMANCE. ACTIVE COORDINATION WITH MS OLSON (AFRL/IFK) AND DR R. SAVINELL (CWRU PI) IS IN PROGRESS. (APRIL 02) THIS EFFORT ACCOMPLISHED IT3 INTENDED GOALS OF DEMONSTRATING AN OPERATIONAL MICRO FUEL CELL. A BASELINE CHANGE IS REQUESTED TO FURTHER MATURE THE FUEL CELL DEVELOPMENT. A BASELINE CHANGE IS REQUESTED TO DEMONSTRATE REFINED MANUFACTURING METHODS TO GIVE REPRODUCIBLE PERFORMING PROTOTYPE FUEL CELLS INTEGRATED WITH FUEL STORAGE TO PROVIDE POWER DENSITY LEVELS THAT WILL HAVE PRACTICAL APPLICATIONS. DOD INSERTION OPPORTUNITIES WILL ALSO BE INVESTIGATED. . THE CONTRACT FACE VALUE WILL BE I NCREASED FROM $1.67M TO $1.95M, AND THE COMPLETION DATE WILL BE EXTENDED FROM 30 AUG. 2002 TO 30 SEPT. 2003. THE BASELINE CHANGE HAS BEEN APPROVED BY THE DARPA MEMS PROGRAM MANAGER. (JULY 02) NEXT MILESTONE IS DETERMINING WHETHER HYDRIDE MATERIAL CAN BE "RECHARGED" USING THE FUELCELL AS A HYDROGEN PUMP. (LMR SEP 02) THIS EFFORT IS ACCOMPLISHING ITS GOALS OF DEMONSTRATING AN OPERATIONAL MICRO FUEL CELL. DARPA MTO HAS DECIDED TO FUND A TWO YEAR EXTENSION TO THIS WORK IN THE AMOUNT OF $282K ADDITIONAL. $139K IN FY02 AND $143K IN FY03. THE BASELINE CHANGE REFLECTING THIS HAS BEEN IMPLEMENTED. UTILIZING POLYIMIDE CO-POLYMER SYSTEM FOR ELECTROLYTE WITH ANTICIPATED 2-5X IMPROVEMENT IN POWER DENSITY FOR THE FUEL CELL SYSTEM. NEXT MILESTONE: CONTINUE REFINEMENT AND RESEARCH WITH POLYMIDE CO-POLYMERS FOR ELECTROLYTE. (LMR MAR 03) ACCOMPLISHED INTENDED GOALS OF DEMONSTRATING AN OPERATIONAL MICRO FUEL CELL. BASELINE CHANGE HAS LEAD TO REFINED MANUFACTURING METHODS YIELDING REPRODUCIDLY- PERFORMING PROTOTYPE FUEL CELLS INTEGRATED WITH FUEL STORAGE TO PROVIDE POWER DENSITY LEVELS THAT WILL BE COMPATIBLE WITH PRACTICAL APPLICATIONS. DOD INSERTION OPPORTUNITIES ARE IDENTIFIED AND BEING PURSUED. PACIFIC NORTHWEST NATIONAL LABORATORY (A DEPARTMENT OF ENERGY LAB) IS INCORPORATING THIS FUEL CELL IN THEIR "PETITE POWER SYSTEM". NEXT MILESTONE: CONTINUE REFINEMENT OF MEMBRANE TECHNOLOGY/EFFICIENCY. . (LMR SEP 03) THIS EFFORT ACCOMPLISHED ITS GOALS OF DEMONSTRATING AN OPERATIONAL MICRO FUEL CE LL. A BASELINE CHANGE WAS EXECUTED IN JUNE 2002 TO FURTHER MATURE THE FUEL CELL DEVELOPMENT. THIS BASELINE CHANGE FACILITATED IMPROVED HYDROGEN STORAGE AND AN INCREASE IN OUTPUT POWER DENSITY AND INCREASED ENERGY DENSITY. DOD INSERTION OPPORTUNITIES CONTINUE TO BE INVESTIGATED. NEXT MILESTONE: PREPARE/PUBLISH FINAL TECHNICAL REPORT. (OCT 2005) ABSTRACT FROM FINAL REPORT: THE OBJECT OF THIS PROJECT IS TO PRODUCE A MICROFABRICATED HYDROGEN-AIR FUEL CELL BY COMBINING MICROFABRICATION TECHNIQUES, POLYMER ELECTROLYTE FUEL CELL TECHNOLOGY, AND METAL HYDRIDE FUEL STORAGE. THE RESULT WILL BE A DEVICE CAPABLE OF PROVIDING

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- 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.
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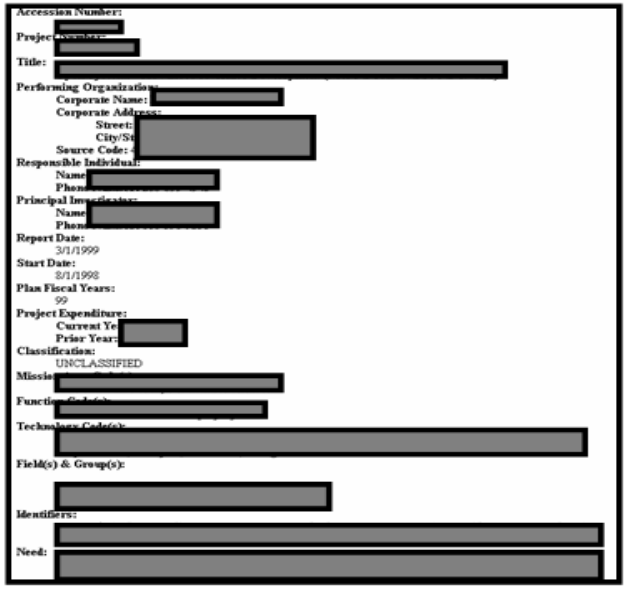
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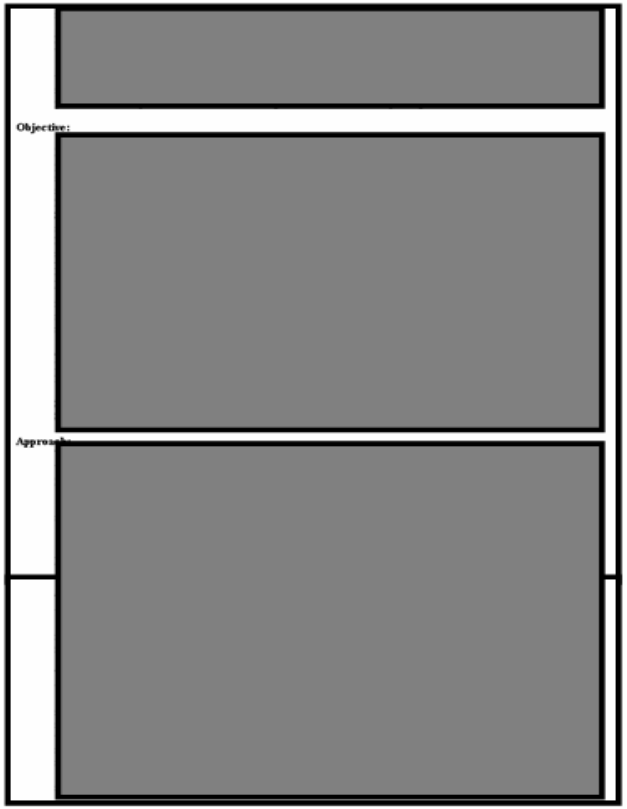
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IR&D
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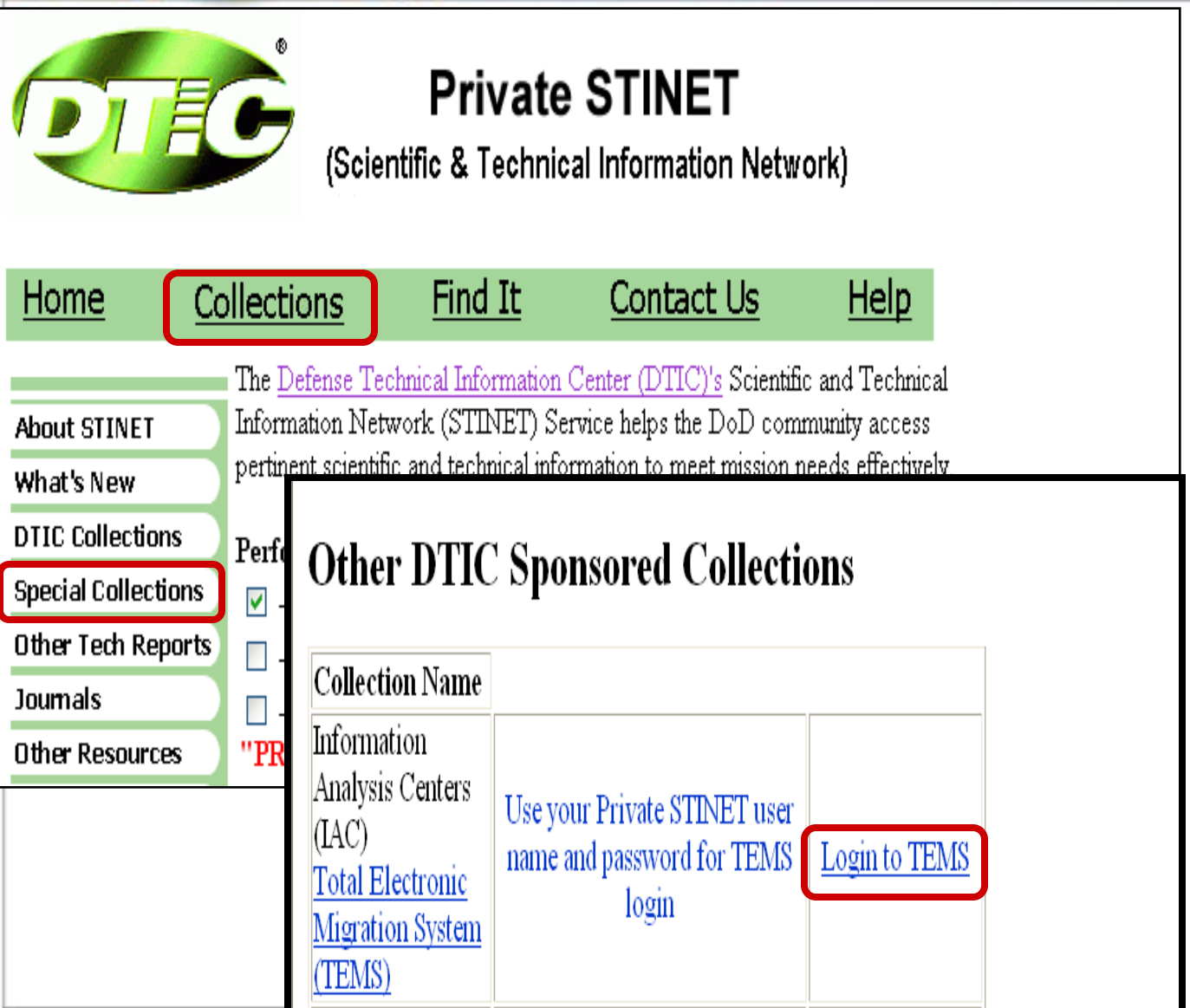






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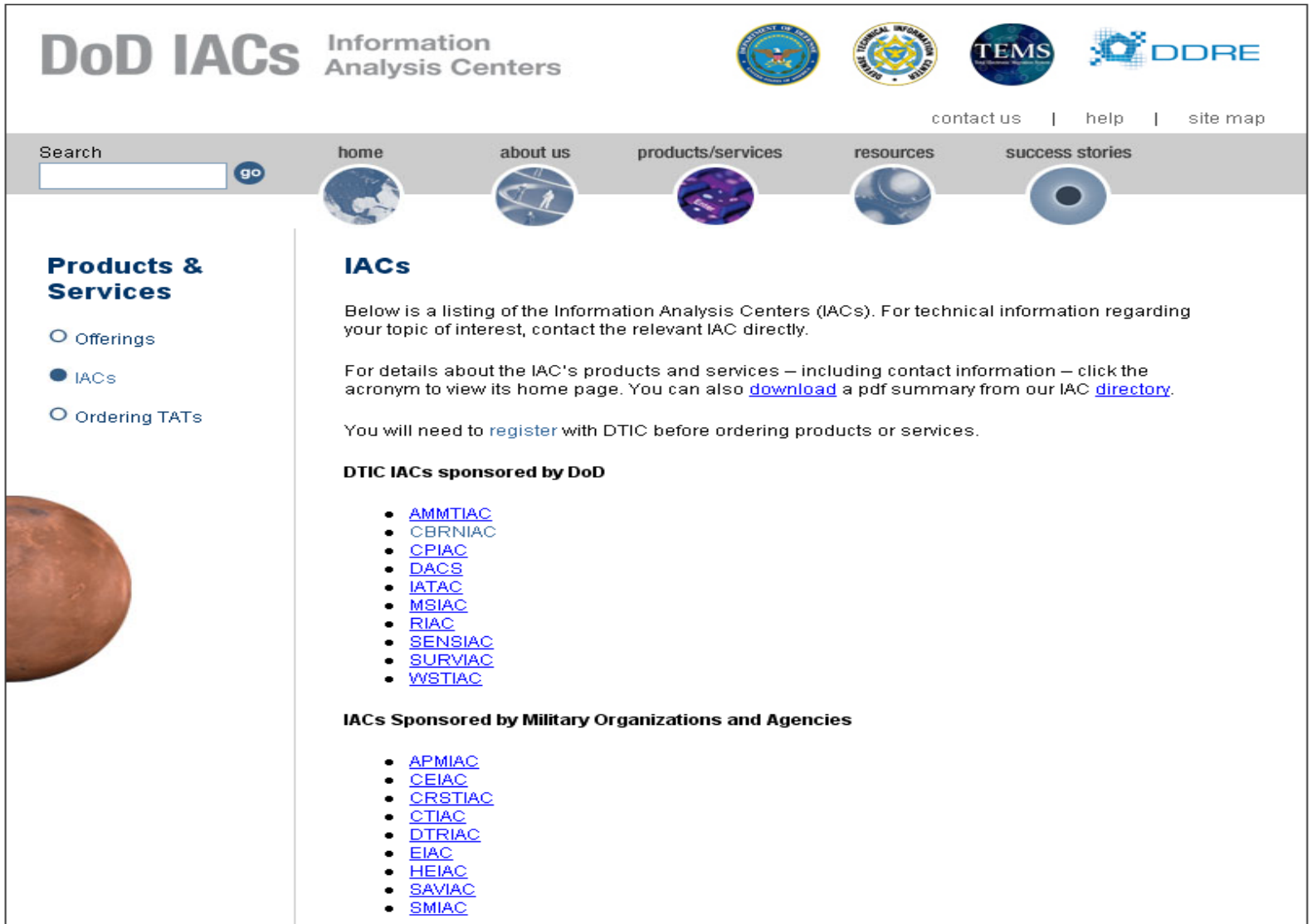
IAC	Expertise and Technology	Prime
AMMTIAC	Advanced Materials and Testing	Alion Science & Technology
CBRNIAC	Chemical, Biological Radiological, Nuclear	Battelle Memorial
CPIAC	Chemical Propulsion	Johns Hopkins University *
DACS	Data and Analysis Center for Software	ITT
IATAC	Information Assurance	Booz Allen Hamilton
MSIAC	Modeling & Simulation	Alion Science & Technology
RIAC	Reliability	Wyle Labs
SENSIAC	Sensor Technology	Georgia Tech Research Ins *
SURVIAC	Survivability/Vulnerability	Booz Allen Hamilton
WSTIAC	Weapons Systems Technology	Alion Science & Technology

* Academic Institutions

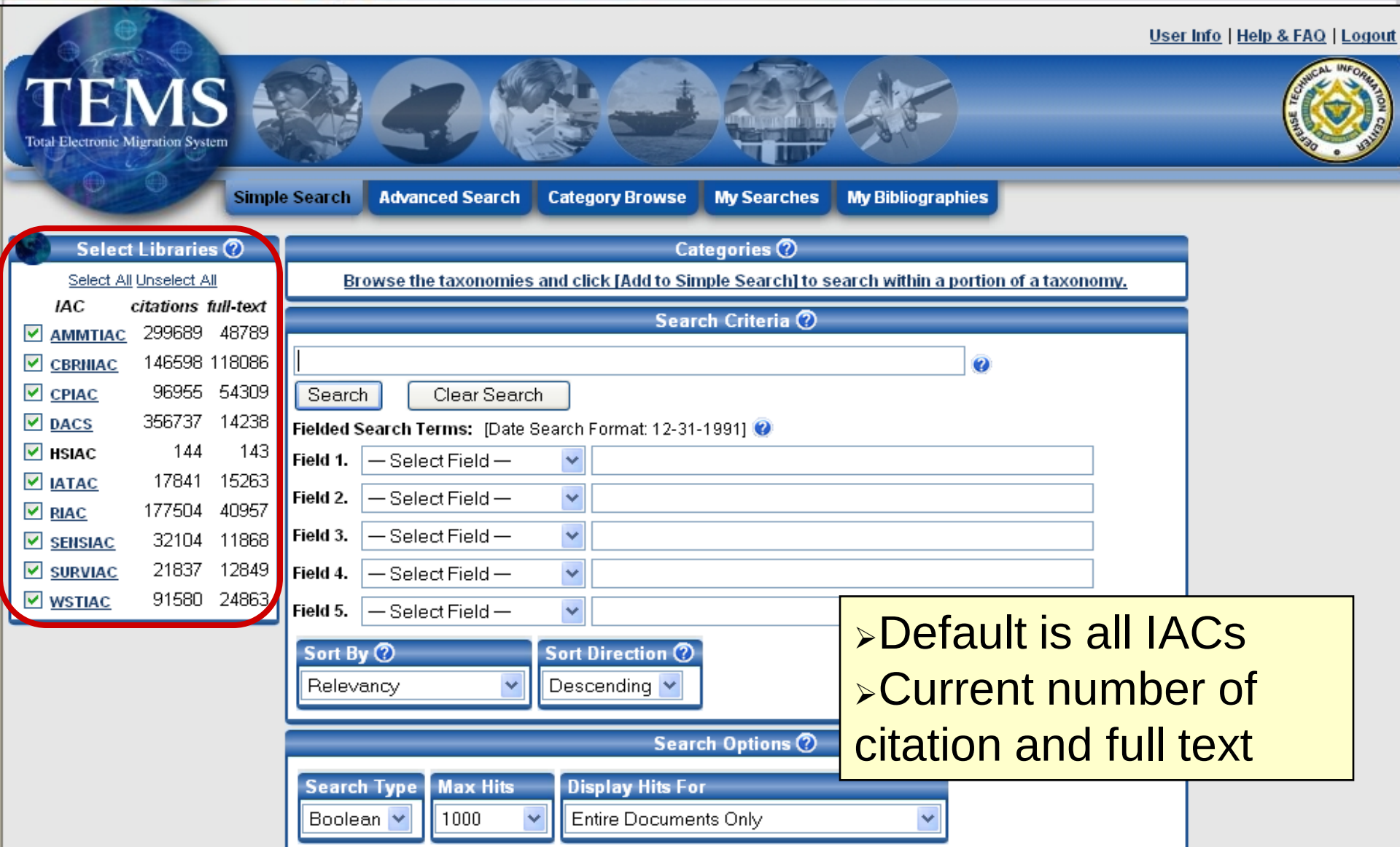
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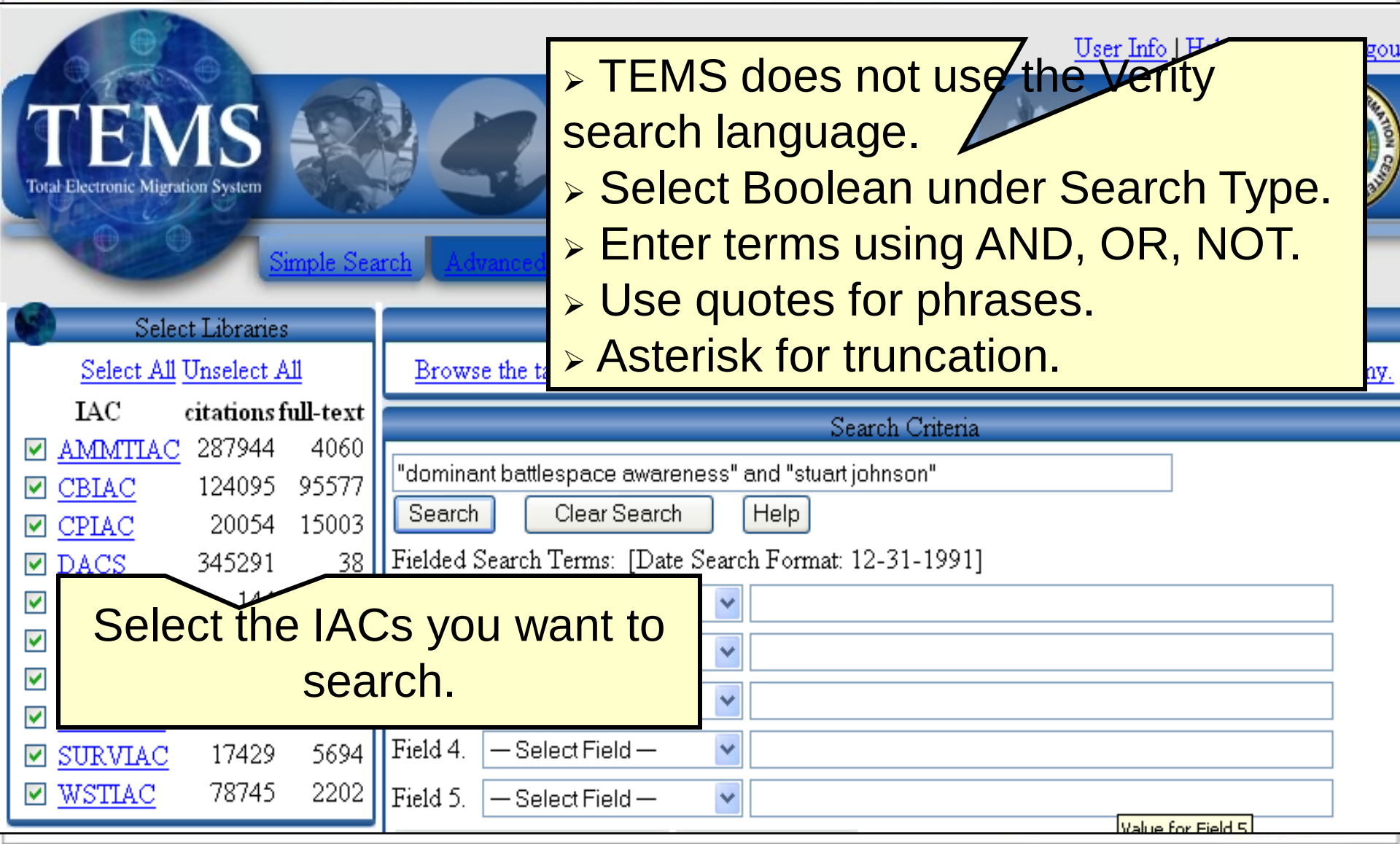


TEMS



- 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.
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Select the IACs you want to search.

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Search Parameters

"dominant battlespace awareness" and "stuart johnson" Search

Libraries: CPIAC, WSTIAC, SURVIAC, AMMTIAC, SENSIAC, 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

[New Search] [Edit Search] [Save Search] [Add Page Results to Bibliography]

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 **Catego**
   PAGE DOC [View Document

2. **(U)** IATAC - MISC-00020 [Add t
   Title: Dominant Battlespace Awareness
   Author:
   Date of Publication: 10/01/1996 **Publisher:**
   Distribution Code: A **Category:** **Document Size:** 523.35 KB **Relevancy Ranking:** N/A
   PAGE DOC [View Document Text] [View Metadata]

- View Metadata - the citation
- View Doc Text - plain OCR text, no images
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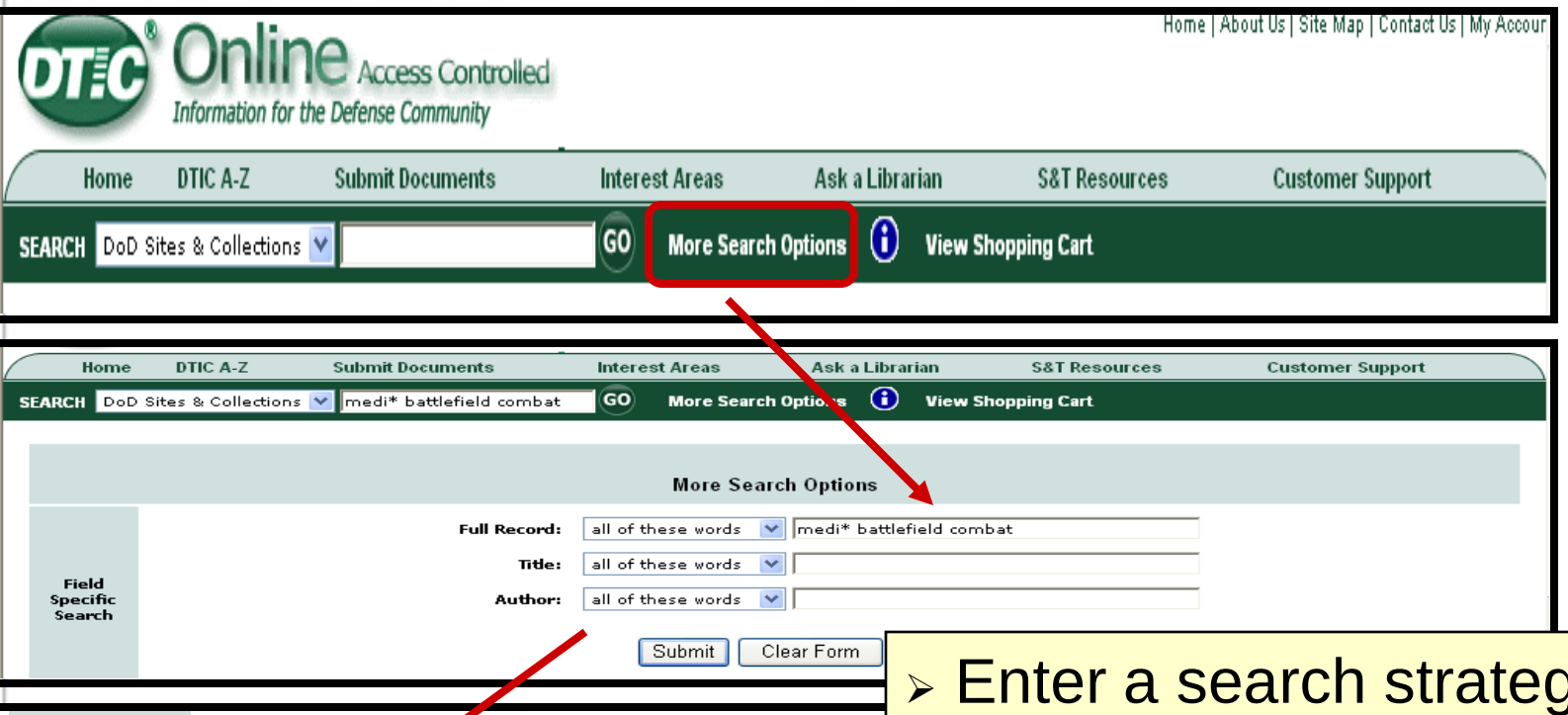
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IATAC - MISC-00020

Field	Value
IAC Report Name	MISC-00020
Site	IATAC
Title	Dominant Battlespace Awareness
Subject Keywords	MISC
Author	
Publisher	
Abstract	
Electronically Available?	Yes
Category	
Location	FC
Performing Organization	
Monitoring Organization	
Date of Publication	01-OCT-1996
Number of Pages	0
Copies	
Secondary Dist.	Approved for public rele
Distribution Code	A
For Pay	No
Copyrighted - No Govt Rights	No
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Supplementary Notes	
Entered By	Data T ETIS
Date Modified	01-DEC-1998

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- Enter a search strategy.
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Results from DOAC

9. View Citation | View Full Text PDF - 0.02 MB | Add to Shopping Cart
Title: United States Army Rangers in Somalia: An Analysis of Combat Casualties on an Urban Battlefield
Author: Mabry, Robert L Holcomb, John B Baker, Andrew M Cloonan, Clifford C Uhorchak, John M Perkins, Denver E Canfield, Anthony J Hagmann, John H
Corporate Author: BROOKE ARMY MEDICAL CENTER FORT SAM HOUSTON TX
Report Date: Sep-2000
Pages: 16 page(s)
Accession Number: ADA480509
Distribution Code: 01 - APPROVED FOR PUBLIC RELEASE
Report Classification: U - Unclassified
Collection: Technical Reports (tr2)

10. View Citation | View Full Text PDF
Title: Air Force to Train Combat Medics in 'Battlefield Acupuncture'
Author: NA
Corporate Author: ASSOCIATED PRESS
Report Date: 01/30/2009
Pages: 2
Accession Number: SURVIAC-SV-24779
Distribution Code: A
Report Classification: UNCLASSIFIED
Collection: TEMS (IAC Technical Reports) (tems)

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- 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

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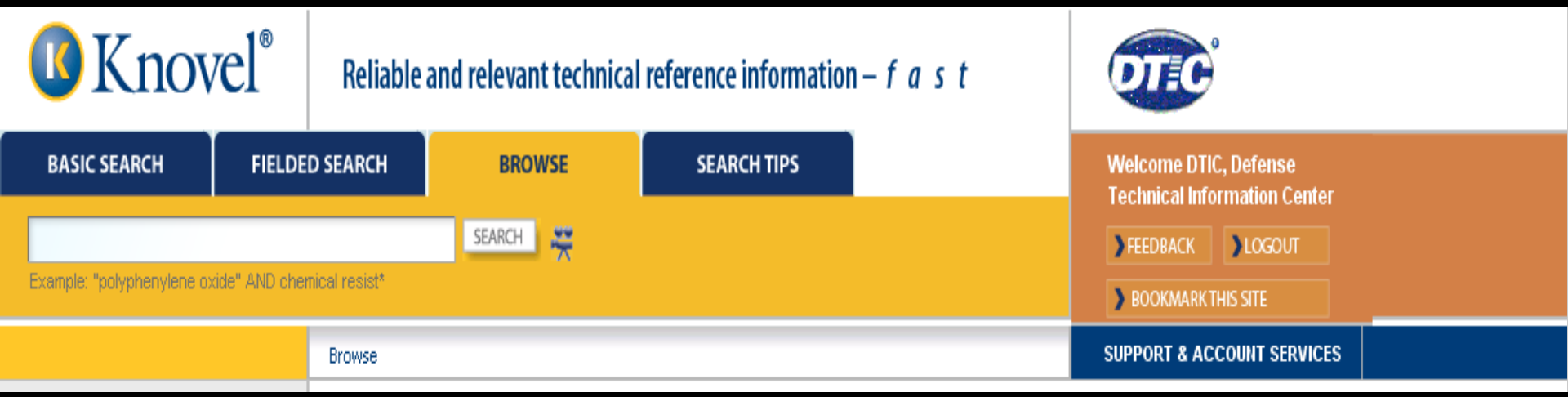
DOE OSTI Science Conference Proceedings Portal (description)

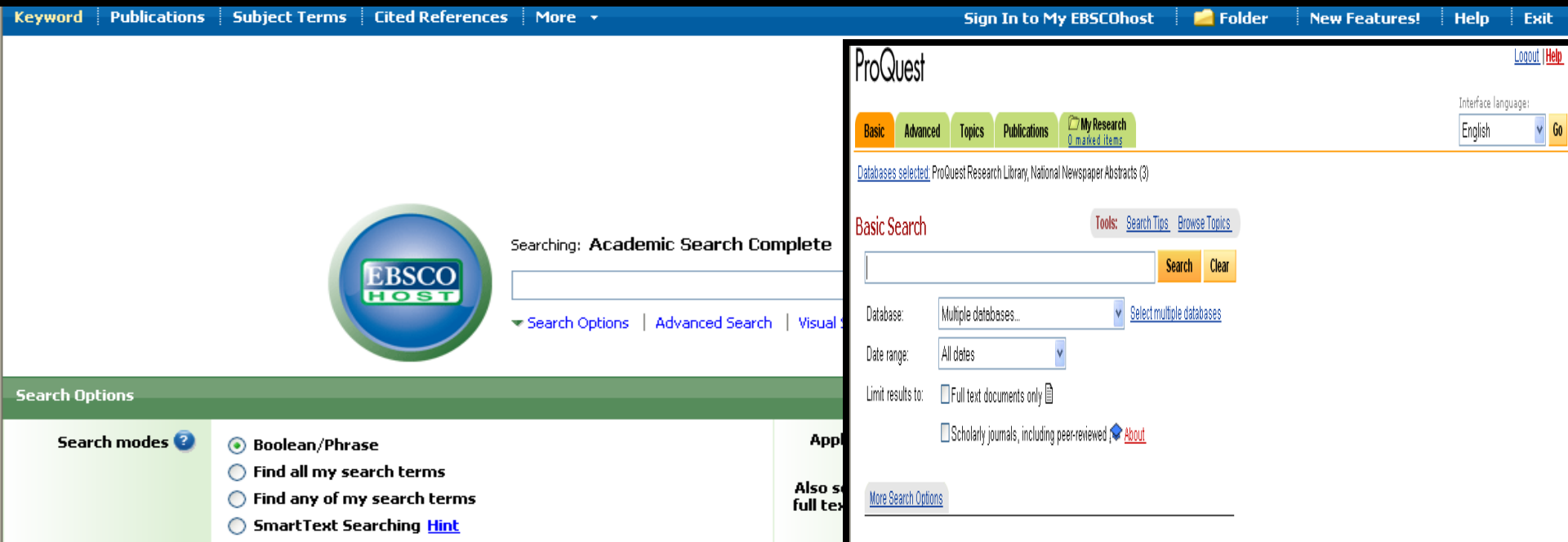
International Sources

CISTI Source (User ID: fgh76499 Password: sw45brr) (description)

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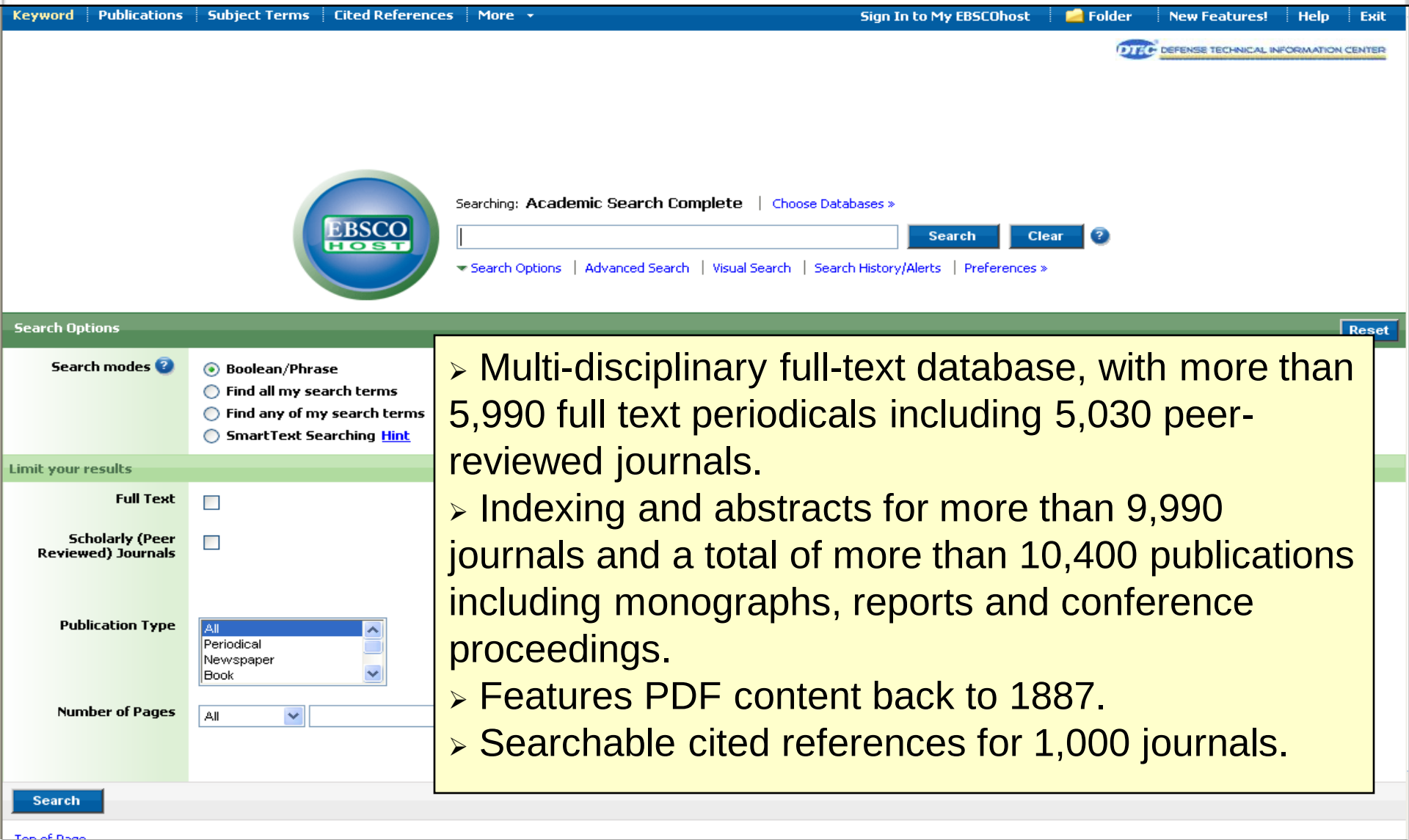
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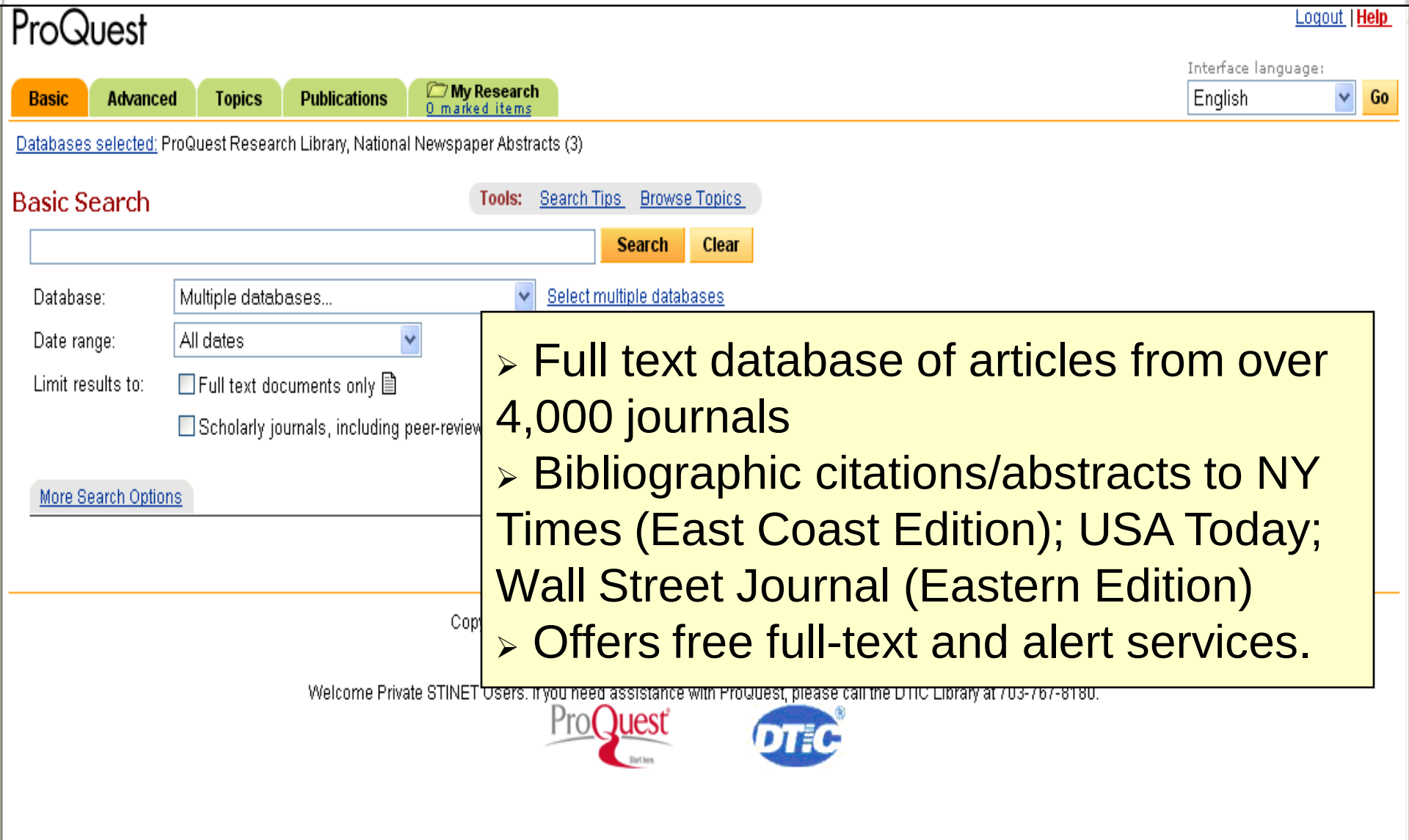
EBSCO Academic Search Complete



- 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.

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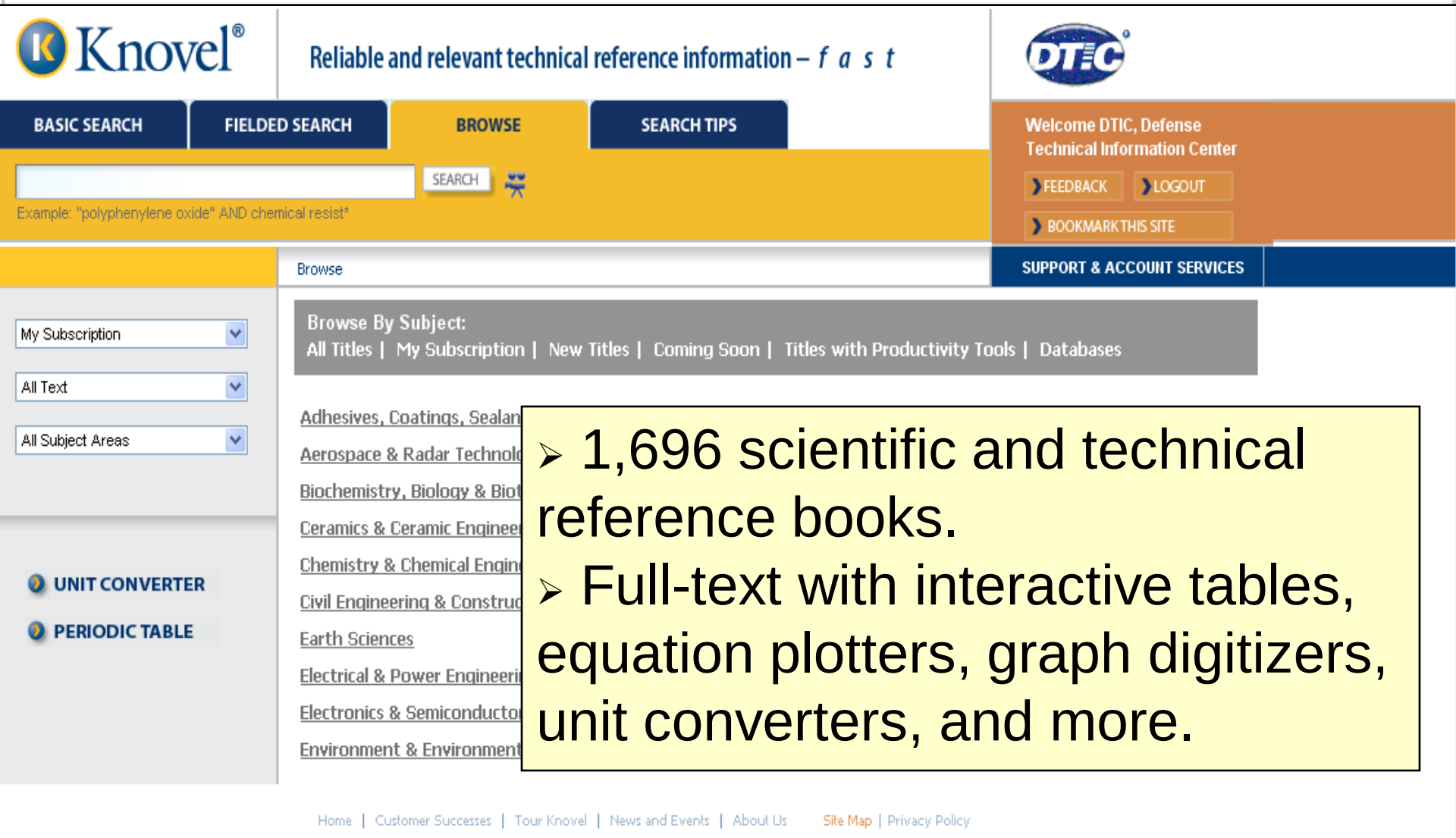
ProQuest Research Library Complete



- 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)
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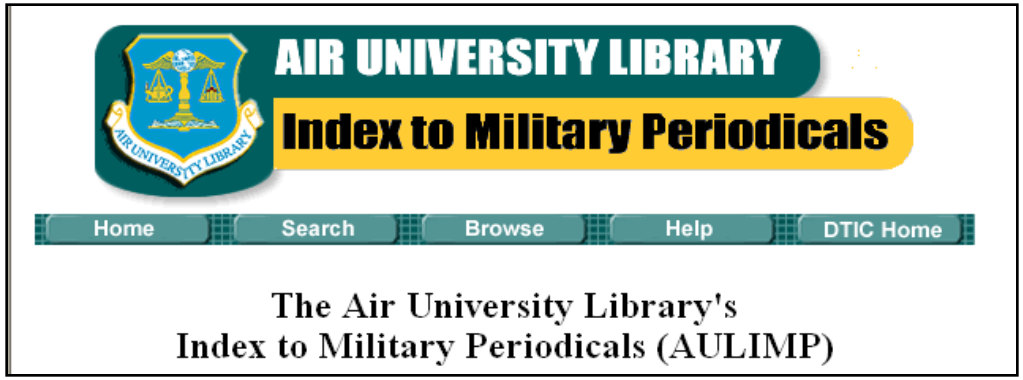
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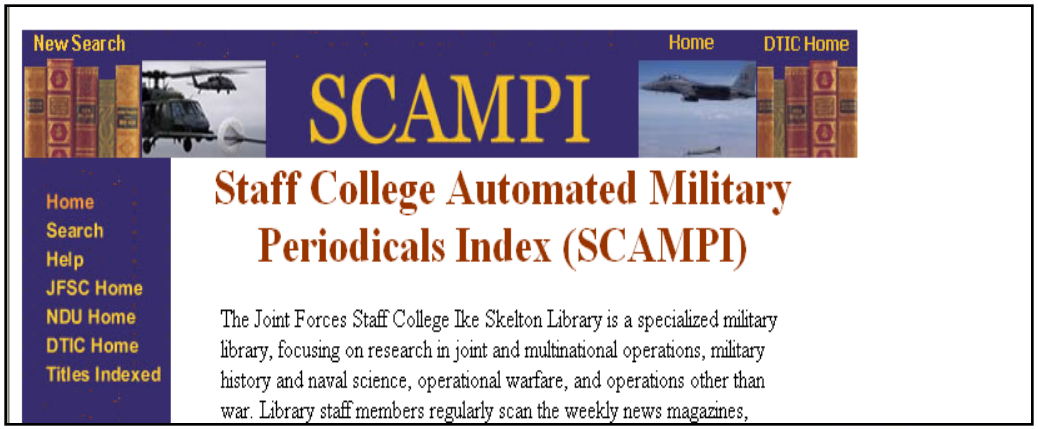
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AULIMP: Joint effort between DTIC and Air University Library. Articles are selected from military and aeronautical journals by librarians. Brief citations, no abstracts, 1988–present. Includes links to some journals' websites.

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.



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- Free federated search of 26 government and association databases of proceedings.
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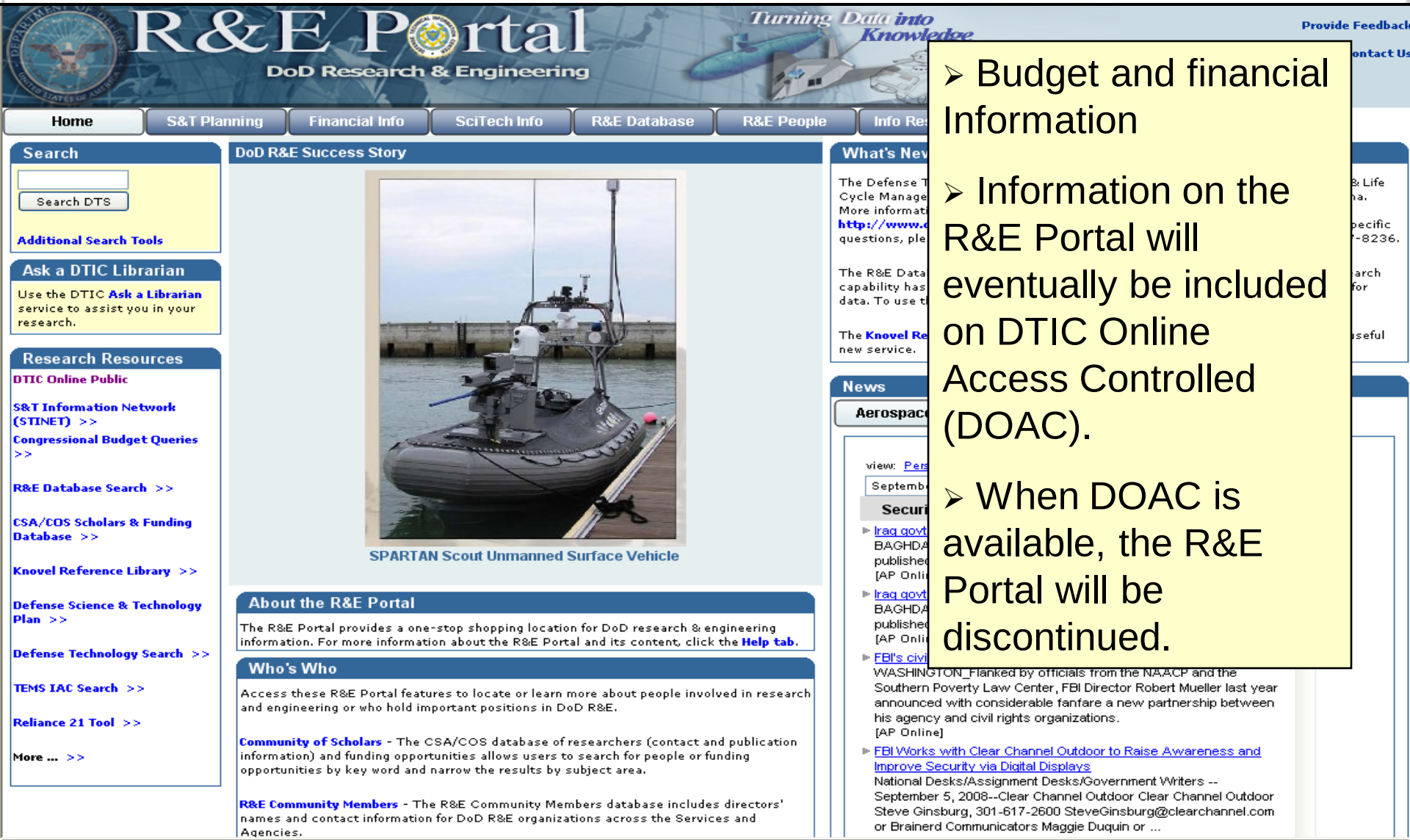
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All the information, sites and search options on the R&E Portal will be moved to the new DTIC Online Access Controlled (DOAC) when DOAC goes live.

R&E Portal - https://rdte.osd.mil



- Budget and financial Information
- Information on the R&E Portal will eventually be included on DTIC Online Access Controlled (DOAC).
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S&T Planning



R&E Portal
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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.

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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.

Distribution A

FY02 CA/OT Report
FY03 CA/OT Report
FY05 CA/OT Report
FY06 CA/OT Report

DoD Congressional Budget Data
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Previous Reports

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Disclaimer: *The Congressional budget data contained on this site is based on the authoritative information found on Thomas, the Library of Congress' Web site. DTIC scans the Congressional budget data and converts the information into Excel spreadsheets, which are easier to manipulate. The converted data is reviewed by DTIC to ensure accuracy; however some conversion errors can be overlooked. The scanning process is approximately 95% accurate. You can view the authoritative Congressional budget data at: http://www.thomas.gov .*

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FY2009 HASC (House Report 110-652) 9.5MB	2.2MB	383K	2.2MB	258K	815K	112K	45K	81K
FY2009 SASC (Senate Report 110-335) 8.2MB	1.9MB	205K	1.8MB	307K	836K	195K	64K	69K
Congressional Record for the FY09 Defense Authorization Act (S. 3001) 12.7MB	2.9MB	253K	2.4MB	494K	1.1MB	221K	47K	30K
FY2009 HAC	Report not yet released							
FY2009 SAC	Report not yet released							
FY2009 Appropriations Conference Report (CR and FY2009 Minibus) 35MB	4.4MB	315K	14.3MB	411K	10.6MB	97K	5.7MB	110K

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DoD Congressional Budget Database

Welcome to the DoD Congressional Budget Database Website

The DoD Congressional Budget Database Website, accessible through the R&E Portal, is an Internet based tool for display and query of the President's Budget Request (PBR) data and the Congressional Marks data, the original PBR data that are adjusted (marked).

Congress "marks" the PBR data six times before the budget becomes Public Law; publishing the following six related reports:

- House Armed Services Committee (HASC)
- Senate Armed Services Committee (SASC)
- Authorization Conference Report
- House Appropriations Committee (HAC)
- Senate Appropriations Committee (SAC)
- Appropriations Conference Report

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

R&E Portal:

- Budget and Finance
- People

Community of Scholars

R&E Portal
DoD Research & Engineering

Turning Data into Knowledge

Home | S&T Planning | Financial Info | SciTech Info | R&E Database | R&E People | Info Resources | Help

Search

Search DTS

Additional Search Tools

Ask a DTIC Librarian

Use the DTIC **Ask a Librarian** service to assist you in your research.

Research Resources

S&T Information Network (STINET) >>

Congressional Budget Queries >>

R&E Database Search >>

CSA/COS Scholars & Funding Database >>

DoD R&E Success Story



Researchers Improve Capability to Detect Cryogenic Tank Damage (Source: AFRL)

What's New

AT&L and DTIC host the Combatant Commanders Workshop 29-30 O
Register for the 2007 Combatant Commanders Workshop, "Rapid Tec
Support for the Warfighter," 29 and 30 October 2007, "Lighthouse," S
VA. Space is limited. Workshop details and registration information ar
available at: **https://www.enstg.com/Invitation**. Enter Code: 2006

Notice to R&E Database Data Call Users: New clarifications have bee
to the 2007 R&E Database Data Call Instructions. Please refer to the
document, R&E Database Data Call 2007 Clarifications, posted on th
Database tab.

The **Knovel Reference Library** is now available through the R&E Portal
Check out this useful new service.

News

Aerospace | Energy | Surveillance | Other N

view: Personalize My Editors' Picks | All Editors' Picks

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.

Community of Scholars Results

1 of 2926 Next >

Mark This Record | Update Marked List | Save, Print, Email

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 d
- Vibration control using tuned mass damp
- Non-linear dynamic analysis
- Non-classically damped systems
- Stochastic earthquake analysis
- Active control of structures

Scholar Profile from COS Scholar Universe
Edit this Profile
Suggest a Scholar

Name, Address, affiliations, Web pages, degrees, research interests.

Community of Scholars Results

Selected Publications 30 | Web Content 2

Authorship by **Jangid, R. S.** has been verified for the publications listed below.

All Publication Types 30 | Journals 28 | Peer-Reviewed Journals 23 | Conferences 2

Mark or Clear all on page | Update Marked List | Save, Print, Email

Sort by: Most Recent First Go

◄ Previous 1 2 3 Next ►

Record # Go

1. **Optimum friction pendulum system for near-fault motions**

Jangid, R S

Engineering Structures. Vol. 27, no. 3, pp. 349-359. Feb. 2005

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

Database:
CSA / ASCE Civil Engineering Abstracts

Descriptors:
Friction | Optimization | Acceleration | Seismic engineering | Bridges (structures) | Buildings

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. PiSA\NL - a computer program is ...

Publications are listed below the Scholar profile.

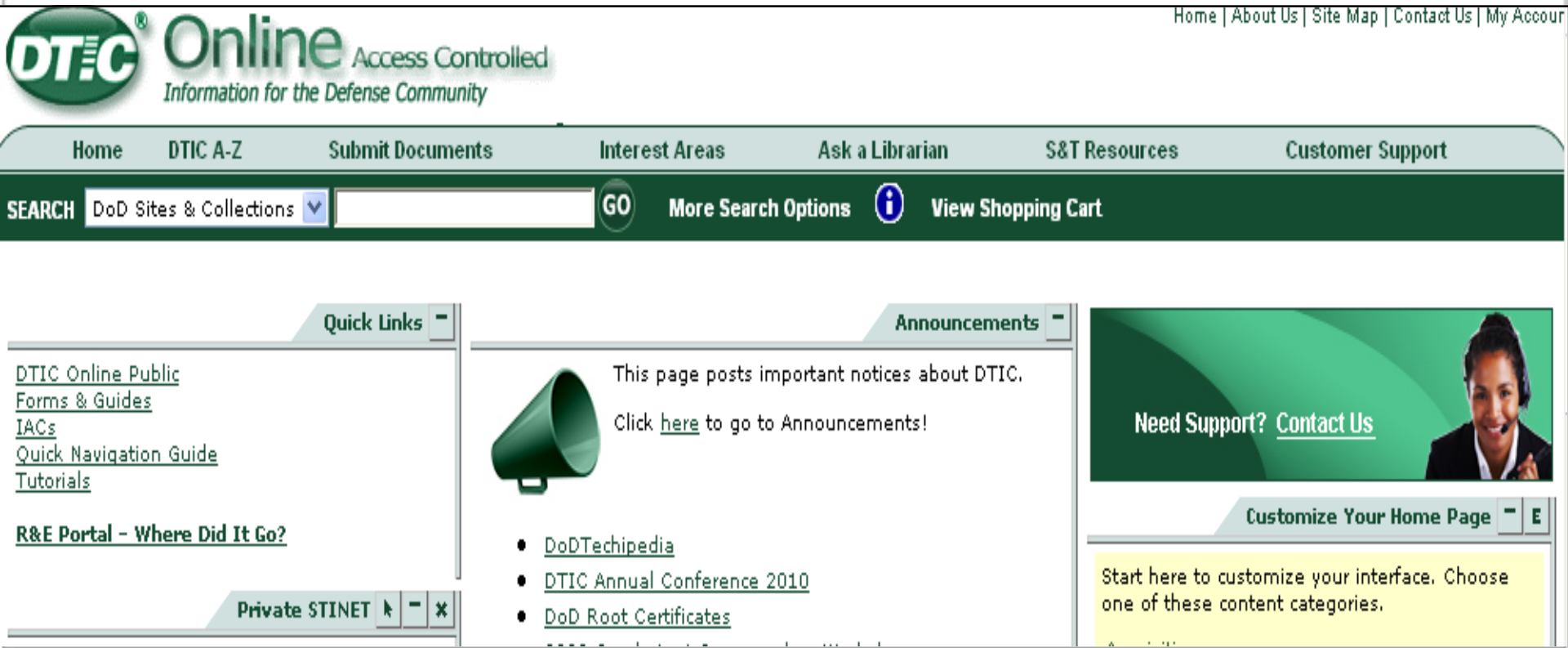
Quick Look at the DTIC Online Sites & Content

- 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

<u>Session 1</u>

- 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



Private STINET

(Scientific & Technical Information Network)

Home | Collections | Find It | Contact Us | Help

- About STINET
- What's New
- DTIC Collections
- Special Collections
- Other Tech Reports
- Journals
- Other Resources
- Ordering from DTIC
- Change Password
- MCTL
- MultiSearch

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.

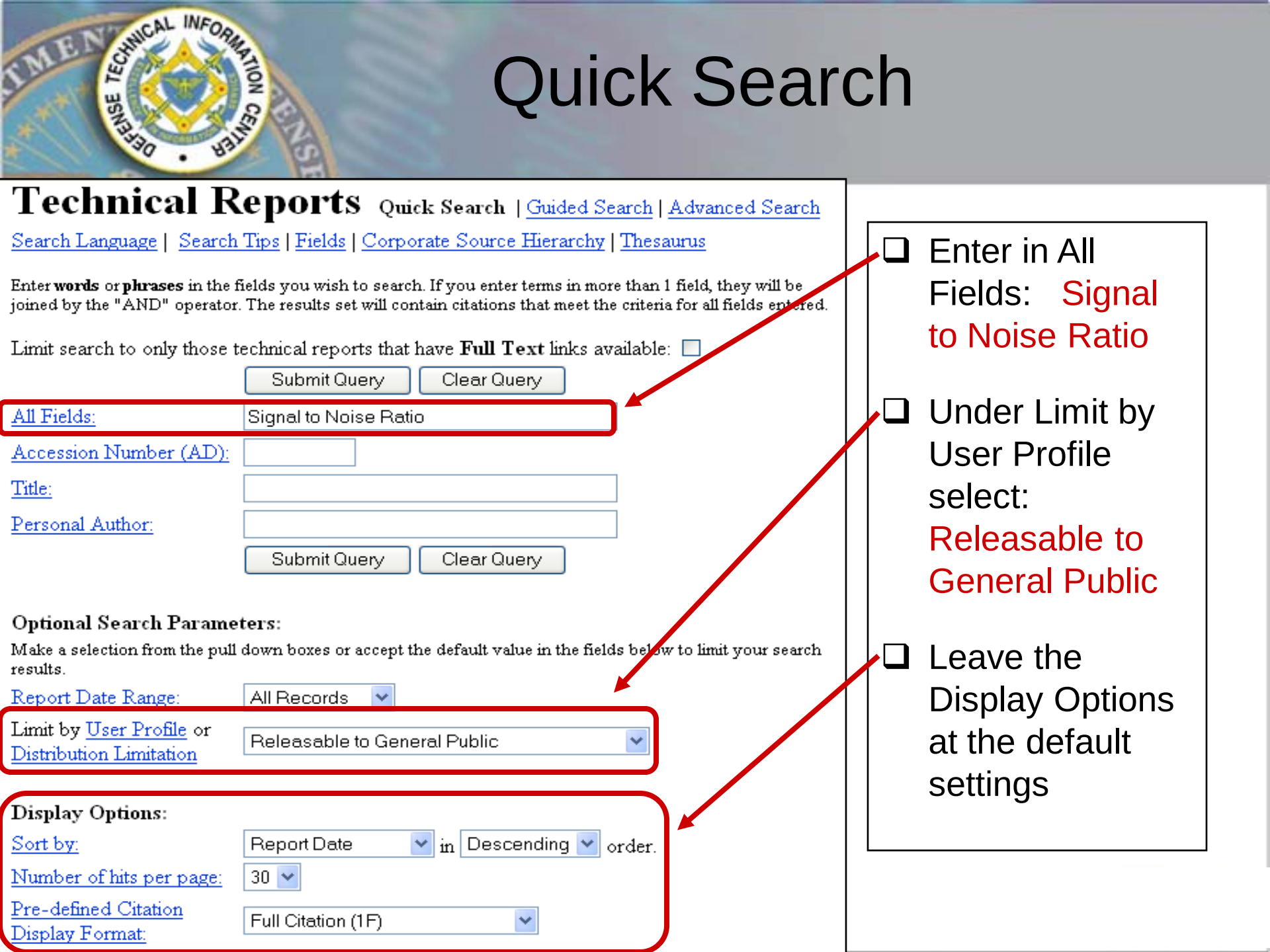
Perform a simple search of DTIC's primary collections:

☑ -Technical Reports	Quick Search	Guided Search	Advanced Search
☐ -Research Summaries	Quick Search	Guided Search	Advanced Search
☐ -IR&D "PROPRIETARY"	Quick Search	Guided Search	Advanced Search

Search for :

Search | Clear Query | Search Help

Quick Search



- 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): **tr**.

Save This Search

Order Bib

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]

Put checked items in Shopping Cart

Press this button to add items before leaving this page.

1. View TR Citation | View Full Text pdf - 10.8 MB

Add to Shopping Cart

Title: New Transfer Theory Relationships for Signal and Noise Analyses of X-Ray Detectors
AD Number: ADA435763 *Corporate Author:* JOHN P ROBARTS RESEARCH INST LONDON (ONTARIO) *Personal Author:* Cunningham, Ian A. *Report Date:* October 01, 2005 *Media:* 145 Page(s) *Distribution Code:* 01 - APPROVED FOR PUBLIC RELEASE *Report Classification:* Unclassified *Source Code:* 430900 From the collection: Technical Reports

2. View TR Citation | View Full Text pdf - 442.2 KB

Add to Shopping Cart

Title: Multifunctional Magnetic Nanoparticle Probes for Deep-Tissue Imaging
AD Number: ADA434280 *Corporate Author:* EMORY UNIV ATLANTA GA *Personal Author:* Bao, Gang *Report Date:* June 08, 2005 *Media:* 8 Page(s) *Distribution Code:* 01 - APPROVED FOR PUBLIC RELEASE *Report Classification:* Unclassified *Source Code:* 129150 From the collection: Technical Reports

3. View TR Citation | View Full Text pdf - 475.9 KB

Add to Shopping Cart

Title: Modeling and Simulation of the Physical Layer of the Single Channel Ground and Airborne Radio System (SINCGARS)
AD Number: ADA435904 *Corporate Author:* NAVAL POSTGRADUATE SCHOOL MONTEREY CA *Personal Author:* Paradise, Richard A. *Report Date:* June 01, 2005 *Media:* 75 Page(s) *Distribution Code:* 01 - APPROVED FOR PUBLIC RELEASE 26 - NOT AVAILABLE IN MICROFICHE *Report Classification:* Unclassified *Source Code:* 251450 From the collection:

- Search statement and number of records found
- Other pages of results
- Up to 1000 records will display
- Link to the citation
- Link to the full text

Records



Other items on page 1 of your search results: 1 | **2** | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30

Citation Format: Full Citation (1F)

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 Status:
Active
Citation Classification:
Unclassified
Field(s) & Group(s):
061200 - MEDICAL FACILITIES, EQUIPMENT AND SUPPLIES
200600 - OPTICS
Corporate Author:
EMORY UNIV ATLANTA GA

Unclassified Title:
(U) Multifunctional Magnetic Nanoparticle Probes for Deep-Tissue Imaging

Title Classification:
Unclassified
Descriptive Note:
Final technical rept. 1 May 2003-31 Oct 2004

Personal Author(s):
Bao, Gang

Report Date:
08 Jun 2005

Media Count:
8 Page(s)
Cost:
$9.60
Contract Number:
F49620-03-1-0320
Report Number(s):
AFRL-SR-AR-TR-05-0226
XC-AFOSR

- Links to other records on the results page.
- Short URL for full text.
- Accession Number
- Title
- Author
- Report date

Records

Monitor Acronym:
AFRL-SR-AR
XC
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 1 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 nanoprobes 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

- Subject terms
- Abstract
- Terms no longer highlighted
- Distribution Limitation
- Use the Back Button to return to list.

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

How Verity Searches Current Private STINET

All Fields: Signal to Noise Ratio

Accession Number (AD):

Search page

Your search for (signal to noise ratio) <and> (01 <in> dc) matched 6899 out of 2017387 documents from the collection(s): tr.

Statement on Search Results page

- No quotes for phrases
- No stop words
- Ignores case
- Ignores most punctuation

Abstract:

(U) The goal of the DARPA-AFOSR project is to develop multifur

Search terms in record

for deep-tissue imaging using MRI. The specific objectives of the 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 nanoprobes 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.

Punctuation

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, Truncation & Wildcards

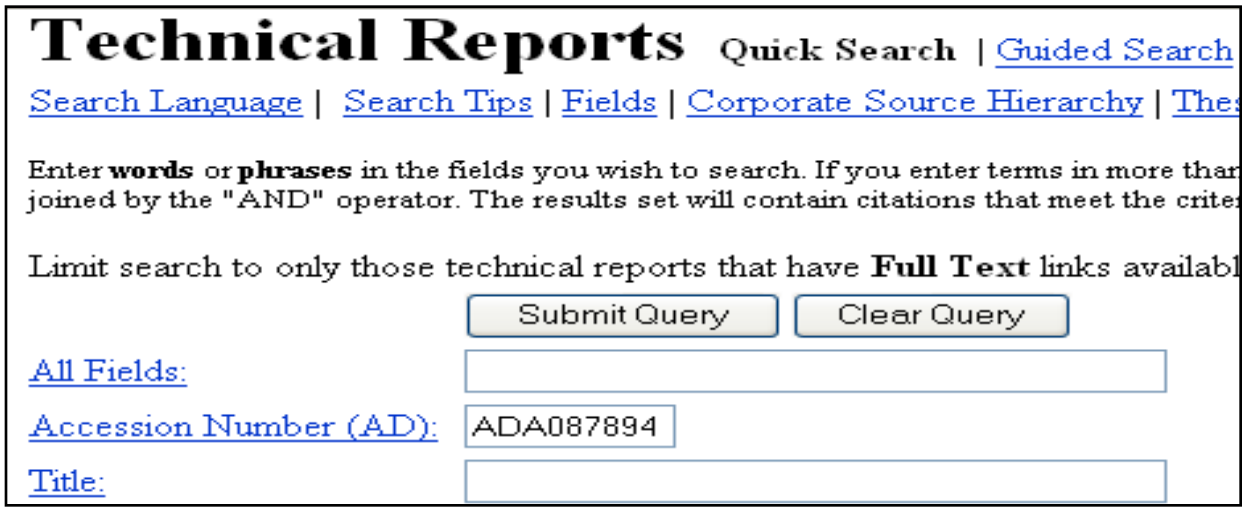
Stemming: ***detect*** finds over 200,000 records, including the terms ***detects, detecting, detective,*** etc., but not ***detector*** or ***detectors***.

Without Stemming: ***"detect"*** finds over 15,000 records, only the term ***detect***

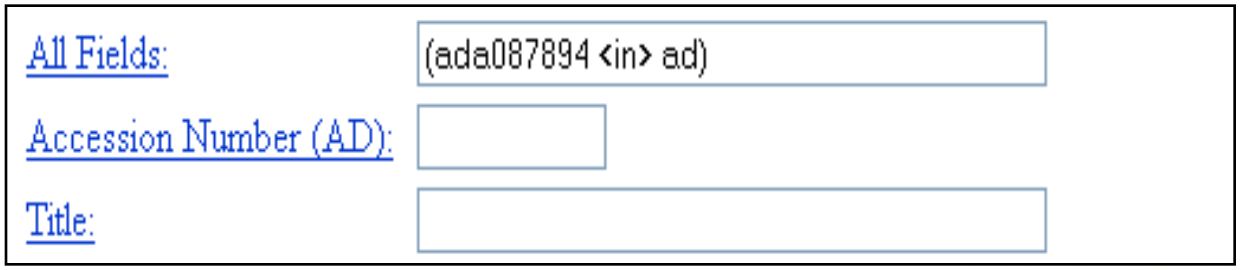
Truncation: ***detect**** finds over 230,000 records, including the terms ***detect, detects, detector, detectors, detective***, etc.

Wildcard: ***detect?*** finds over 1,200 records, only the term ***detects,*** not ***detect***.

Accession Numbers

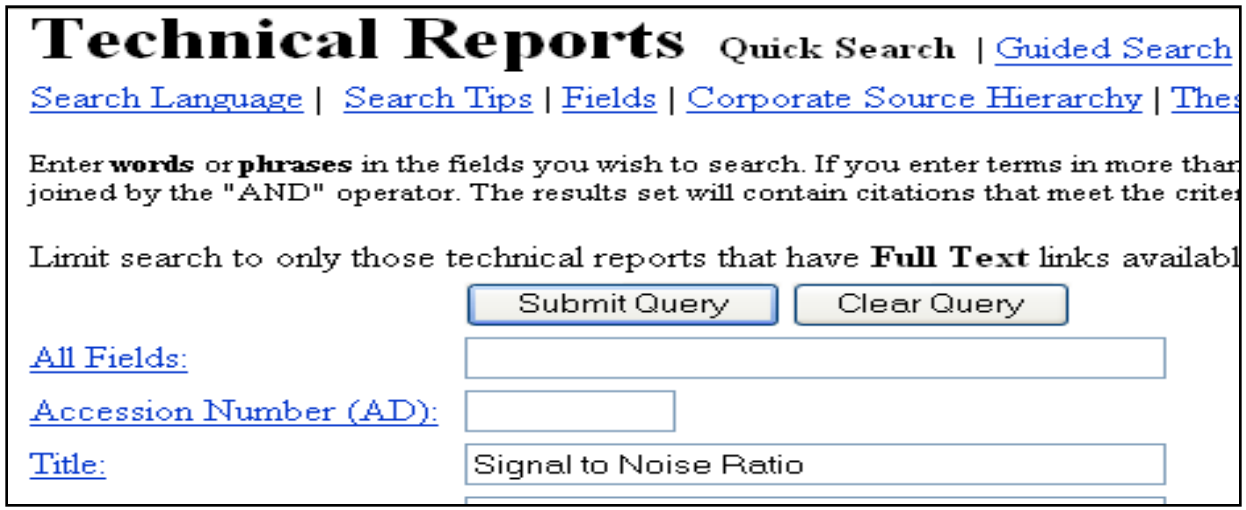


Your search for **(ada087894 <in> ad)** matched **1** out of **2057602** documents from the collection(s): **tr.**

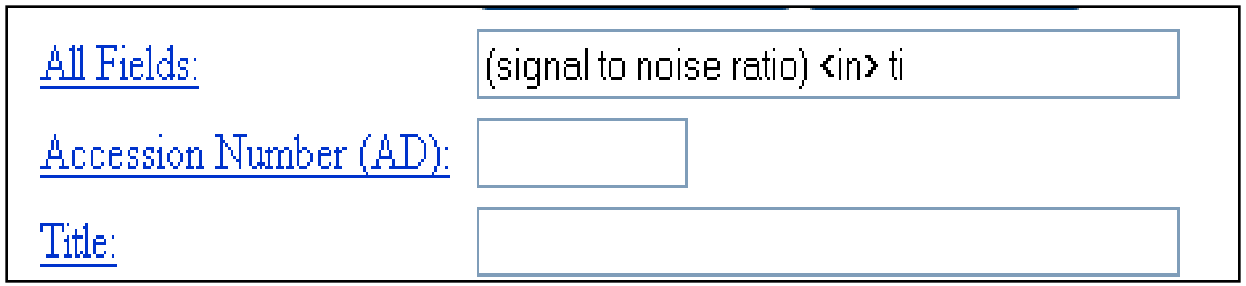


- In the Accession Number field enter: ADA087894
- Note the ad mnemonic and <in> operator on the search results screen.
- You can use this language in All Fields.

Titles

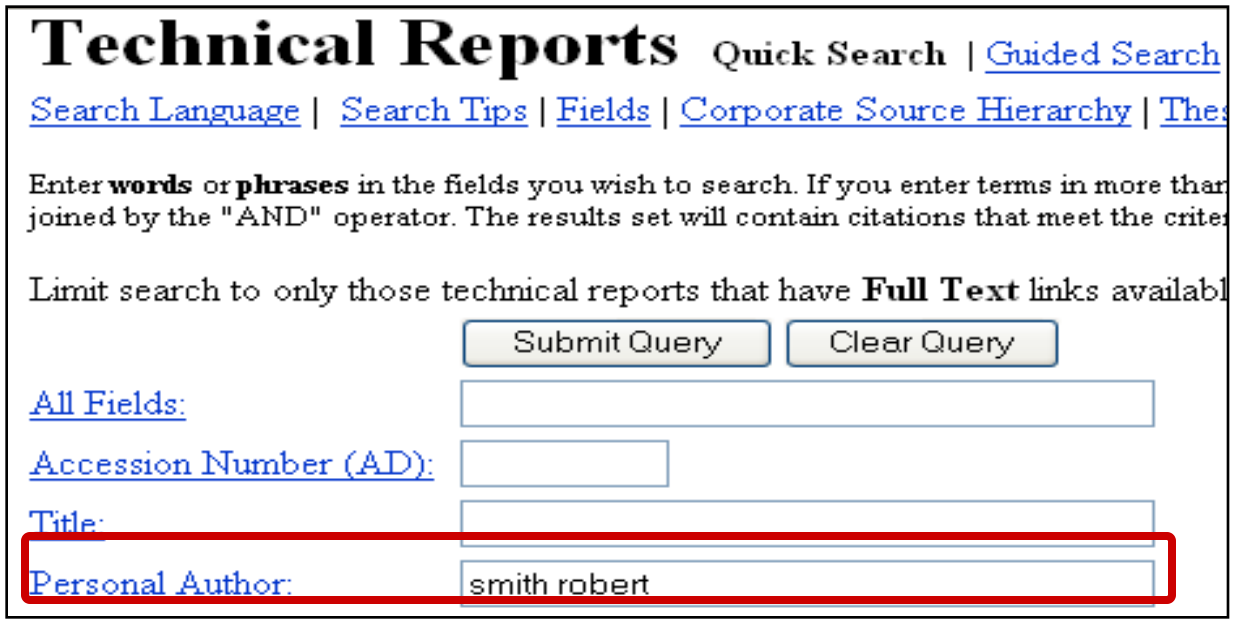


Your search for **((signal to noise ratio) <in> ti)** matched **216** out of **2057602** documents from the collection(s): **tr.**

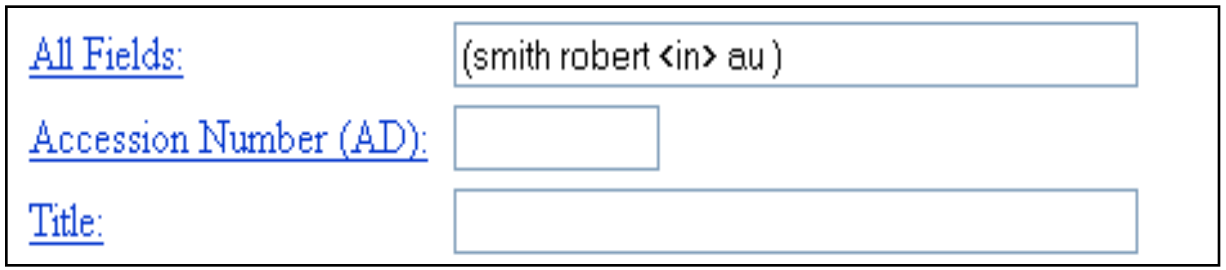


- In the Title field enter: *Signal to Noise Ratio*
- Note the *ti* mnemonic and *<in>* operator on the search results screen
- You can use this language in All Fields

Authors







- 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

Personal Authors

- **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***

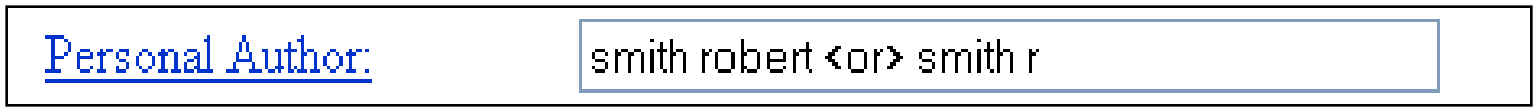
- All searches are stemmed unless you use quotes.

  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:

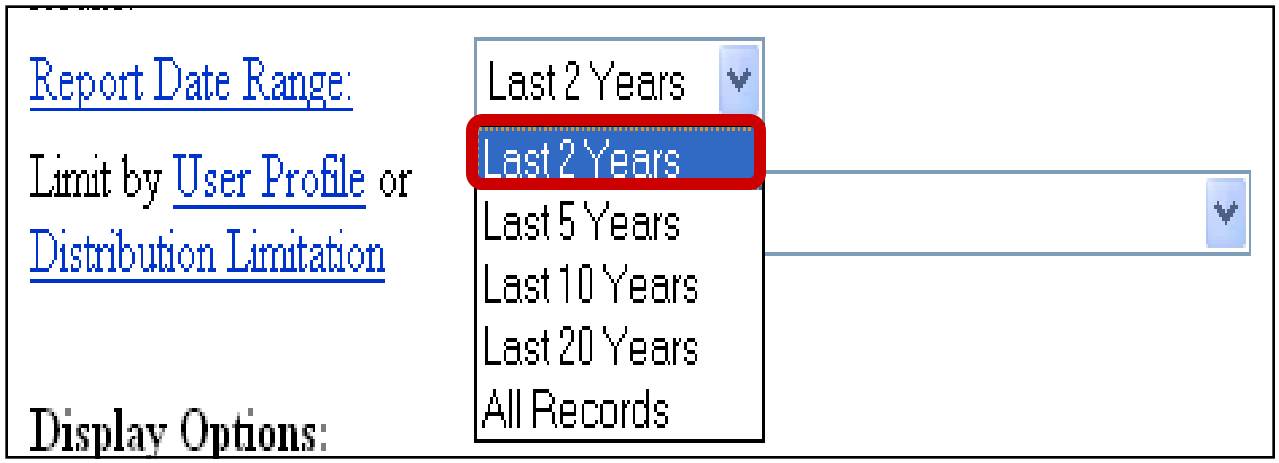
Smith, Robert
Smith, Robert Q
Smith, Robert Dale

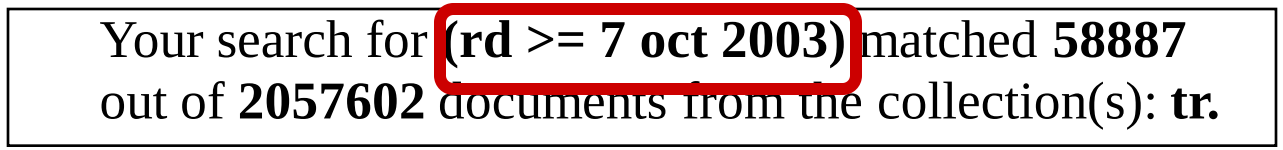
Smiths, R
Smith, R S
Smith, R D

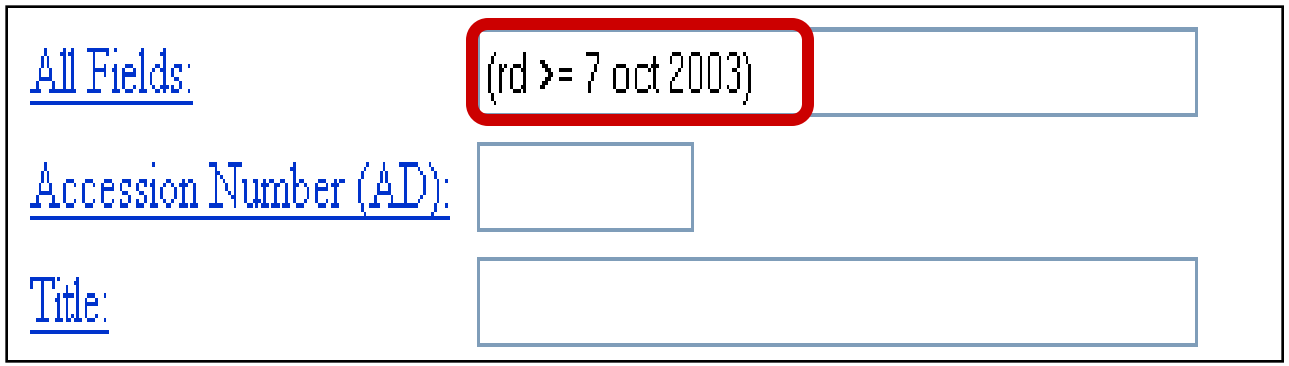
Smith, R Daniel
Smith, R Allen

Leave out the middle initial since the author may not have always used it.

Report Dates







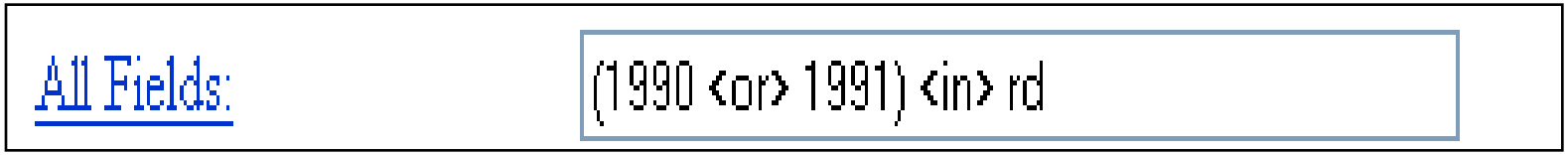
- Date searches use relational operators: **>, <, =, <=, >=**.
- Dates must be in the format ***DD MMM YYYY***.
- ***rd*** is the mnemonic for Report Date.
- Note the order is mnemonic-operator-date.

Report Dates

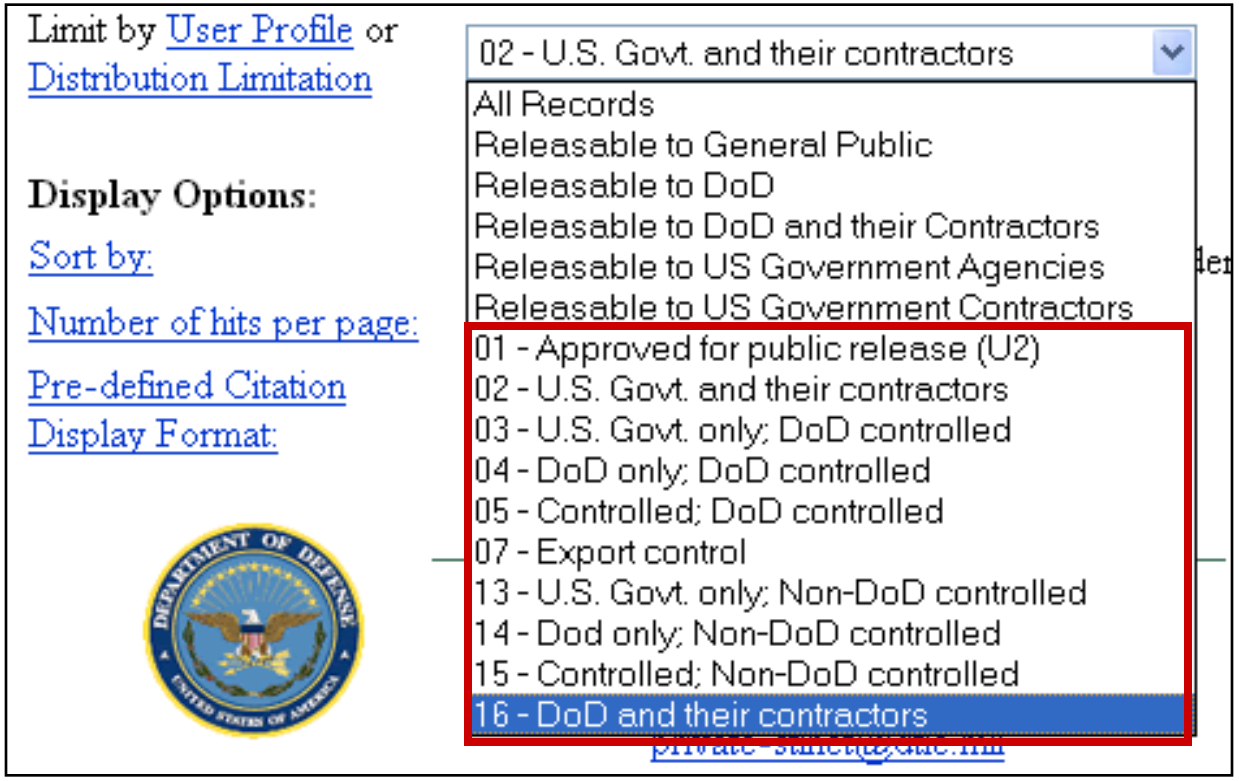
To search a range of dates use **<and>** to combine two search statements that define the beginning and end dates.



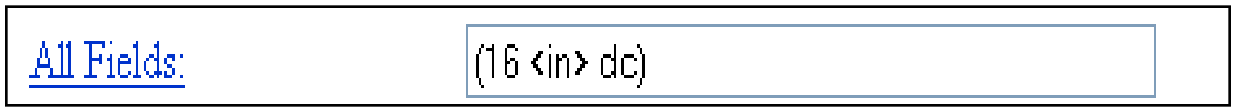
You can also use **<in>** and **<or>**.



Distribution Limitations

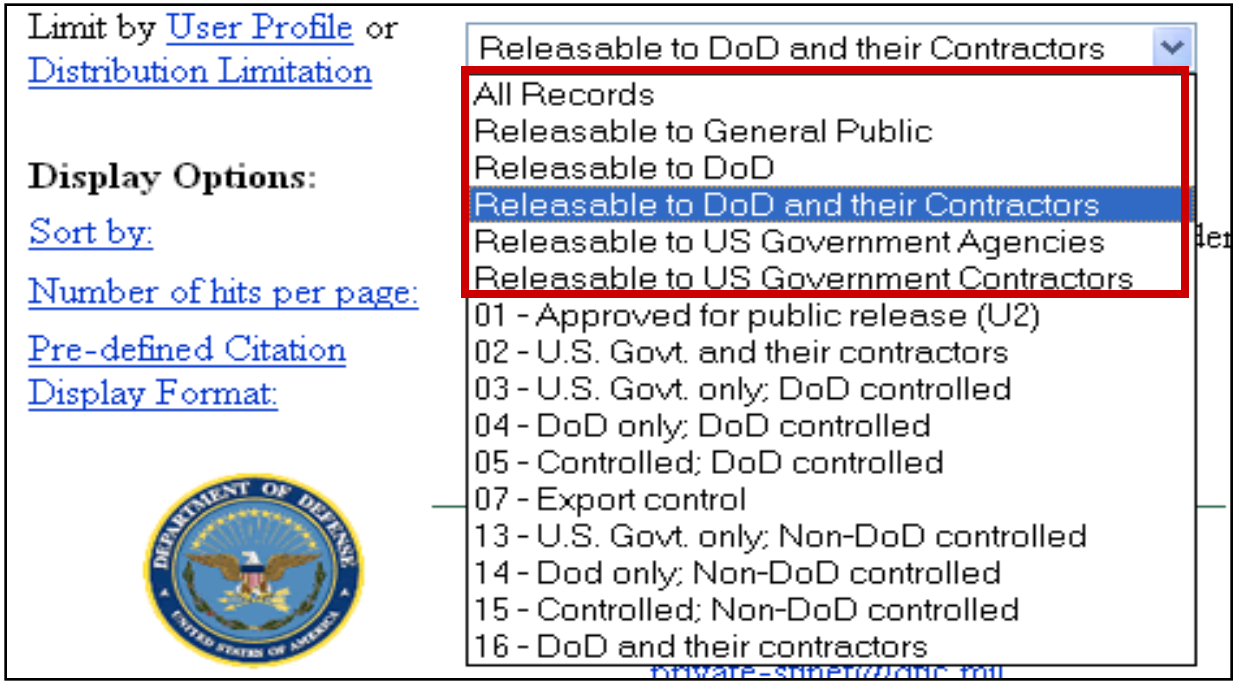


Your search for **(16 <in> dc)** matched **38873** out of **2062592** documents from the collection(s): **tr.**

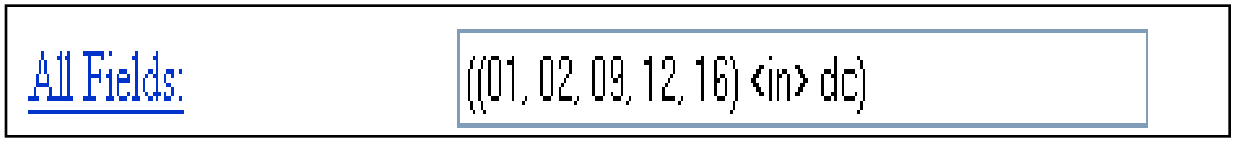


- Markings on the document that indicate to whom the document can be released.
- ***dc*** is the mnemonic for Distribution Code.
- Some options search additional codes with the same meaning.

User Profiles

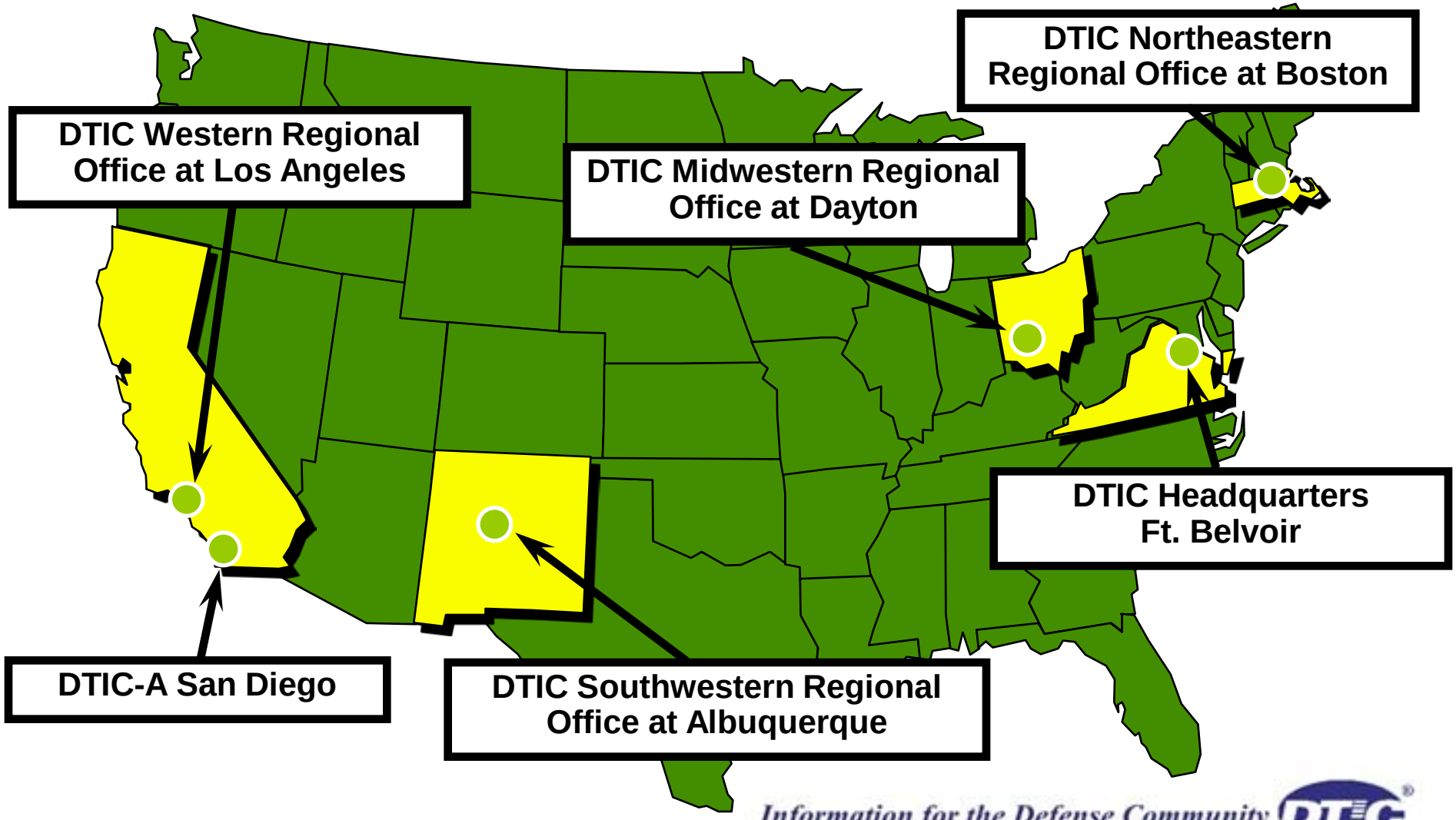


Your search for **((01, 02, 09, 12, 16) <in> dc)** matched **1563034** out of **2062592** documents from the collection(s): **tr.**



- 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.

Contact – Regional Offices



Information for the Defense Community DTIC®

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

Candy Parker
703-767-7039
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cparker@dtic.mil

Karen Nimerick
703-767-9072
DSN: 427-9072
knimeric@dtic.mil

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Information for the Defense Community

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
cparker@dtic.mil
703.767.7039

Karen Nimerick
knimeric@dtic.mil
703.767.9072

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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

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

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

Content Repository

- More than 2 million documents in the technical reports collection
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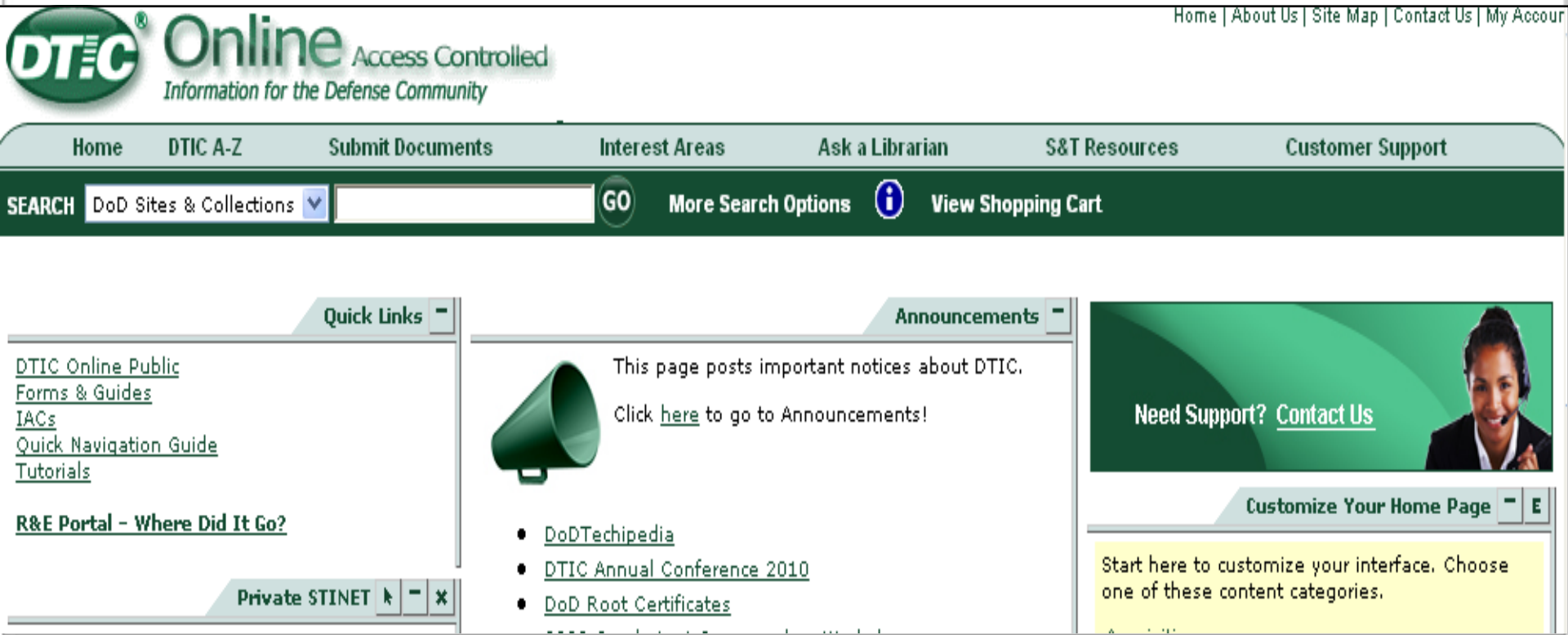
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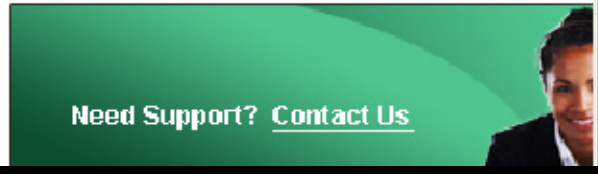
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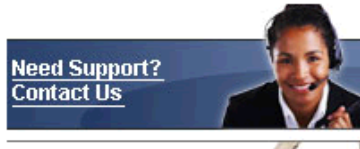
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A160 Hummingbird UAV
The A160 program will exploit a hingeless, rigid-rotor



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- 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

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Army Spc. Matthew B. Hintermaier sorts through insects caught in a light trap at Forward Operating Base Kalsu, Iraq, July 10, 2009. After sorting the insects, Hintermaier puts the sand flies and mosquitoes into small vials to be sent to Baghdad for disease testing. U.S. Army photo by Pfc. Bethany L. Little Full Story

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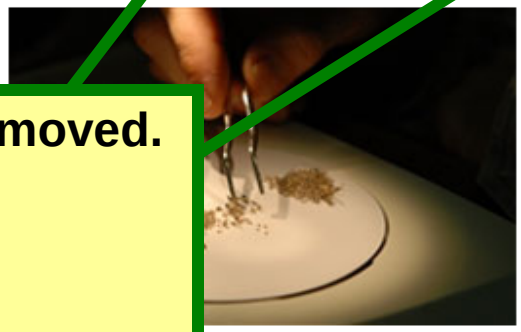
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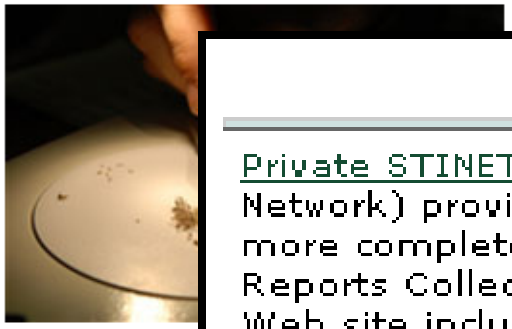
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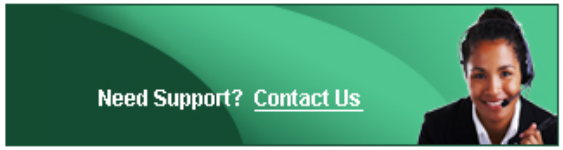
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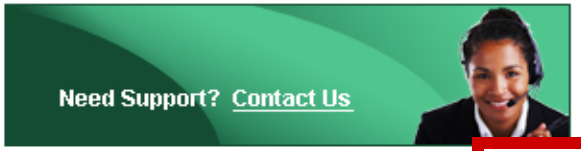
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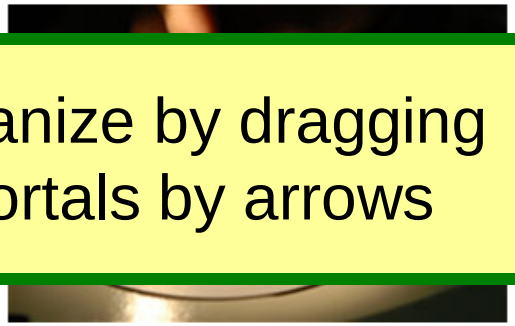
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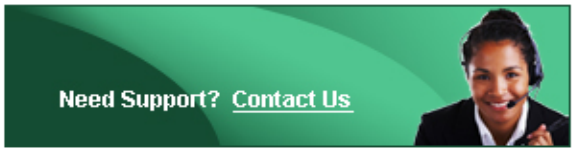
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FY09 by BA and FY09 by Component

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Two sites provide information on Congressional Budget changes to the President's Budget Request (PBR).

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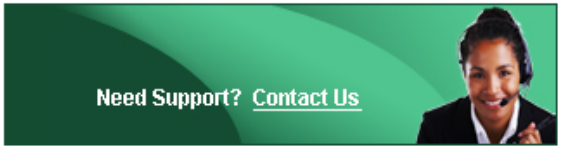
DDR&E

The Director of Defense Research & Engineering (DDR&E) Public Web site describes the mission, history, and organization of the office, introduces the Director, the Honorable John J. Young, and provides access to briefings and testimony. DDR&E is the organizational parent of the Defense Technical Information Center (DTIC).

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RDDS (R-2s)

Research and Development Descriptive Summaries (RDDS) furnish narrative information on Research, Development, Test and Evaluation (RDT&E) programs and Program Elements (PE Numbers) within the Department of Defense (DoD). You can access older R-2s (1996-2000) through the Scientific & Technical Information Network (STINET) Web site.



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The Defense Science & Technology Plan (DSTP) Web site provides the latest planning documents describing key technology areas and programs funded by the Department of Defense (DoD). These documents include the Basic Research Plan (BRP); Component Science and Technology (S&T) Strategic Plans; Defense S&T Success Stories Catalogue; Director, Defense Research and

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- S&T Planning page
- Financial Info page
- SciTech Info page
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R&E Portal - Where Did It Go?

Info Resources Page

- 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)
  - CSA/COS 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)
  - Information Analysis Centers (IAC) Total Electronic Migration System (TEMS)
  - Knovel Reference Library
  - Lab Demographics
  - Militarily Critical Technologies List (MCTL) (Restricted)
  - RDT&E Budget Resource Queries
  - Rapid Reaction Technology Office (RRTO)
- Current Files
  - Official Correspondence
  - Congressional Testimony
  - General Information and Briefings

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DTIC Online Public
Forms & Guides
IACs
Quick Navigation Guide
Tutorials

R&E Portal – Where Did It Go?

Private STINET (Scientific & Technical Information Network) provides DTIC registered users a more complete version of DTIC's Technical Reports Collection than in the DTIC Online Public Web site including citations to limited distribution and an extensive full text report collection.

Access to Data Controlled by Distribution

The Total Electronic Migration System (TEMS) provides the full online collection of Defense Information Analysis Center (IAC) scientific and technical information. TEMS provides over 1,000,000 citations and 140,000 downloadable full text documents.

Access to Data Controlled by Distribution

DoDTechipedia is DoD's first enterprise-wide, social-networking tool focused on the science and technology community. Using a wiki format, DoDTechipedia's goal is to foster

Army Spc. Matthew B. Hintermaier sorts a light trap at Forward Operating Base K... After sorting the insects, Hintermaier put mosquitoes into small vials to be sent to... testing. U.S. Army photo by Pfc. Bethany...

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R&E Portal - Where Did It Go?

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  - Congressional Budget Queries
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Site Map



Site Map

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  - CBRNIAC
  - CPIAC
  - DACS
  - IATAC
  - MSIAC
  - RIAC
  - SENSIAC
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  - WSTIAC

Announcements

Interest Areas

- Air Platforms
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- Chemical Biological Defense
- Civil Engineering
- Conventional Weapons
- Directed Energy
- Environmental
- Ground Vehicl
- High Performa
- Information Sy
- Modeling and
- Sensors
- Surface Ships
- Strategic Envir
- Weapons Mate

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  - DoD Congressional Budget Queries
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  - Current Awareness - Alerts
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      - Advanced Ceramics
      - Advanced Energetic Materials
      - Biometric Security
      - Energy Supply Alternatives
      - Human, Social, Cultural and Behavior Modeling
      - Intelligent Autonomous Vehicles
      - Shifting Paradigms & Disruptive Technology
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  - DTIC Search Tools
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DTIC's Scientific and Technical Resources

The scope of DTIC's scientific and technical (S&T) collection cove[illegible]nvironmental pollution and control, and behavioral and social science. The col[illegible]budget information, conference and symposia proceedings, patents and[illegible]

DTIC offers three Web sites for access to its resources and serv[illegible]e to each site is based on an individual's registration level and provid[illegible]

DTIC Online (Public) does not require registration and offers eas[illegible].

DTIC Online Access Controlled requires registration and is a focal point for information on research and engineering activities wit[illegible]. It is sponsored by Director, Defense Research and Engineering (DDR&E) and maintained by DTIC. DTIC Online Access Controlled includes:

- DoD Sites and Collections
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- Technical Reports
- MultiSearch
- Budget Information
- Journals/Conferences/E-Book Collections
- Research in Progress
- Standards, Directives, Guidance
- People
- Topic Links

Navigation menu available

S&T Resources
- Budget and Planning
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- DoD Wide S&T Search
- Technical Reports
- MultiSearch
- How to Get It
- Journals
- People
- Research in Progress
- Standards, Directives, Guidance
- S&T Links
- Topic Links

Expand Navigation Menu



Collapse Navigation Menu



The scope of DTIC's scientific and technical (S&T) collection covers all areas of defense research, including [illegible] and medical science, environmental pollution and control, [illegible] artment of Defense (DoD) directives and instructions, budget [illegible] applications, and other topics of interest to the defens[illegible]

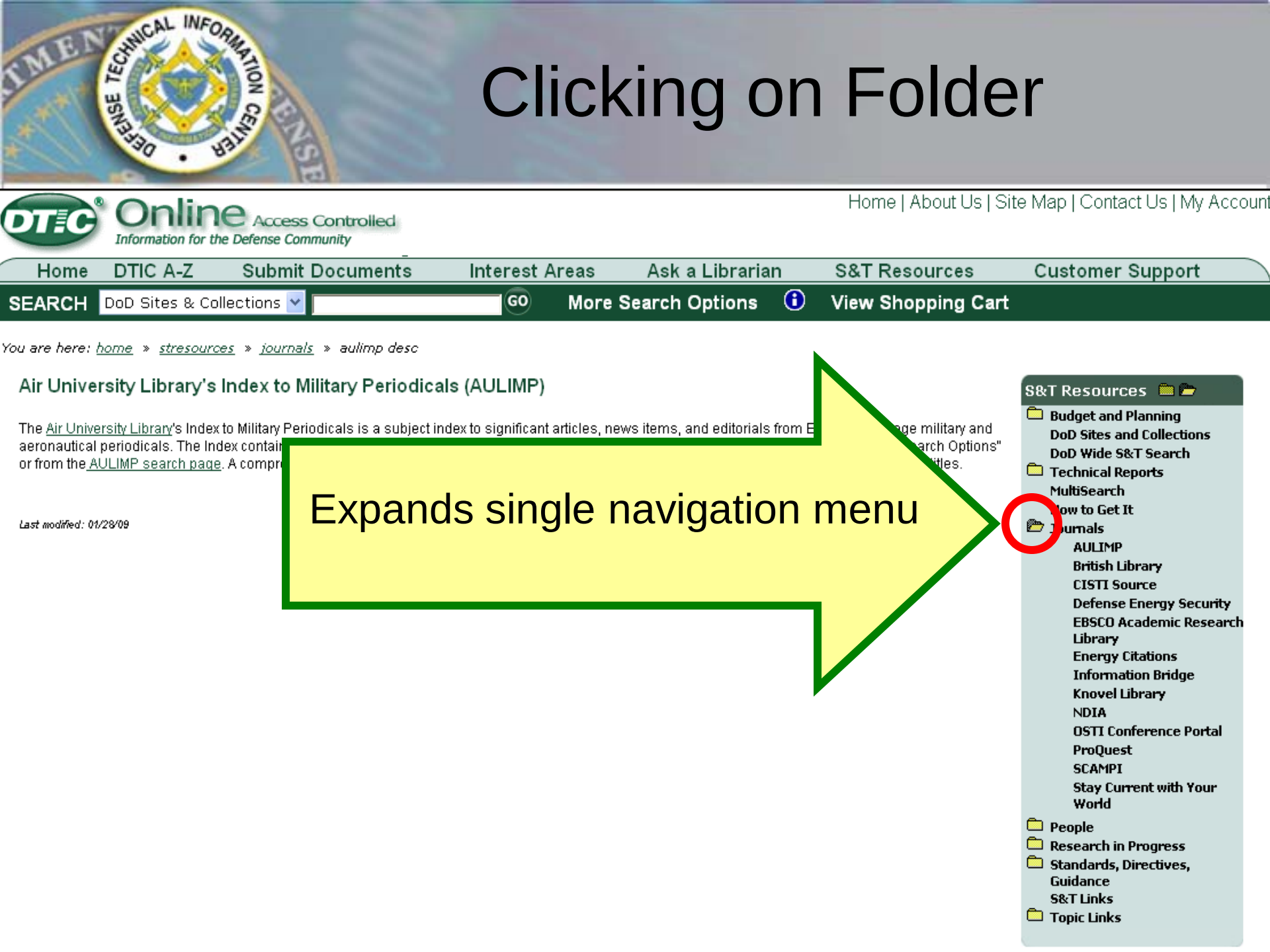
DTIC offers three Web sites for access to its resources: DTIC Online (Public), DTIC Online Access Controlled, and DTIC Online Classified. Entrance to each site is based on [illegible] information coverage.

DTIC Online (Public) does not require registration and offers easy access to publicly accessible information [illegible]nse and federal Web sites.

DTIC Online Access Controlled requires registration and is a focal point for information on research and engineering activities within DoD. It is sponsored by Director, Defense Research and Engineering (DDR&E) and maintained by DTIC. DTIC Online Access Controlled includes:

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Clicking on Link



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Welcome to DTIC

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).

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DoDTechipedia

DoDTechipedia is DoD's first enterprise-wide, social-networking tool focused on the science and technology community. Using a wiki format, DoDTechipedia's goal is to foster communication and collaboration among DoD scientists, researchers, program managers, acquisition professionals and warfighters that results in greater capability and more rapidly implemented solutions being deployed to the warfighter.

Access restricted to DTIC Registered users.

Announcements

Mark your calendars for the DTIC 2009 Conference to be held on 6-8 April at the Hilton Alexandria Old Town, Alexandria, Virginia. More information regarding this conference can be found on the Conference Web site located at http://www.dtic.mil/dtic/annualconf/2009Home.html.

More Announcements ...

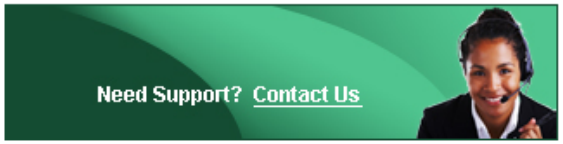
DoD R&E Success Story



A160 Hummingbird UAV

The A160 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 unmanned air vehicle (UAV) with low risk loading and low rotor tip...Full Story

News



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Start here to customize your interface. Choose one of these content categories.

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General Interest
Resource Management
Science and Technology

For more information about customizing your home page, see DTIC Online Help

R&E Database Search

The Research and Engineering (R&E) Database Search allows you to interrogate the data that the Services and Agencies submitted for the FY2006 and FY2007 DoD E-Gov Data Calls. In addition to the parameters you choose on the query screen, the search is limited by the distribution codes associated with your DTIC user account. The data displayed in results is as it was provided to DTIC, with the exception of the financial values, which have been

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Private STINET (Scientific & Technical Info
Network) provides DTIC registered users
more complete version of DTIC's Technica
Reports Collection than in the DTIC Onlin
Web site including citations to limited doc
and an extensive full text report collectio

Access to Data Controlled by Distributio

TEMS

The Total Electronic Migration System (TEMS) provides acce
the full online collection of
Information Analysis Center (
scientific and technical inform
TEMS provides over 1,000,000
citations and 140,000 downloadable full te
documents.

Access to Data Controlled by Distribution

DoDTechipedia

DoDTechipedia is DoD's first enterprise-wide, social-networking tool focused on the science and

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.

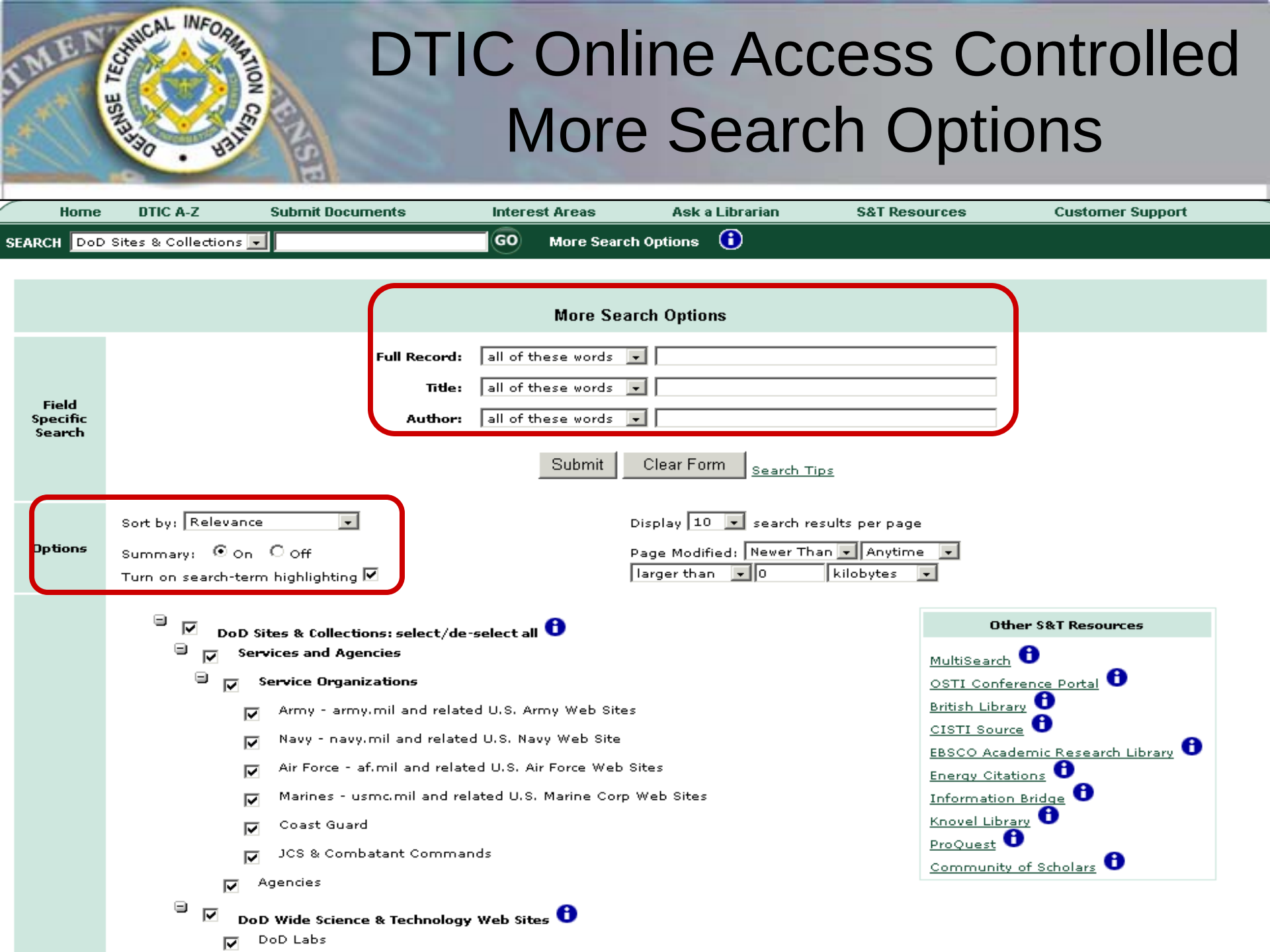
Army Spc. Matthew B. Hintermaier sorts through insects caught in a light trap at Forward Operating Base Kalsu, Iraq, July 10, 2009. After sorting the insects, Hintermaier puts the sand flies and mosquitoes into small vials to be sent to Baghdad for disease

ASSIST

features and an exhaustive collection of both digital and warehouse documents. ASSIST is the official source of DOD specifications and standards.

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  - TEMS
- **Search Tools**
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  - DTIC Thesaurus
- **Journal Articles & Conference Proceedings**
  - The Air University Library's Index to Military Periodicals (AULIMP)
  - Defense Energy Security
  - National Defense Industrial Association (NDIA) Conference Proceedings
  - Staff College Automated Military Periodicals Index (SCAMPI)
- **Research in Progress**
  - Biomedical Research Database (BRD)
  - Egov/R&E Database
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  - Research Summaries
  - S&T Success Stories
- **Budget and Planning Information**
  - Research & Development Descriptive Summaries (RDDS) 1996-1999
  - Research & Development Descriptive Summaries (RDDS) 2000-present
  - Defense Science & Technology Plan (DSTP) (comprised of JWSTP, DTAP, DTOS and BRP)
  - DoD Congressional Budget Data

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Title: all of these words

Author: all of these words

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Options

Sort by: Relevance

Display 10 search results per page

Summary: On Off

Page Modified: Newer Than Anytime

Turn on search-term highlighting

larger than 0 kilobytes

- **DoD Sites & Collections: select/de-select all**
  - **Services and Agencies**
    - **Service Organizations**
      - Army - army.mil and
      - Navy - navy.mil and
      - Air Force - af.mil and
      - Marines - usmc.mil and related U.S. Marine Corp Web Sites
      - Coast Guard
      - JCS & Combatant Commands
    - Agencies
  - **DoD Wide Science & Technology Web Sites**
    - DoD Labs

Go to other information resources

Other S&T Resources

- MultiSearch
- OSTI Conference Portal
- British Library
- CISTI Source
- EBSCO Academic Research Library
- Energy Citations
- Information Bridge
- Knovel Library
- ProQuest
- Community of Scholars

Searched for: aircraft and stealth

Results 1 - 30 of 396

<< < **1** 2 3 4 5 6 7 > >>

1 View Citation | View Full Text PDF - 0.18 MB
Title: High Power Radio Frequency Weapons: A Potential Counter to U.S. Stealth and Cruise Missile Technology
Author: Brunderman, John A.;
Corporate Author: AIR WAR COLL MAXWELL AFB AL
Report Date: 12/01/1999
Pages:
Accession Number: WSTIAC-ADA393362
Distribution Code: A
Report Classification: UNCLASSIFIED
Collection: TEMS (IAC Technical Reports)

2 View Citation
Title: UWB Radar Has Potential to Detect Stealt
Author: Scott, W B
Corporate Author:
Report Date:
Pages: 4
Accession Number: ADD527423
Distribution Code: 01 21 00
Report Classification: U
Collection: Technical Reports (tr2)

3 View Summary
Restricted Title:
Performing Organization: INSTITUTE FOR DEFENSE ANALYSES ALEXANDRIA VA
Performing Organization Code: 179350
Date of Summary: 10/09/1997
Accession Number: DD001125
Distribution Code: E
Summary Classification:
Collection: Research Summaries

Keywords

surveillance
aircraft
command
agency
intelligence
UAV
R&D
USA

Category

DoD
Congressional
Budget

- 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.

Back to Search Results

Citation Format: Tems MK Format

Use navigation within the portal, not your browser's Back Button.

Accession Number:
WSTIAC-ADA393362
Title:
High Power Radio Frequency Weapons: A Potential Cou
Subject Keywords:
energy;WEAPONS;HIGH POWER;RADIOFREQUENCY;STE
energy;
IAC Report Identification:
GC-020039 *GC020039*
Location:
014550
Personal Author(s):
Brunderman, John A.;
Publisher:
AIR WAR COLL MAXWELL AFB AL
Publication Date:
01 Dec 1999
Classification:
UNCLASSIFIED
Performing Organization:
AIR WAR COLL MAXWELL AFB AL
Secondary Distribution:
150301 - ANTIMISSILE DEFENSE SYSTEMS 250200 - RADIO COMMUNICATIONS 01 - APPROVED FOR PUBLIC RELEASE

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.
Entered By:

Back to Search Results

Citation Format: Indexing

Accession Number:
DD001125

Message:
You are not authorized to access this information.

Some citations or summaries will be entirely suppressed based on your access rights.

More Search Options

Field Specific Search

Full Record: all of these words

Title: all of these words

Author: all of these words

Options

Sort by: Relevance

Summary: On Off

Turn on search-term highlighting

Searches the same content as in the banner search.

- DoD Sites & Collections
- Technical Reports
- Research in Progress
- DTIC Web Site
- MultiSearch

DoD Sites & Collections:

Services and Agencies

Service Organization

- Army - army.mil and
- Navy - navy.mil and
- Air Force - af.mil and related U.S. Air Force Web Sites
- Marines - usmc.mil and related U.S. Marine Corp Web Sites
- Coast Guard

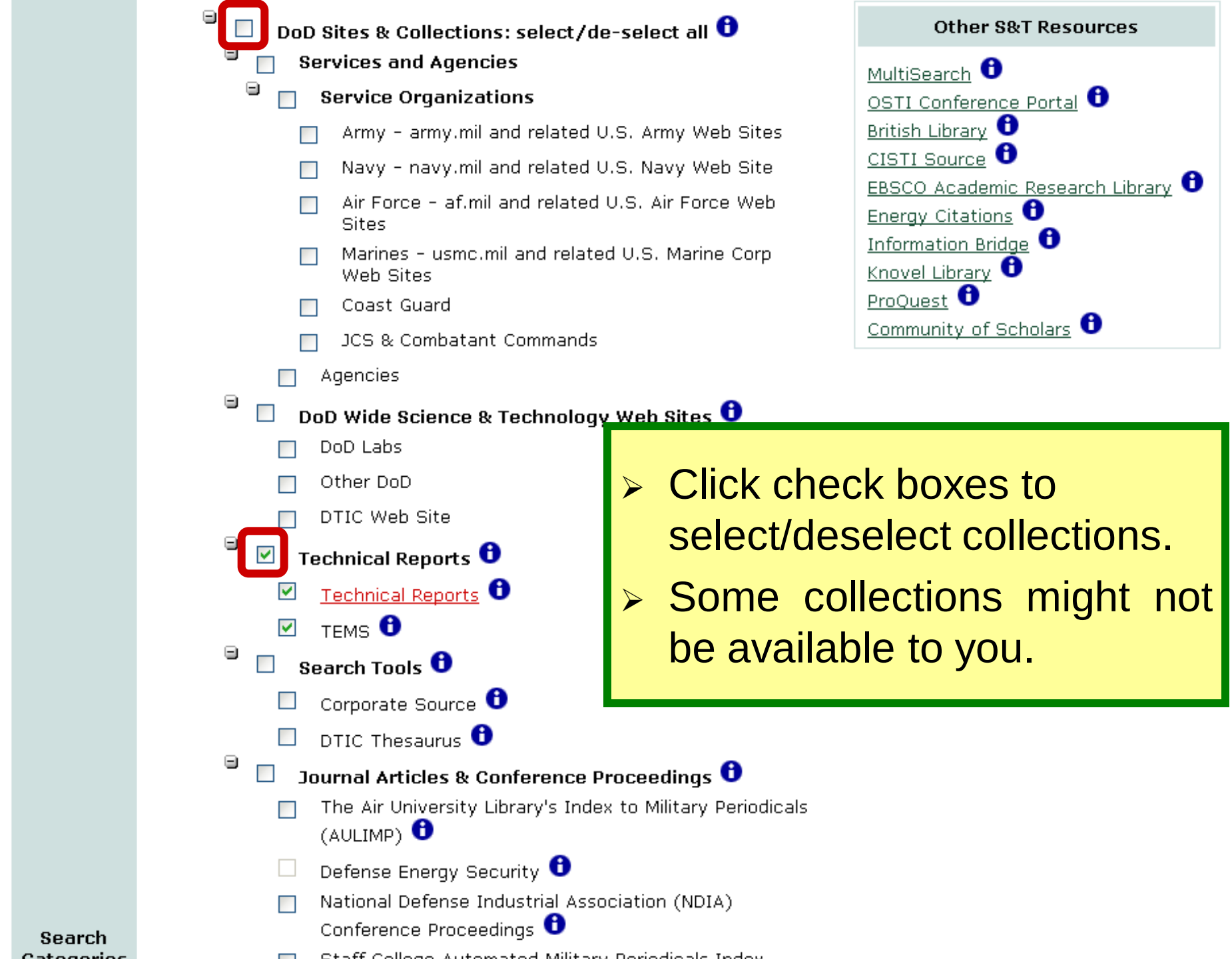
EBSCO Academic Research Library

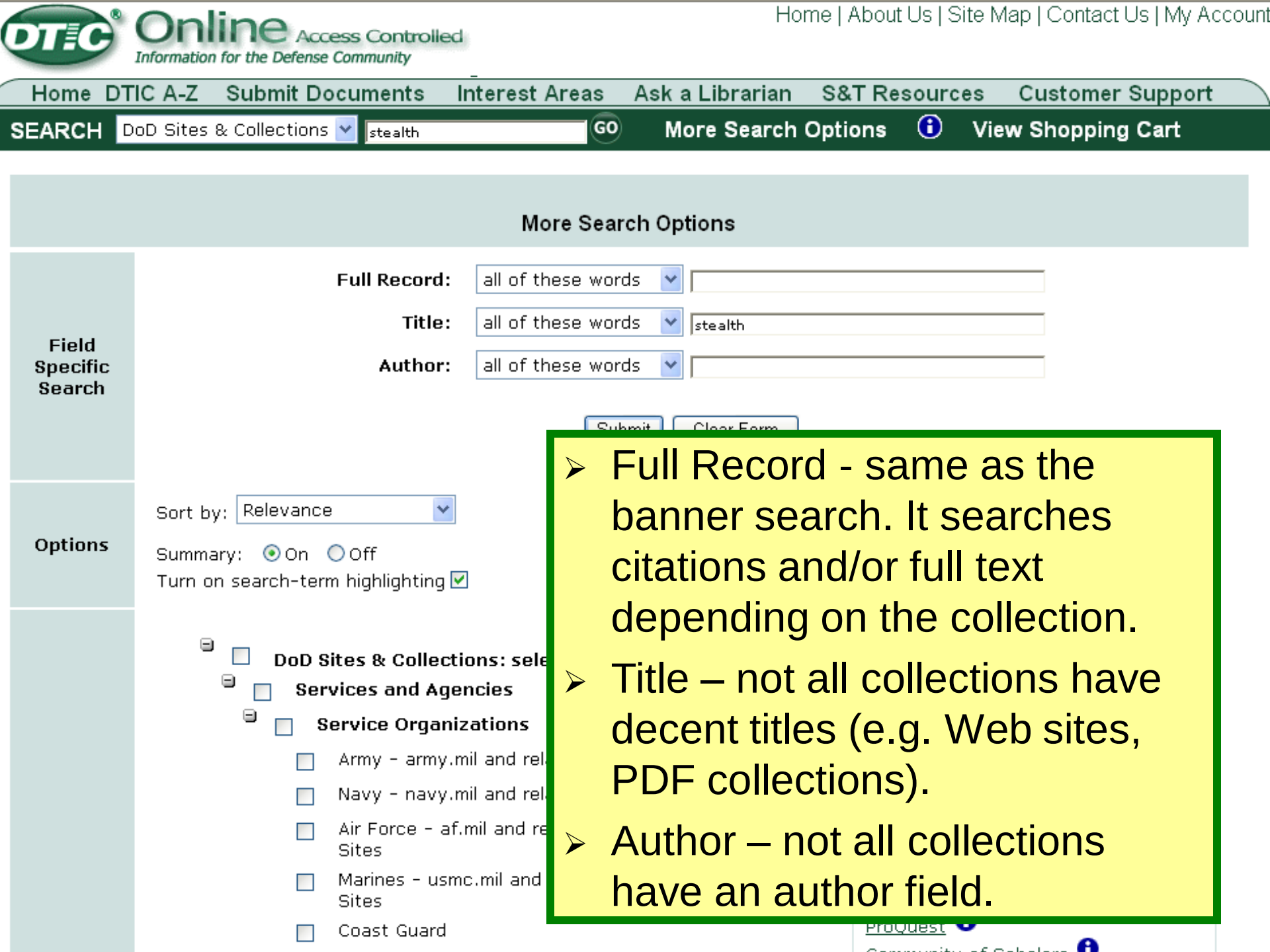
Energy Citations

Information Bridge

Knovel Library

ProQuest


DoD Sites & Collections: select/de-select all
Services and Agencies
Service Organizations
Army - army.mil and related U.S. Army Web Sites
Navy - navy.mil and related U.S. Navy Web Site
Air Force - af.mil and related U.S. Air Force Web Sites
Marines - usmc.mil and related U.S. Marine Corp Web Sites
Coast Guard
JCS & Combatant Commands
Agencies
DoD Wide Science & Technology Web Sites
DoD Labs
Other DoD
DTIC Web Site
Technical Reports
Technical Reports
TEMS
Search Tools
Corporate Source
DTIC Thesaurus
Journal Articles & Conference Proceedings
The Air University Library's Index to Military Periodicals (AULIMP)
Defense Energy Security
National Defense Industrial Association (NDIA) Conference Proceedings
Other S&T Resources
MultiSearch
OSTI Conference Portal
British Library
CISTI Source
EBSCO Academic Research Library
Energy Citations
Information Bridge
Knovel Library
ProQuest
Community of Scholars
Click check boxes to select/deselect collections.
Some collections might not be available to you.
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More Search Options
Field Specific Search
Full Record: all of these words
Title: all of these words stealth
Author: all of these words
Submit Clear Form
Options
Sort by: Relevance
Summary: On Off
Turn on search-term highlighting
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Services and Agencies
Service Organizations
Army - army.mil and rel
Navy - navy.mil and rel
Air Force - af.mil and re Sites
Marines - usmc.mil and Sites
Coast Guard
ProQuest
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.

Searched for: stealth

Results 1 - 10 of 58

<< < **1** 2 3 4 5 6 > >>

1 View Citation | View Full Text PDF - 0 MB
Title: Prevention of Organophosphorous Lethality with OPA Anhydrolase (OPAA-2) Containing Stealth Liposomes.
Author:
Corporate Author:
Report Date: 10/01/2001
Pages:
Accession Number: CBIAC-CB-187622
Distribution Code: A
Report Classification:
Collection: TEMS (IAC Technical Reports)

Search results look and function the same as from the banner search.

2 View Citation | View Full Text PDF - 0 MB
Title: Introduction to RF Stealth
Author: Lynch, Jr., David
Corporate Author:
Report Date: 01/01/2004
Pages:
Accession Number: SURVIAC-SV-22707
Distribution Code: A
Report Classification: UNCLASSIFIED
Collection: TEMS (IAC Technical Reports)

3 View Citation | View Full Text PDF - 0 MB
Title: B-2 STEALTH BOMBER FACT BOOK 1995
Author: NA;NA;NA;
Corporate Author: NORTHROP B-2 DIV,STRATEGIC STUDIES DEPT,8900 E WASHINGTON BLVD,PICO RIVERA,CA,90660-3737
Report Date: 06/22/1995
Pages: 0
Accession Number: SURVIAC-SV-15897
Distribution Code: A
Report Classification: UNCLASSIFIED

- DoD Sites & Collections: select/de-select all
  - Services and Agencies
    - Service Organizations
      - Army - army.mil and related U.S. Army Web Si
      - Navy - navy.mil and related U.S. Navy Web Si
      - Air Force - af.mil and related U.S. Air Force W Sites
      - Marines - usmc.mil and related U.S. Marine Co Web Sites
      - Coast Guard
      - JCS & Combatant Commands
    - Agencies
  - DoD Wide Science & Technology Web Sites
    - DoD Labs
    - Other DoD
    - DTIC Web Site
  - Technical Reports
    - Technical Reports
    - TEMS
  - Search Tools
    - Corporate Source
    - DTIC Thesaurus
  - Journal Articles & Conference Pro
    - The Air University Library's Index t (AULIMP)
    - Defense Energy Security
    - National Defense Industrial Associ Conference Proceedings



- Resource name links to either a content site or a search page.
- ℹ links to a description of the resource.

Search Categories

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

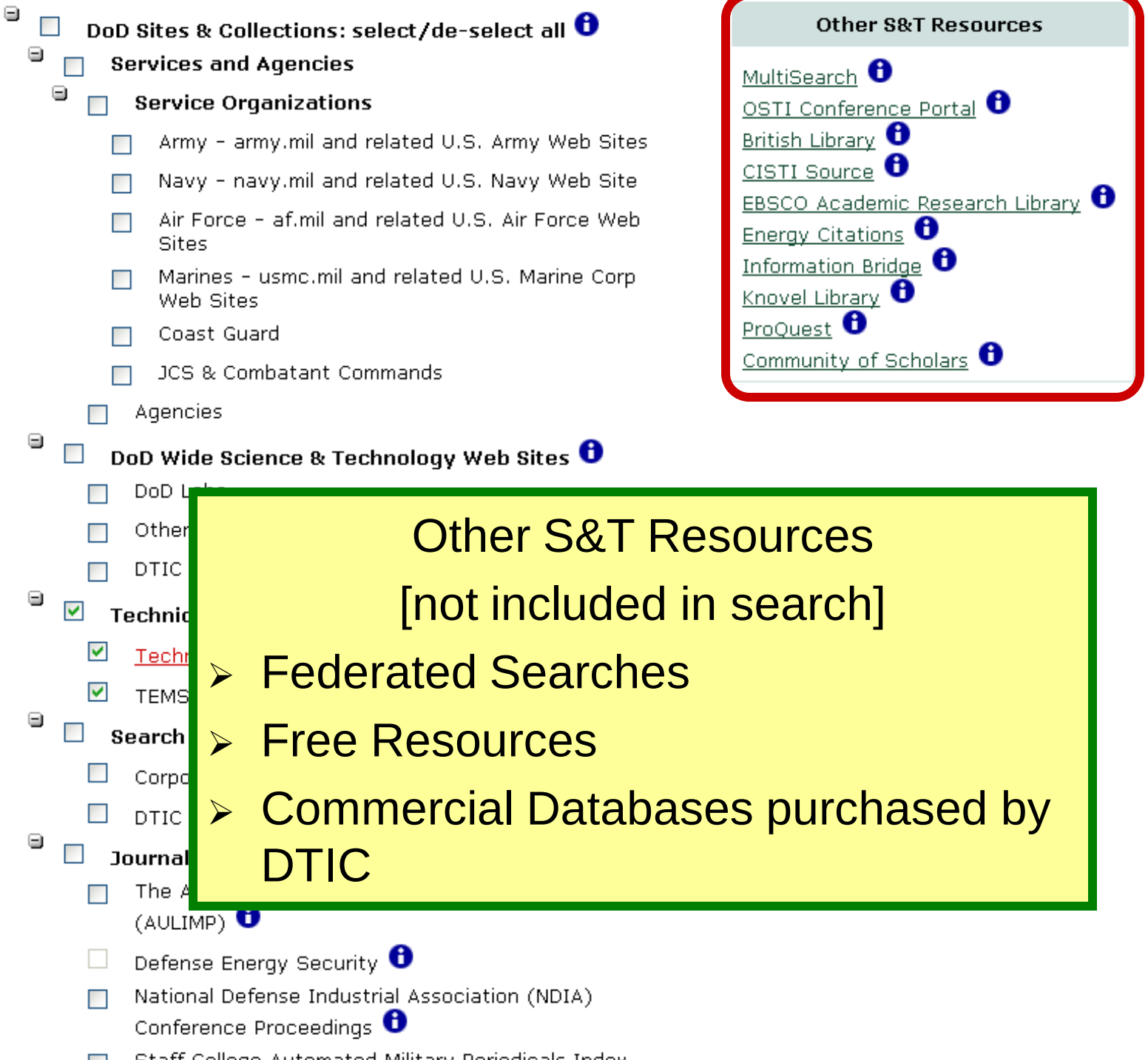
Collections

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


DoD Sites & Collections: select/de-select all
Services and Agencies
Service Organizations
Army - army.mil and related U.S. Army Web Sites
Navy - navy.mil and related U.S. Navy Web Site
Air Force - af.mil and related U.S. Air Force Web Sites
Marines - usmc.mil and related U.S. Marine Corp Web Sites
Coast Guard
JCS & Combatant Commands
Agencies
DoD Wide Science & Technology Web Sites
DTIC
Other S&T Resources
MultiSearch
OSTI Conference Portal
British Library
CISTI Source
EBSCO Academic Research Library
Energy Citations
Information Bridge
Knovel Library
ProQuest
Community of Scholars
Other S&T Resources
[not included in search]
Federated Searches
Free Resources
Commercial Databases purchased by DTIC
Defense Energy Security
National Defense Industrial Association (NDIA) Conference Proceedings
Search Categories

More Search Options

Field Specific Search

Full Record: all of these words

Title: all of these words

Author: all of these words

Submit Clear Form

Options

Sort by: Relevance

Display 10 search results per page

Summary: On Off

Page Modified: Newer Than Anytime

Turn on search-term highlighting

larger than 0 kilobytes

DoD Sites & Collections: select/de-select all

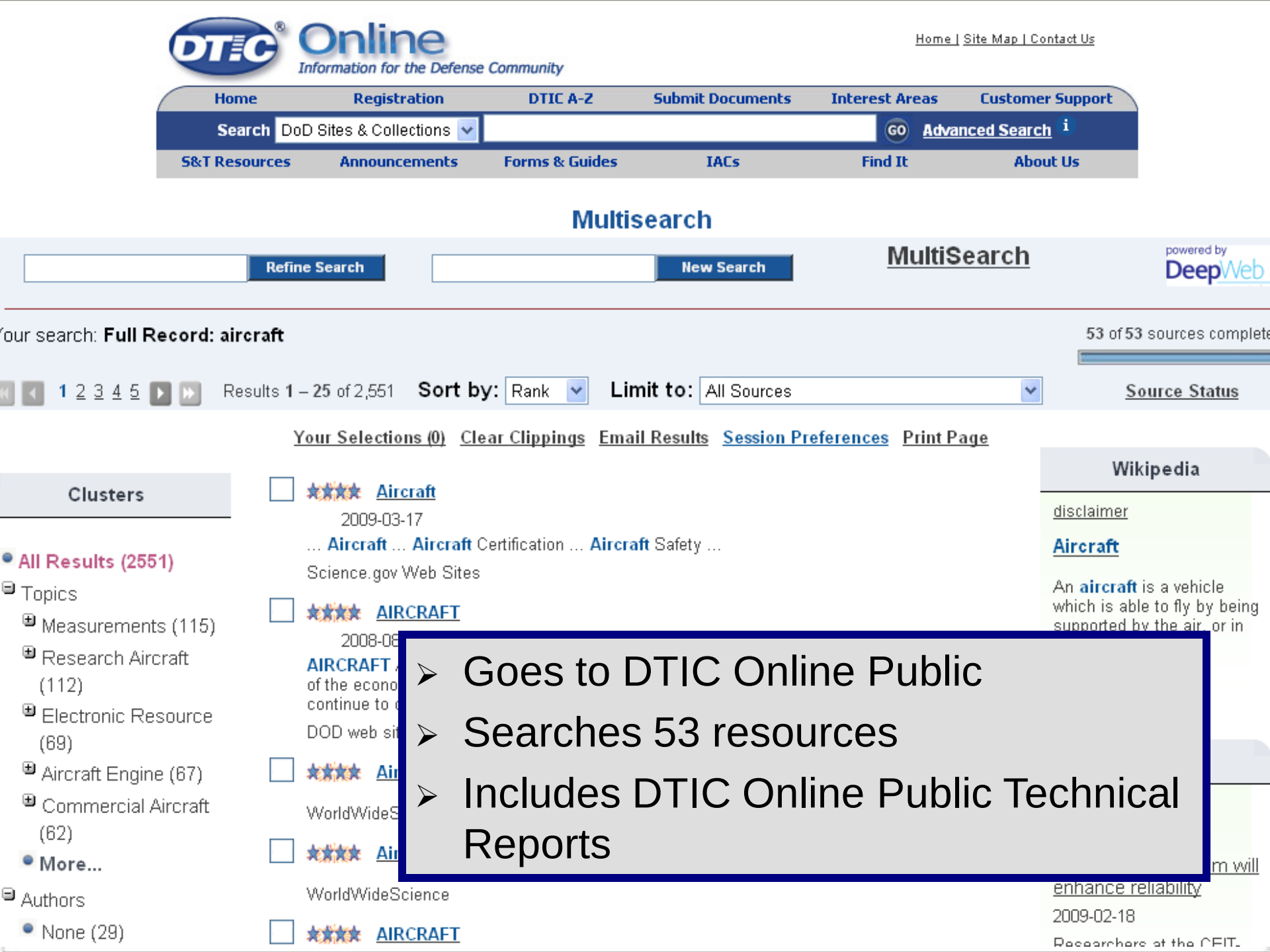
Services and Agencies

Service Organizations

- Army - army.mil and related U.S. Army Web Sites
- Navy - navy.mil and related U.S. Navy Web Site
- Air Force - af.mil and related U.S. Air Force Web Sites
- Marines - usmc.mil and related U.S. Marine Corp Web Sites
- Coast Guard

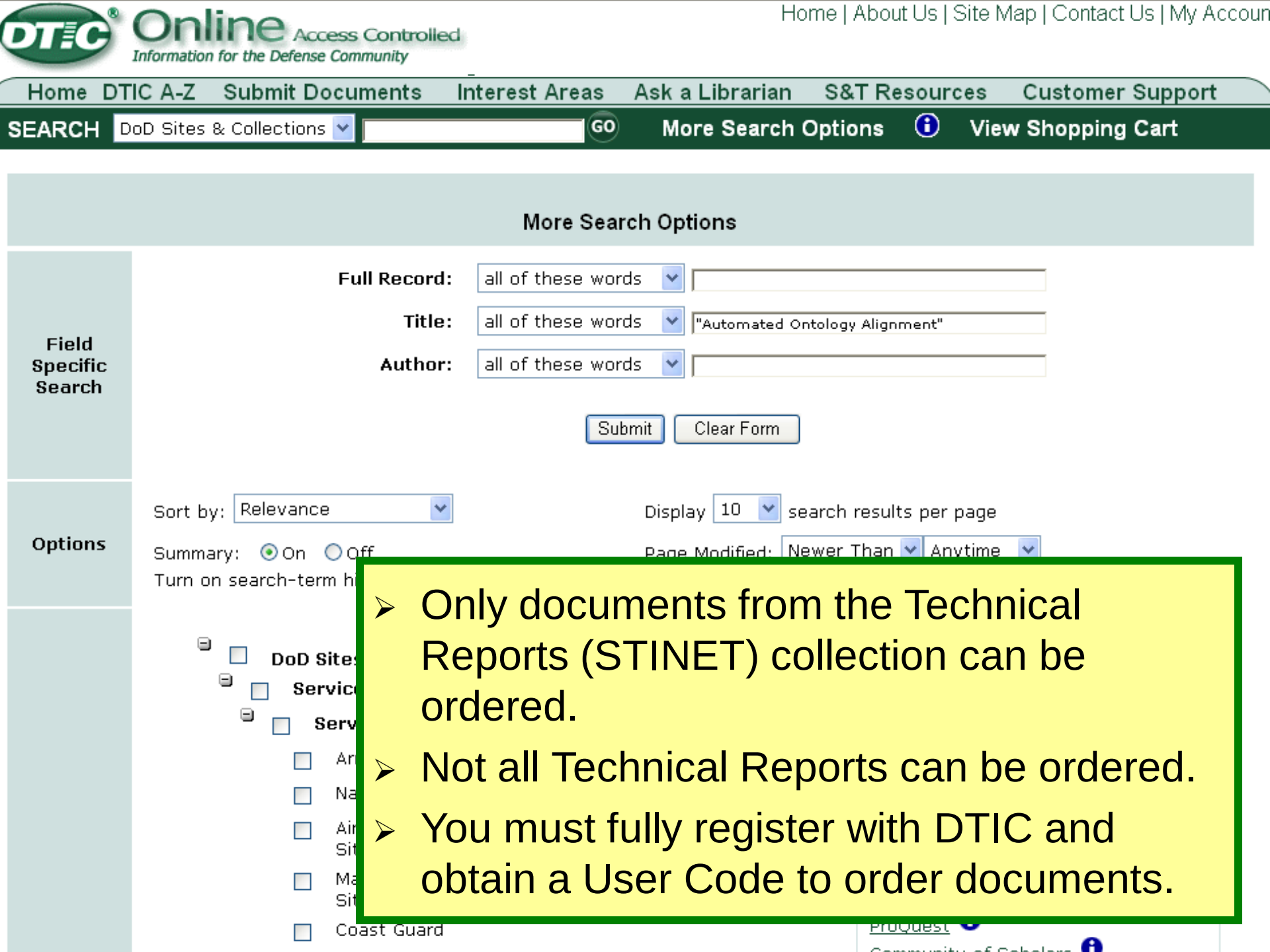
Other S&T Resources

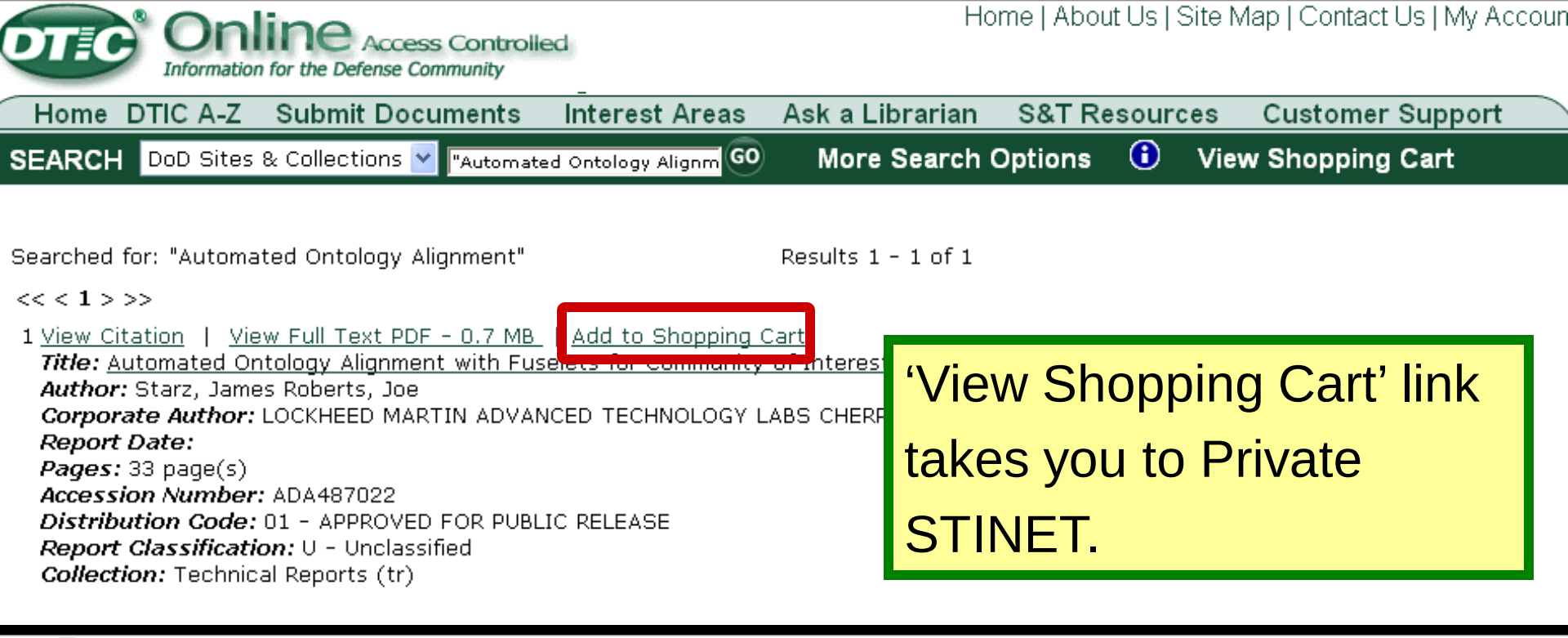
- MultiSearch
- OSTI Conference Portal
- British Library
- CISTI Source
- EBSCO Academic Research Library
- Energy Citations
- Information Bridge
- Knovel Library
- ProQuest



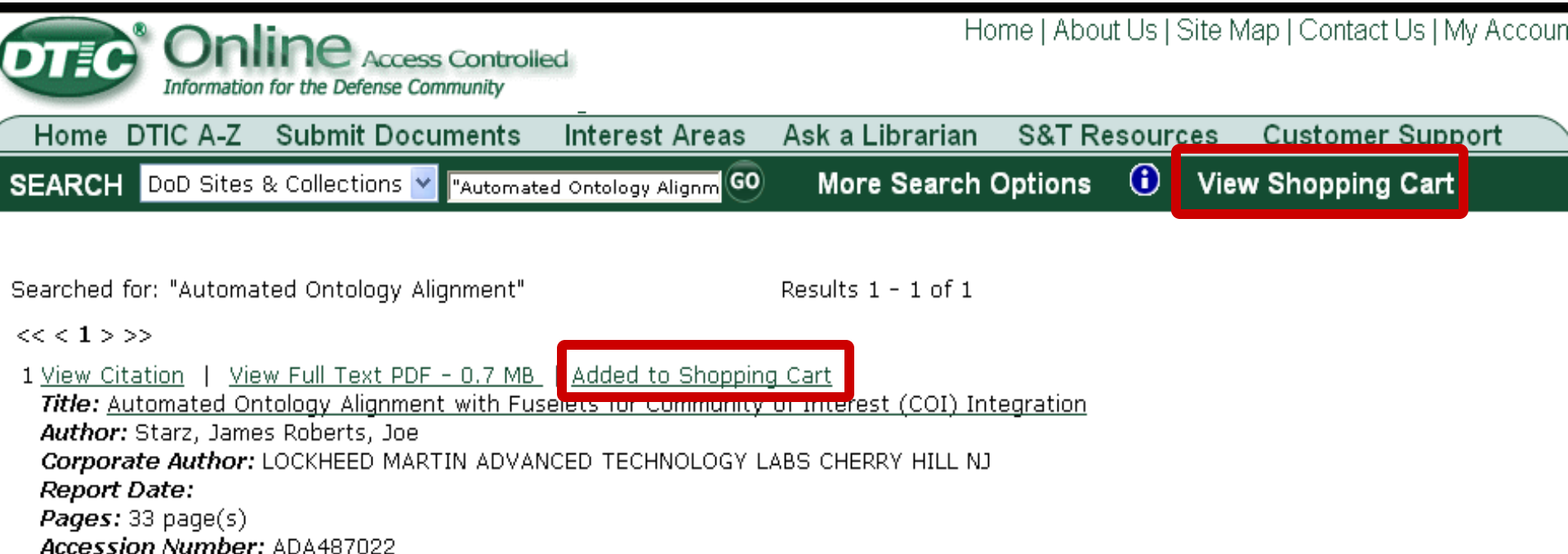
- Goes to DTIC Online Public
- Searches 53 resources
- Includes DTIC Online Public Technical Reports

DOCUMENT ORDERING


DTIC Online Access Controlled
Information for the Defense Community
Home | About Us | Site Map | Contact Us | My Accoun
Home DTIC A-Z Submit Documents Interest Areas Ask a Librarian S&T Resources Customer Support
SEARCH DoD Sites & Collections GO More Search Options View Shopping Cart
More Search Options
Field Specific Search
Full Record: all of these words
Title: all of these words "Automated Ontology Alignment"
Author: all of these words
Submit Clear Form
Options
Sort by: Relevance
Display 10 search results per page
Summary: On Off
Page Modified: Newer Than Anytime
Turn on search-term hi
DoD Sites
Servic
Serv
Ar
Na
Air
Sit
Ma
Sit
Coast Guard
ProQuest
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.



'View Shopping Cart' link takes you to Private STINET.



Private STINET

Home | Collections

View Saved Searches | View Shopping Cart | View Orders

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.



Private STINET

Home | Collections

View Saved Searches | View Shopping Cart | View Orders

You must have a User Code to order documents.

* = a require

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

DoDTechipedia
https://www.dodtechipedia.mil

You are here: Home » announcements » 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.

This is the current Limited Access site.

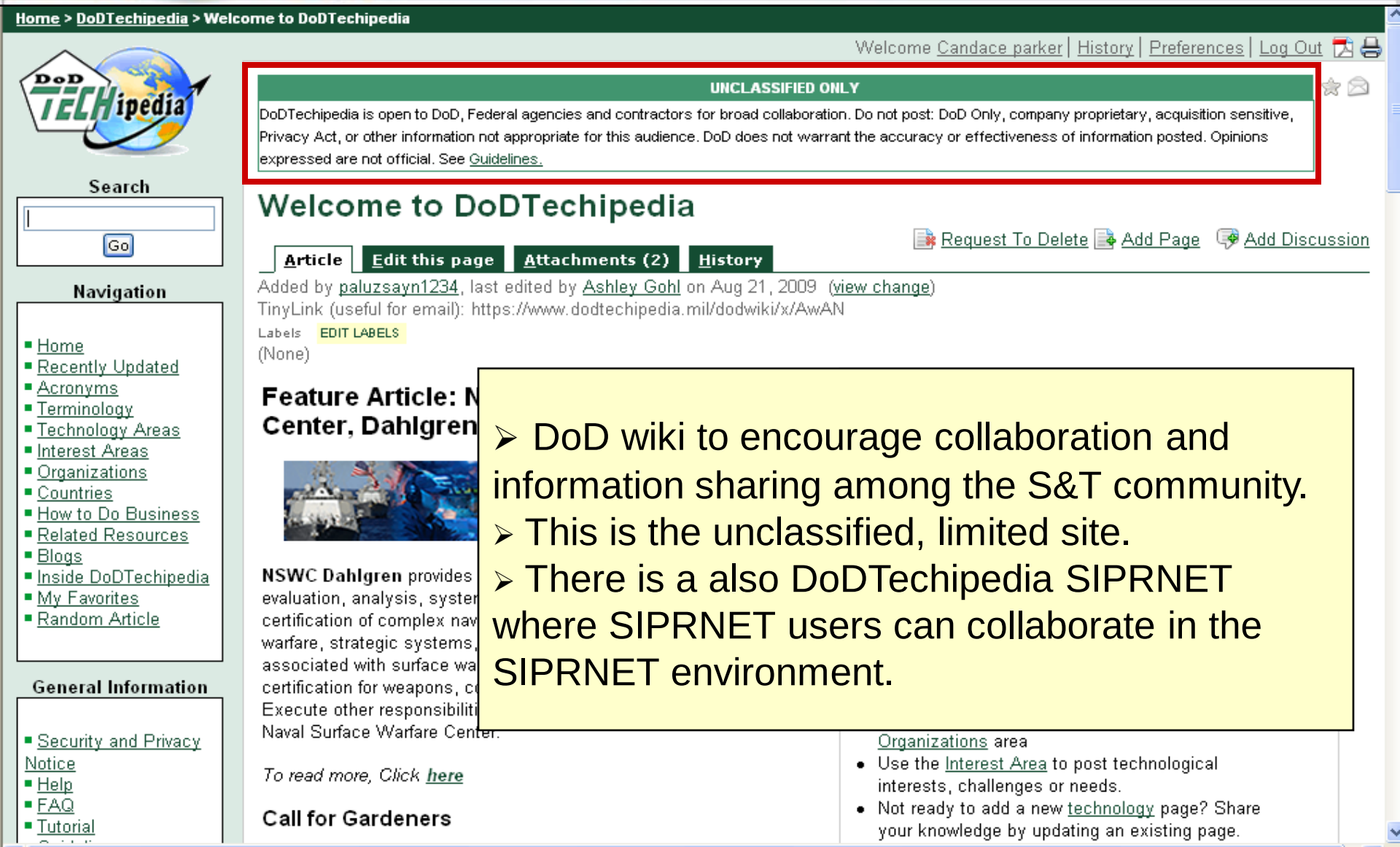
Purpose

- 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.

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.

DoDTechipedia

Home > DoDTechipedia > Welcome to DoDTechipedia

Welcome Candace parker | History | Preferences | Log Out

UNCLASSIFIED ONLY

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Welcome to DoDTechipedia

Request To Delete | Add Page | Add Discussion

Article | Edit this page | Attachments (2) | History

Added by paluzsayn1234, last edited by Ashley
TinyLink (useful for email): https://www.dodtechi
Labels EDIT LABELS
(None)

Users can add/edit information and create blogs.

Use the same login as for Private STINET, R&E Portal, and TEMS or your CAC.

Feature Article: Naval Surface Warfare Center, Dahlgren (NSWCDD)



NSWC Dahlgren provides research, developmen
evaluation, analysis, systems engineering, integra
certification of complex naval warfare systems rel
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

What is DoDTechipedia?

- 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.

Search

Go

Navigation

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- Random Article

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Use Links to Get Started

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People Finder

Welcome to DoDTechipedia

Request To Delete | Add Page | Add Discussion

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
(None)

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**.

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- 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 contac the site administrators at dodtechipedia@dtic.mil**

Navigation & General Information

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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
(None)

Feature Article: Unmanned Vehicles



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record climatic conditions for later ana
are classified in one of these three cat
Vehicles (UAV's), Unmanned Ground
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(independent of human influence).

*To read more, Click **here***

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- Release Notes

People Finder

Go

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To read more, Click here

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To learn more about gardening DoDTechipedia, please visit our Gardeners page.

Upcoming Events

What Is DoDTechipedia?

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- **For further assistance, please contac the site administrators at dodtechipedia@dtic.mil**

Announcements

- Please visit the new Organizational Badge Templates page to add a badge to your personal space and show the rest of the DoDTechipedia

Interest Areas

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Interest Areas

Request To Delete | Add Page | Add Discussion

Article | Edit this page | Attachments (0) | History

Added by paluzsayn1234, last edited by Ashley Gohl on Jan 26, 2009 (view change)
TinyLink (useful for email): https://www.dodtechipedia.mil/dodwiki/x/BIAp

Labels EDIT LABELS
land, mobile, radio, lmr

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

Click to view content

Help

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People Finder

Go

Browse Space

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

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Sandbox

Request To Delete | Add Page | Add Discussion

Article | Edit this page | Attachments (5) | History

Added by paluzsayn1234, last edited by Ashley Gohl on Aug 25, 2009 (view change)
TinyLink (useful for email): https://www.dodtechipedia.mil/dodwiki/x/OlAa

Labels EDIT LABELS
new, label, testing, science, training, test, social, technology, how-to, wiki

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

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People Finder

Tutorial

Request To Delete | Add Page | Add Discussion

Article | Edit this page | Attachments (4) | History

Added by paluzsayn1234, last edited by Melissa Hollinger on Jul 23, 2009 (view change)
TinyLink (useful for email): https://www.dodtechipedia.mil/dodwiki/x/SoAI

Labels EDIT LABELS
how-to

DoDTechipedia 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.

Running Tutorials

The Adobe Flash Playe
work with Flash Player

The Windows Media Pl
with Windows XP or ne

The Apple QuickTime P
QuickTime Player versi

Automated Tutoria

Tutorial Title

Automated Tutorials

Tutorial Title	Adobe Flash Player	Windows Media Player	Apple QuickTime Player
Overview	swf	wmv	mov
Adding a Page	swf	wmv	mov
Editing a Page	swf	wmv	mov
Using Labels Tutorial	swf	wmv	mov
Adding a Hyperlink	swf	wmv	mov
Attach Document & Embed Graphic	swf	wmv	mov
Acronyms	swf	wmv	mov
Feedback	swf	wmv	mov
Blogs	swf	wmv	mov
Personal Spaces	swf	wmv	mov

Additional Tutorials

- How to Edit Pages - simple first steps
- How to Create a New Page
- How to Report a Problem - provide feedback
- How to Create Personal Pages - your own space within DoDTechipedia
- How to Create a Personal Blog - share your thoughts
- How to Adopt a Blog - blog on a technology area

Collaborate and Share
https://www.dodtechipedia.mil

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Article | Edit this page | Attachments (2) | History

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Labels EDIT LABELS
(None)

Feature Article: Unmanned Vehicles



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*To read more, Click **here***

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- Not ready to add a new technology page? Share

Points of Contact

For technical support, contact the DoDTechipedia 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

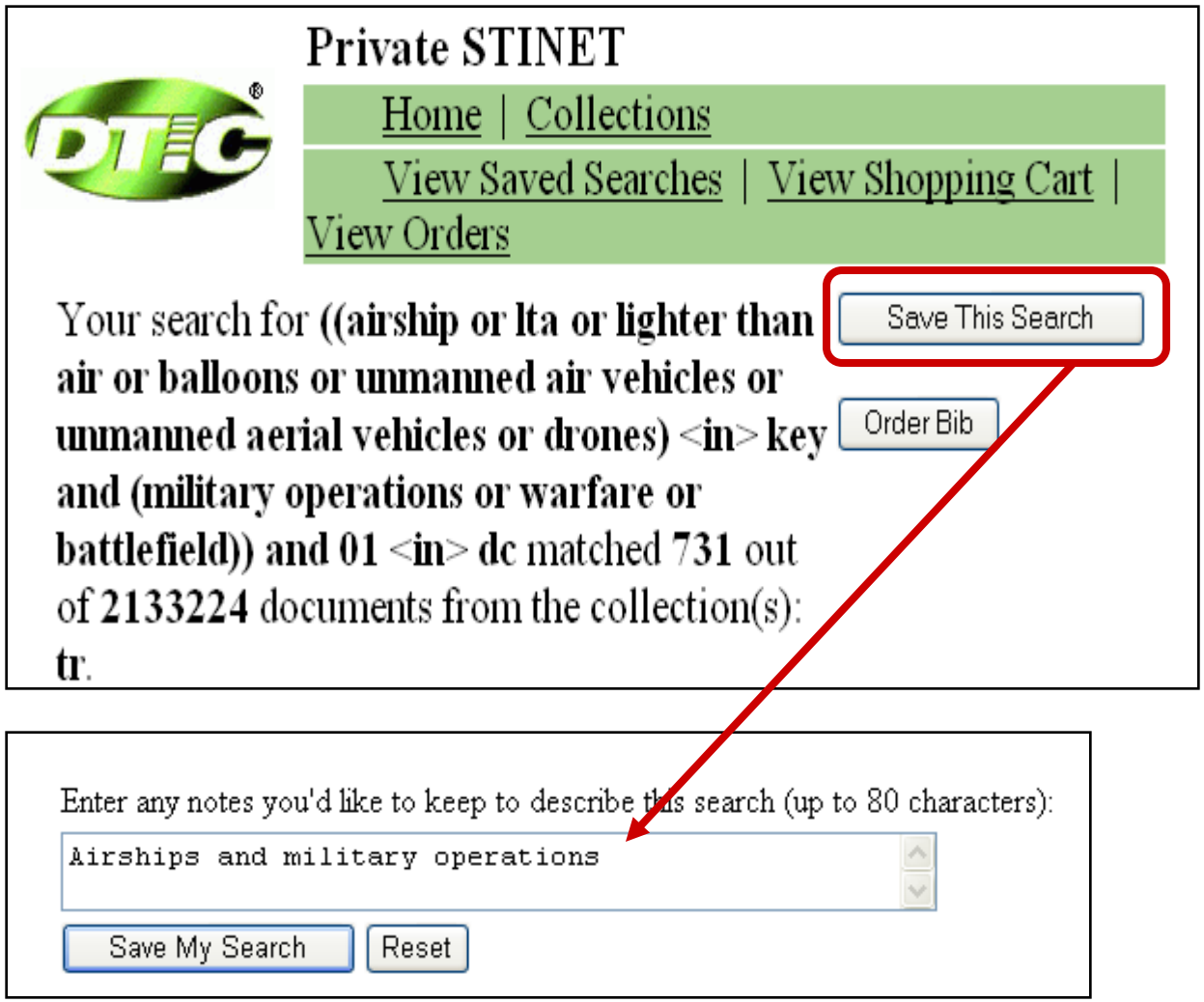
Session 2

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

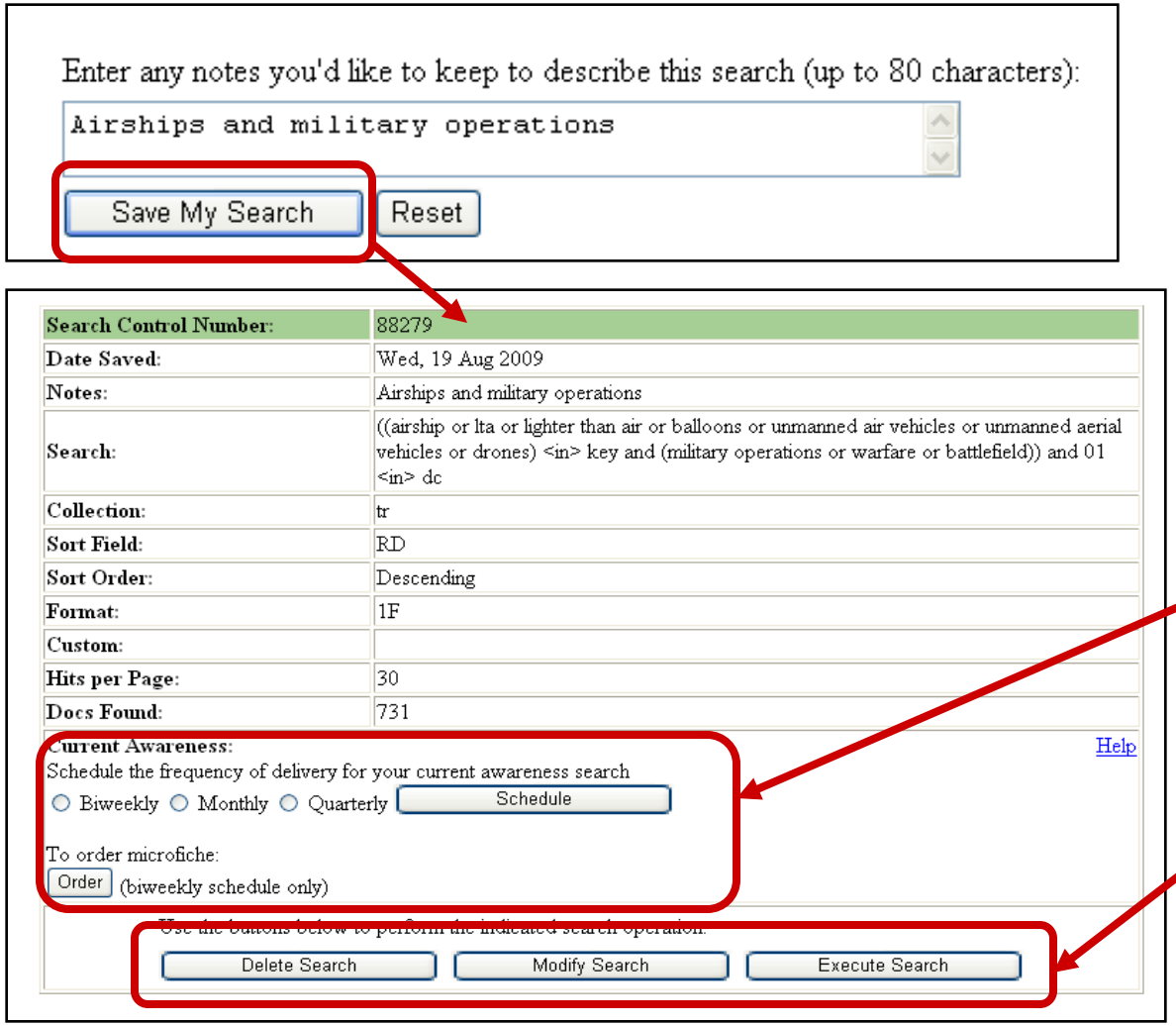
Create Scheduled Searches/Alerts and Bibliographies

Save This Search (Strategy)



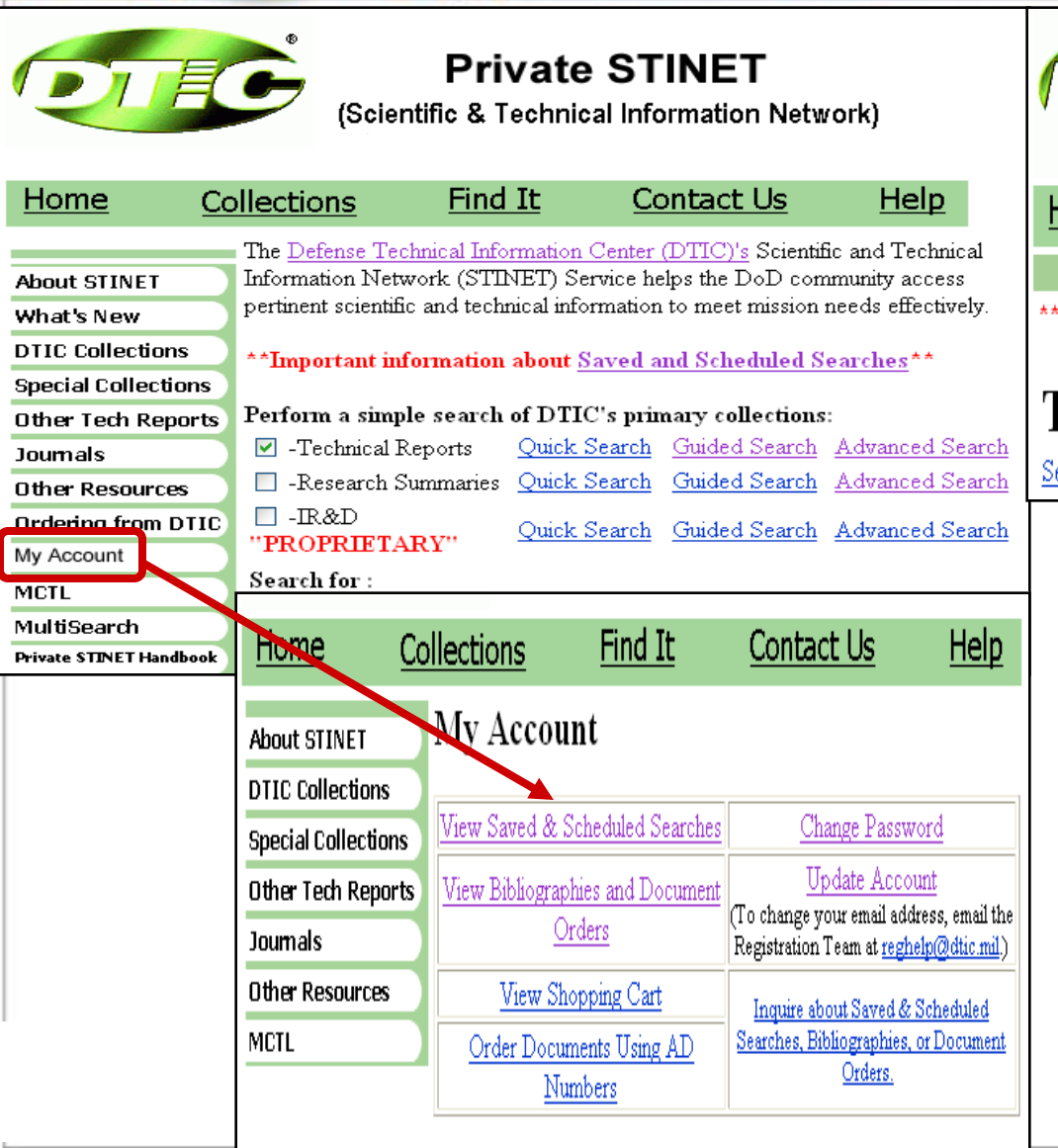
- Submit a search
- On the search results screen, click on **Save This Search**. This saves the strategy, not the results.
- Enter notes to describe the search.

Save This Search (Strategy)



- **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.

View Saved 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

Search Control Number:	88279
Date Saved:	Wed, 19 Aug 2009
Notes:	Airships and military operations
Search:	((airship or lta 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
Sort Field:	RD
Sort Order:	Descending
Format:	1F
Custom:	
Hits per Page:	30
Docs Found:	731

Current Awareness: Help

Schedule the frequency of delivery for your current awareness search

Biweekly Monthly Quarterly Schedule

To order microfiche:

Order (biweekly schedule only)

Use the buttons below to perform the indicated search operation.

Delete Search Modify Search Execute Search

- 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

Current Awareness:

This search is scheduled to be run Biweekly. The next Biweekly run will be on Aug 24, 2009

Remove From Schedule

Use the buttons below to perform the indicated search operation.

Delete Search Modify Search Execute Search

View a Scheduled (Saved) Search (Alert)

Private STINET

Home | Collections

View Saved Searches | View Shopping Cart | View Orders

Below are the 5 searches you currently have scheduled:

Show: All Scheduled Unscheduled

Search Control Number:	88279
Date Saved:	Wed, 19 Aug 2009
Notes:	Airships and military operatic
Search:	((airship or lta or lighter than vehicles or drones) <in> key <in> dc
Collection:	tr
Sort Field:	RD
Sort Order:	Descending
Format:	1F
Custom:	
Hits per Page:	30
Docs Found:	731

Current Awareness:
This search is scheduled to be run Biweekly. The next Biweekly run will be on Aug 24, 2009

Remove From Schedule

Use the buttons below to perform the indicated search operation.

Delete Search | Modify Search | Execute Search

- Click on **View Saved Searches** from any search screen to retrieve a search.
- Use the 'My Account' link on the homepage

Receive the latest updates to your Scheduled Search (Alert) by email

From: camod@dtic.mil
To: Parker, Candy CIV DTIC B
Cc:
Subject: DTIC Current Awareness Scheduled Search Results

DTIC® DEFENSE TECHNICAL INFORMATION CENTER

Your bi-weekly search of the DTIC Collections database indicates that 13 record(s) matching your saved search criteria for SCN 71748 were received since the last scheduled search.

A summary of up to the first 25 of your search results is below:

Report Date	AD Number	Author	Title
2009-06-23	ADB350459	Zhou, Xianlian Przekwas, A Wilkerson, P Tan, X G Harrand, V Besier, Thor Delp, Scott Zhou,	An Integrated Optimization System for Lightening the Load of Warfighters

To view these records, click on the following link:
https://dtic-stinet.dtic.mil/stinet/controller?_requestedScreen=viewSavedSearch&scn=71748&histkey=60169.
You will be prompted to logon Private STINET and the saved search will provide the citations (hit list) for this update.

The full text of some of the documents retrieved by your Scheduled Search may not be accessible at the time you receive the search results, but should be obtainable shortly thereafter. We are working to reduce the processing time to their availability.

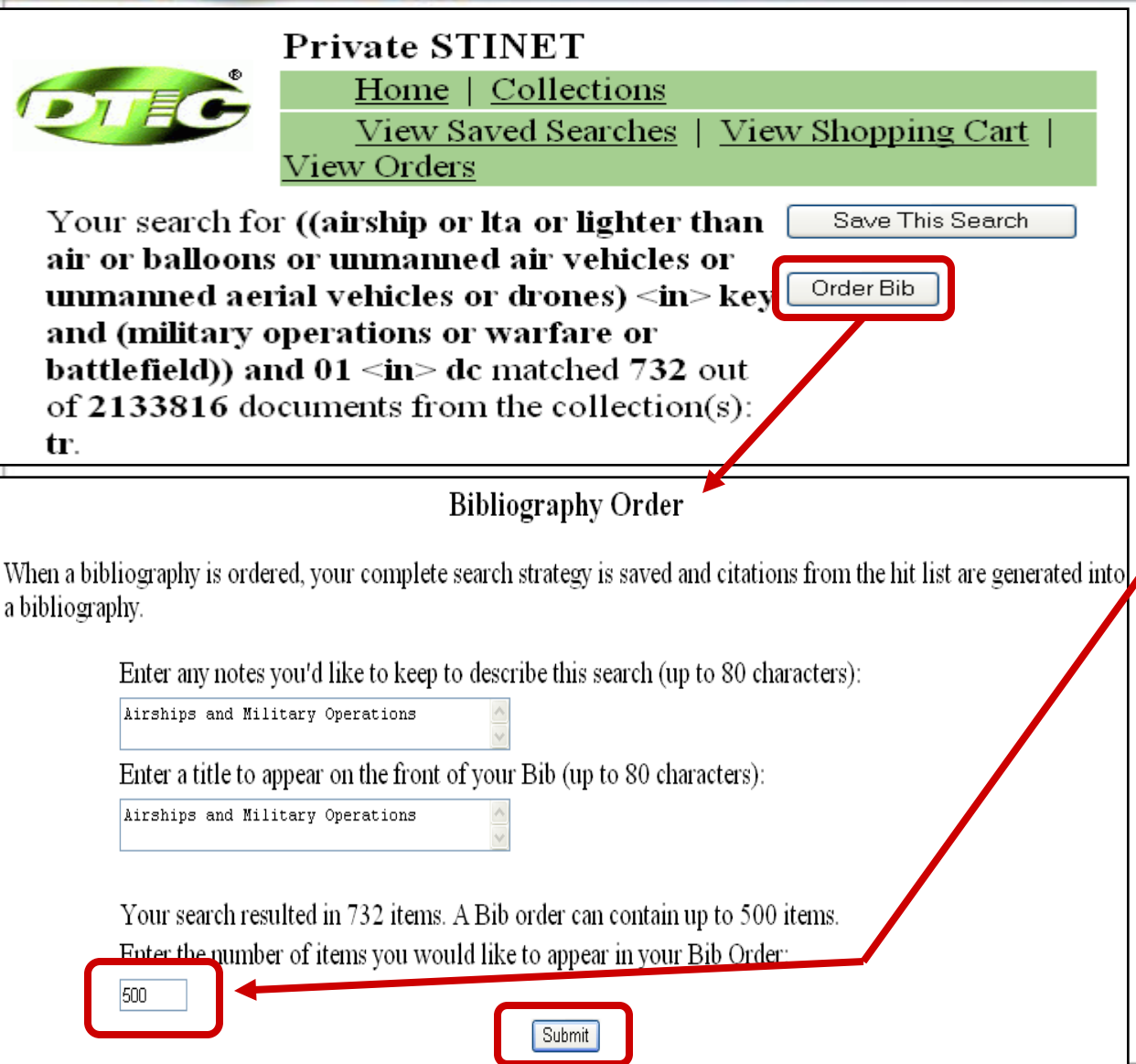
This email has been automatically generated to notify you of the recent updates to the DTIC collections matching your Scheduled Search. This Scheduled Search can be cancelled by using the Private STINET "View Saved Searches" link to display your saved searches and then by clicking the "Remove From Schedule" button for this search. Your search will be removed from the scheduled searches but will remain as a saved search.

You may want to consider revising your search criteria for this query if no records matching the search criteria were found. For assistance contact bibs@dtic.mil or call the Current Awareness Team at 703-767-9047 or 703-767-9063.

After viewing the search results, you can order a Bibliography using the "Bib Order" function on the results page.

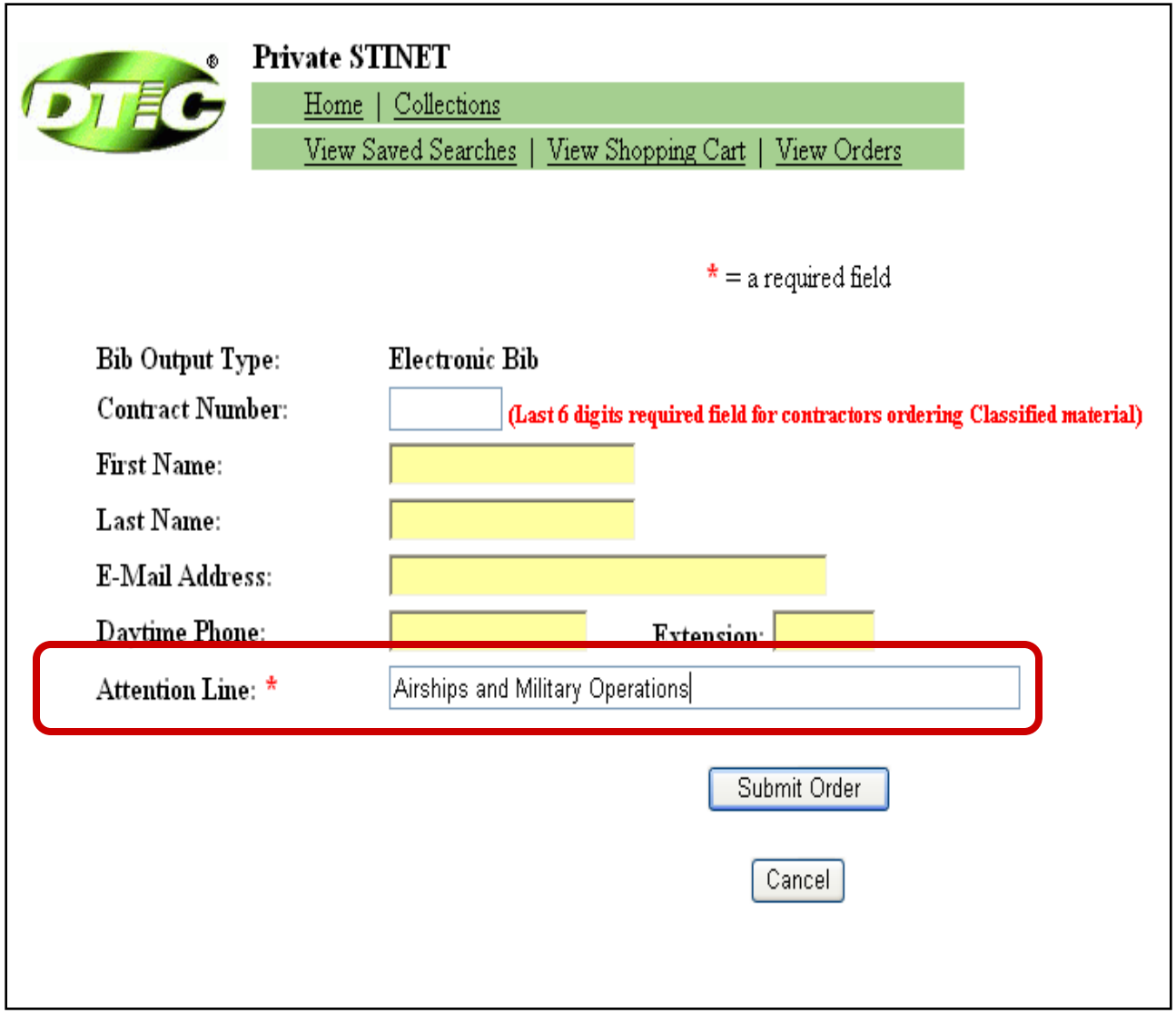
- The email from a scheduled search indicates how many records were found and shows the first 25 records.
- Click on the link in the email to view the full records.
- You will receive only hits from the latest update.

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



- The only required field on this page is the **Attention Line**.
- Bibs are free

Bibliography Receipt

Receipt for Order Number: 73725

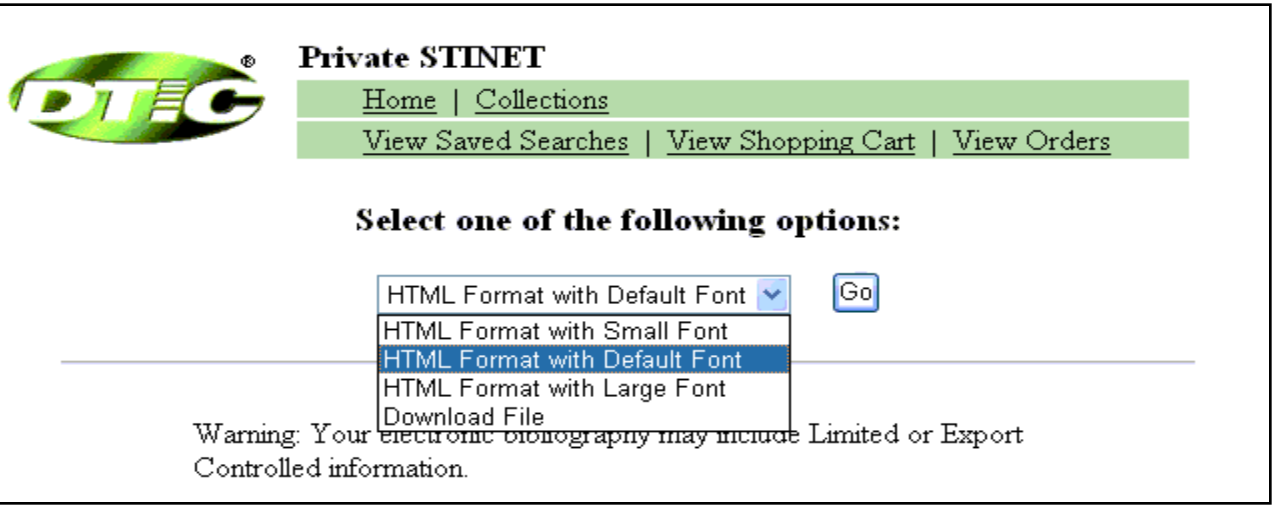
Order Number:	73725
Date Ordered:	Thu, 20 Aug 2009
Order Type:	Bib, Electronic
SCN:	88344
Ordered For:	parkerc7762
Contract Number:	
First Name:	Candy
Last Name:	Parker
E-Mail Address:	cparker@dtic.mil
Daytime Phone:	703.767.7039
Extension:	
Attention Line:	Airships and Military Operations

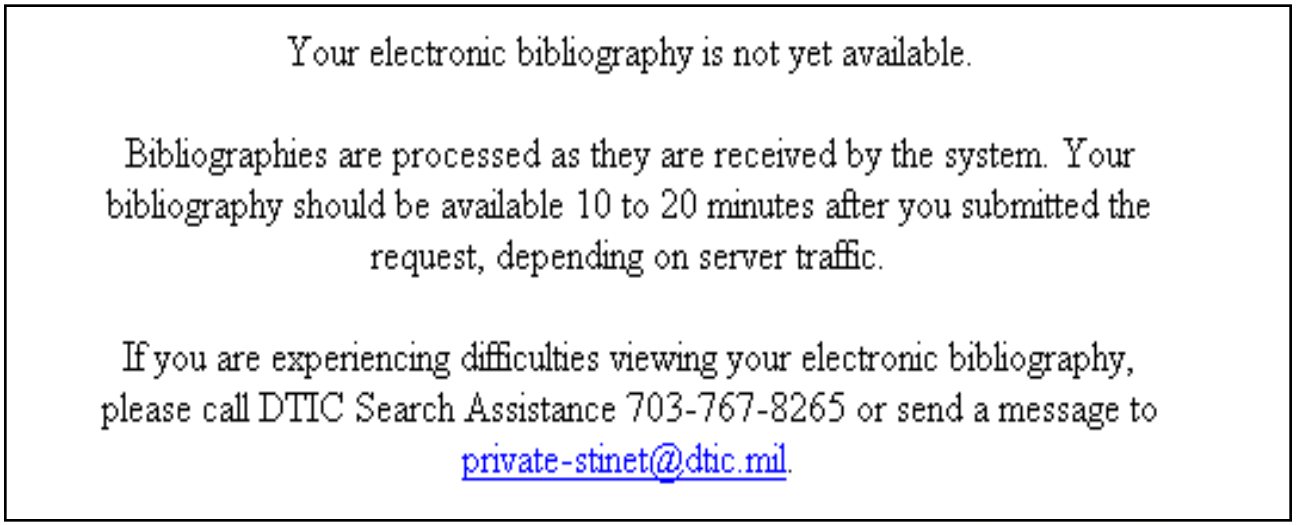
View Electronic Bib

Search Information:	
Bib Title:	Airships and Military Operations
Search:	((airship or lta 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:	1F
Custom:	
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**.

Formatting Results





- 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.

Formatting Results

Highest Classification: UNCLASSIFIED

DTIC Bibliography

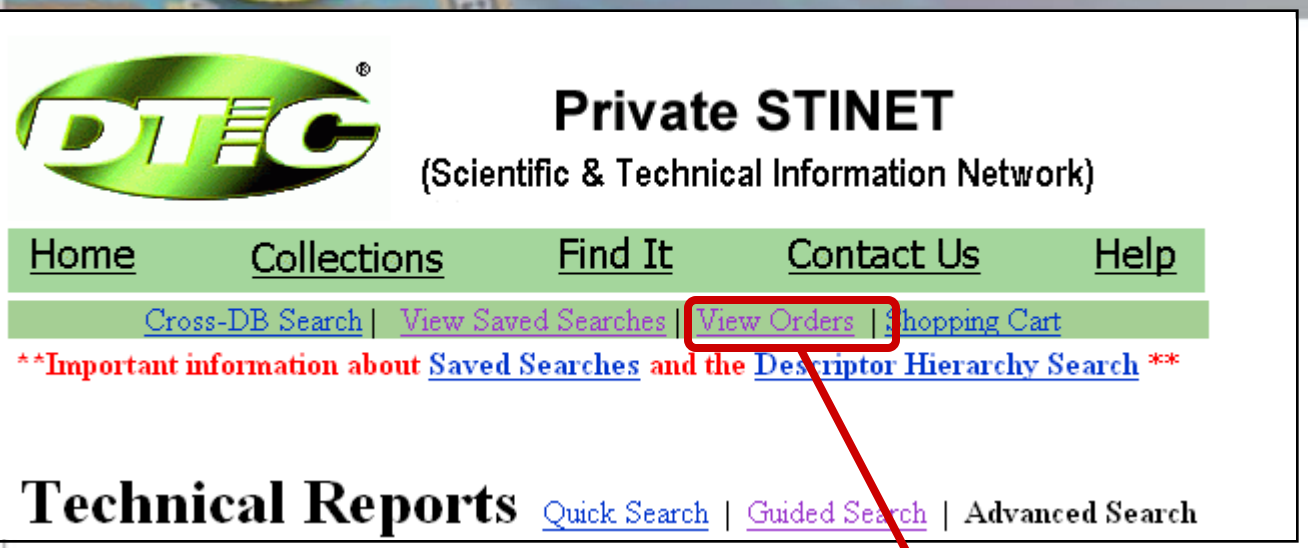
Convert to pdf

Order Number:	73725
Order Date:	Thu, 20 Aug 2009
Search:	((airship or lta or lighter than air or balloons or unmanned air vehic
Docsfound:	732
Format:	1F
Custom:	
Review:	A
Route To:	Airships and Military Operations
Sort Key:	RD
Sort Order:	Descending
Title:	Airships and Military Operations

User:	parker, Candace
Org Entity Name:	
Organization Name:	Def Technical Information Ctr (BR)
Organization Office:	DTIC-BR
Street:	8725 John J. Kingman Rd Ste 0944
City:	Fort Belvoir
State:	VA

- If the bib is ready, it will display, beginning with the receipt.
- Click on the link to display in PDF.

Retrieve Bibliographies



Order Number	Order Date	Order Type	Action:
73725	Thu, 20 Aug 2009	Bib, Electronic	View Receipt | View Electronic Bib
72694	Mon, 20 Jul 2009	TR Doc	View Receipt
72050	Fri, 26 Jun 2009	Bib, Electronic	View Receipt | View Electronic Bib
72020	Thu, 25 Jun 2009	Bib, Electronic	View Receipt | View Electronic Bib
72019	Thu, 25 Jun 2009	Bib, Electronic	View Receipt | View Electronic Bib
72014	Thu, 25 Jun 2009	Bib, Electronic	View Receipt | View Electronic Bib
71912	Mon, 22 Jun 2009	Bib, Electronic	View Receipt | View Electronic Bib
71893	Sat, 20 Jun 2009	Bib, Electronic	View Receipt | View Electronic Bib
71892	Sat, 20 Jun 2009	Bib, Electronic	View Receipt | View Electronic Bib
71806	Wed, 17 Jun 2009	Bib, Electronic	View Receipt | View Electronic Bib
70905	Thu, 14 May 2009	Bib, Electronic	View Receipt | View Electronic Bib
70903	Thu, 14 May 2009	Bib, Electronic	View Receipt | View Electronic Bib
70902	Thu, 14 May 2009	Bib, Electronic	View Receipt | View Electronic Bib

- 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.

Contact Information

Candy Parker
703-767-7039
DSN: 427-7039
cparker@dtic.mil

Karen Nimerick
703-767-9072
DSN: 427-9072
knimeric@dtic.mil

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ARMY STRONG[sm]

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

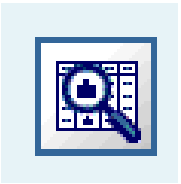
Hampton, Virginia

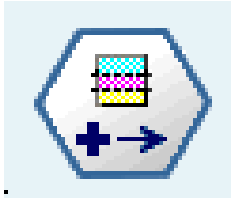
Purpose

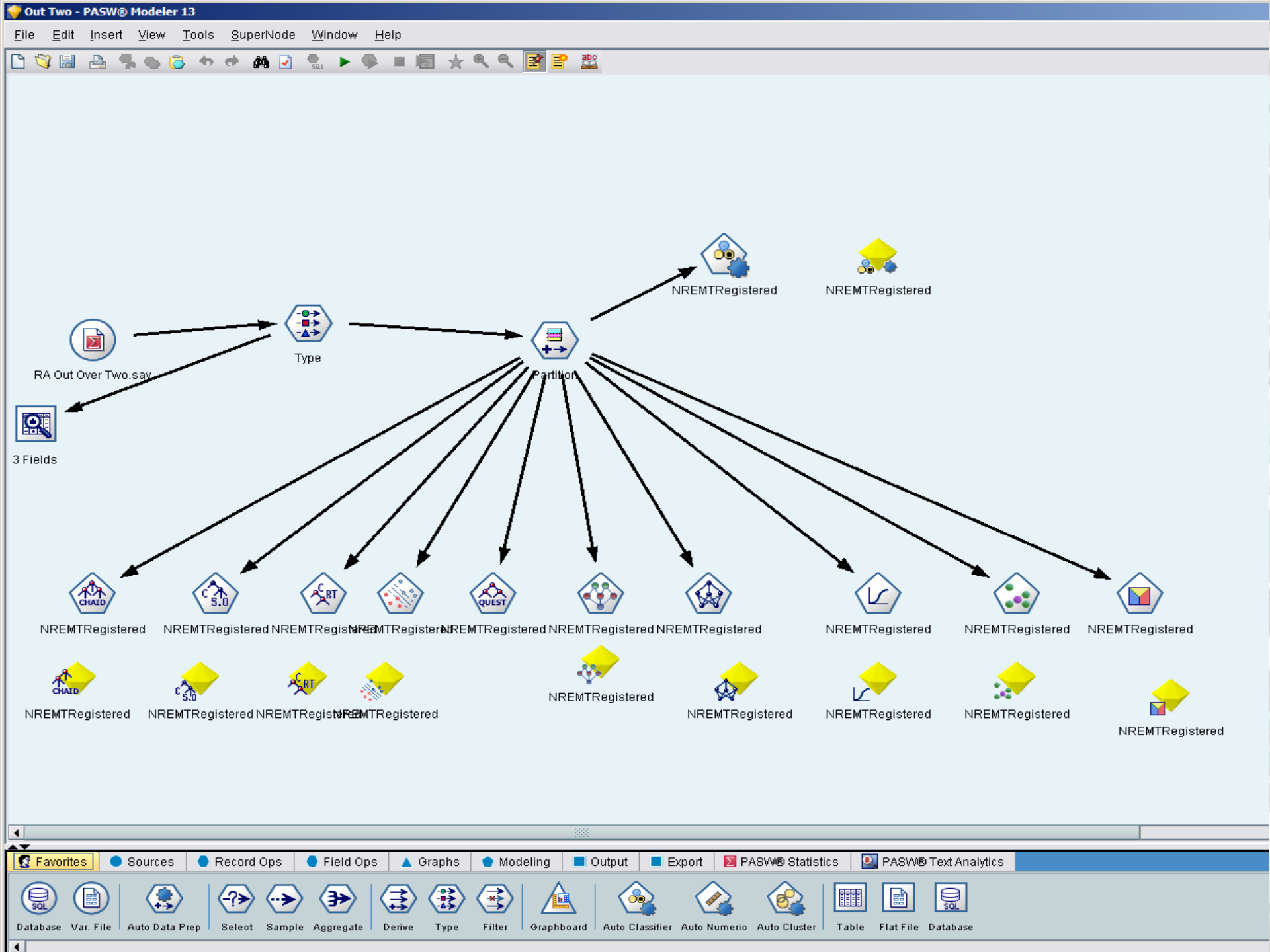
- To explain a technique for variable exploration with PASW Modeler 13
  - Auto Classifer
  - Voting on variable importance with all models
  - Stepwise removal of “worst variable”

ARMY STRONG[sm]

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%




Out Two - PASW® Modeler 13
File Edit Insert View Tools SuperNode Window Help
NREMTRegistered
NREMTRegistered
RA Out Over Two.sav
Type
Partition
3 Fields
NREMTRegistered
NREMTRegistered
NREMTRegistered
NREMTRegistered
NREMTRegistered
NREMTRegistered
NREMTRegistered
NREMTRegistered
NREMTRegistered
NREMTRegistered
NREMTRegistered
NREMTRegistered
NREMTRegistered
NREMTRegistered
NREMTRegistered
NREMTRegistered
Favorites
Sources
Record Ops
Field Ops
Graphs
Modeling
Output
Export
PASW® Statistics
PASW® Text Analytics
Database
Var. File
Auto Data Prep
Select
Sample
Aggregate
Derive
Type
Filter
Graphboard
Auto Classifier
Auto Numeric
Auto Cluster
Table
Flat File
Database

ARMY STRONG℠

Type Node

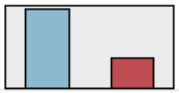
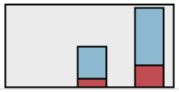
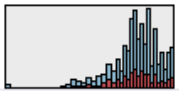
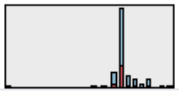
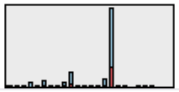
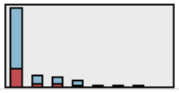
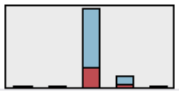
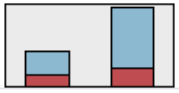
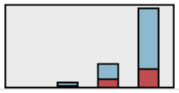
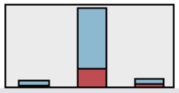
Field	Type	Values	Missing	Check	Direction
NREMTRegi...	Flag	1.0/0.0		None	Out
OutofService	Set	0.0,1.0		None	None
Expiration_D...	Range	[0000-12-...		None	None
NREMT_LE...	Set	A,B,I,P		None	None
Reg_Stat	Set	IA,RG,LR,...		None	None
Date_of_Birth	Range	[0000-12-...		None	None
AGE	Range	[14.3,43.51]		None	None
Gender	Set	F,M		None	In
SEX	Set	"",F,M		None	None
REQ_RACE	Set	"",C,M,N,R...		None	None
REQ_ETHNIC	Set	"","1","2","...		None	None
R_RACE1	Set	"",A,B,H,N,...		None	None
MEP_RACE	Set	"","2","3","...		None	None
MEP_ETHNIC	Set	"","1","2","...		None	None
M_RACE1	Set	"",A,B,H,N,...		None	None
RACE2	Set	"",A,B,H,N,...		None	None
AFQT	Range	[0.0,99.0]		None	In
@GT	Range	[0.0,143.0]		None	None
STATE	Set	"",AE,AK,A...		None	None
MARITAL	Set	"",A,D,L,M,S		None	In
EDYRS	Range	[0.0,20.0]		None	In
EDLEVEL	Set	"","1","6","...		None	In
DEPEND	Set	0.0,1.0,2....		None	In
TSC	Set	"",I,II,IIIA,III...		None	None
TSC2	Set	"","4",A,B		None	None
TIER	Set	"","0","1","...		None	In
ZIP	Typeless			None	None
Reg_zip	Typeless			None	None
RSID	Typeless			None	None
MEPS_ID	Set	"",A01,A02...		None	None
TERM	Range	[0.0,96.0]		None	None
BONUS_AMT	Range	[0.0,2600...		None	None
AITSTARTD...	Range	[0000-12-...		None	None
UPDATED	Set	2007-01-...		None	None
MIL_ETS_D...	Range	[0000-12-...		None	None
BASICTRNG...	Range	[0000-12-...		None	None
DOB	Range	[0000-12-...		None	None
SEL_RES_E...	Range	[0000-12-...		None	None
STAT_MIL_E...	Range	[0000-12-...		None	None
DateData	Range	[0000-12-...		None	None
FY	Set	1992,0,19		None	None

ARMY STRONG[sm]

Data Audit

Data Audit of [10 fields]

File Edit Generate

Field	Sample Graph	Type	Min	Max	Mean	Std. Dev	Skewness	Unique	Valid
NREMTRegist...		Flag	0.000	1.000	--	--	--	2	6106
Gender		Set	--	--	--	--	--	3	6106
AFQT		Range	0.000	99.000	73.269	14.398	-0.538	--	6068
EDYRS		Range	0.000	20.000	12.374	1.375	0.202	--	6068
EDLEVEL		Set	--	--	--	--	--	22	6057
DEPEND		Set	0.000	7.000	--	--	--	8	6104
TIER		Set	--	--	--	--	--	5	6068
Race_White		Set	0.000	1.000	--	--	--	2	6106
MaritalSMD		Set	--	--	--	--	--	4	6106
TERMTier		Ordered Set	1.000	3.000	--	--	--	3	6105

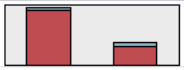
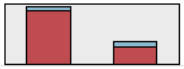
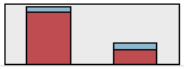
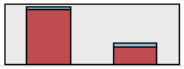
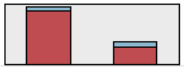
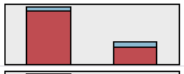
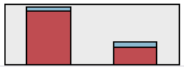
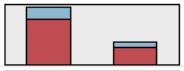
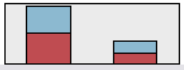
ARMY STRONG[sm]

Auto Classifier Results

NREMTRegistered

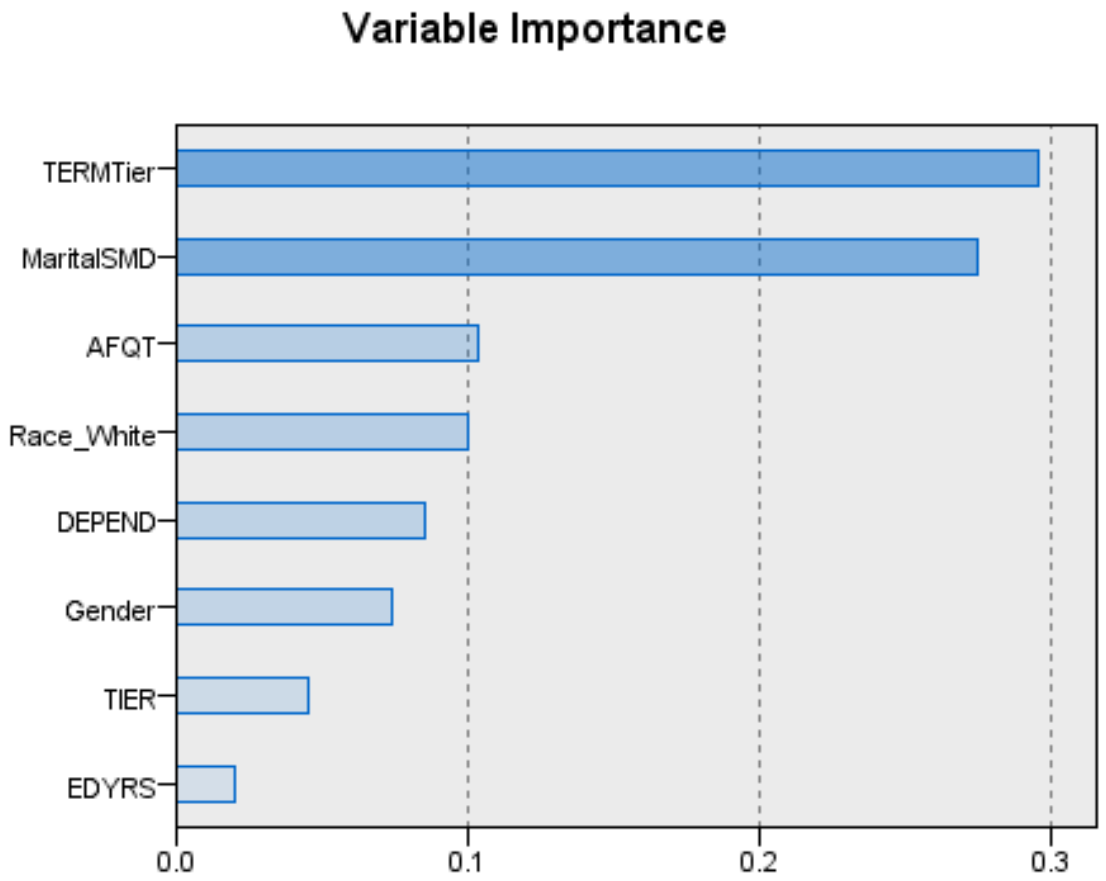
File | Generate | View | Preview

Sort by: Overall accuracy | Ascending | Descending | Delete Unused Models | View: Testing set

Use?	Graph	Model	Build Time (mins)	Max Profit	Max Profit Occurs in (%)	Lift(Top 30%)	Overall Accuracy (%)	No. Fields Used	Area Under Curve
☑		Neural net 1	< 1	155	10	1.435	74.167	9	0.608
☑		Decision List 1	< 1	152.222	7	1.299	74.086	6	0.581
☑		C&R Tree 1	< 1	108	13	1.456	73.924	9	0.602
☑		Logistic regress...	< 1	170	13	1.564	73.599	10	0.652
☑		C5 1	< 1	113.636	14	1.534	73.274	9	0.632
☑		Bayesian Netwo...	< 1	120	7	1.573	73.274	10	0.657
☑		SVM 1	< 1	105	5	1.524	73.193	10	0.614
☑		CHAID 1	< 1	23.529	7	1.3	72.299	6	0.572
☑		QUEST 1	< 1	-27.149	1	1	72.055	0	0.5
☑		KNN Algorithm 1	< 1	-27.273	1	1.036	62.713	10	0.525
☑		Discriminant 1	< 1	10	1	1.188	53.452	2	0.547

ARMY STRONG[sm]

Run the Individual Models



ARMY STRONG[sm]

Start with All Variables

Model	% Accurate	Area Under Curve	Change	TERMTier	Depend	Race_ White	MaritalSMD	AFQT	Edyrs	Tier	Edlevel	Gender
Neural Net	74.492	0.644	↑	1	6	4	2	3	8	5	9	7
Decision List	74.086	0.581	↔	0	0	0	0	0	0	0	0	0
QUEST	74.005	0.590	↔	1	2	3	4	6	5	5	5	7
C&RT	73.924	0.600	↑	1	2	2	3	2	2	2	3	4
Logistic Regression	73.680	0.650	↑	1	3	6	2	4	7	8	9	5
Bayesian	73.355	0.655	↓	0	0	0	0	0	0	0	0	0
QUEST	73.274	0.614	↓	1	2	3	4	6	5	5	5	7
SVM	73.030	0.623	↓	1	2	3	7	4	6	5	8	9
C 5.0	72.299	0.572	↓	1	2	9	4	3	6	7	5	8
KNN	62.632	0.528	↓	2	6	1	3	8	2	5	4	7
Discriminant	53.452	0.547	↔	2	1	3	6	4	5	6	6	6
Total	70.748	0.600	↓	11	26	34	35	40	46	48	54	60

ARMY STRONG[sm]

Remove the Highest Scoring Variable

Model	% Accurate	Area Under Curve	Change	TERMTier	MaritalSMD	Depend	Race_White	AFQT	Gender	Edyrs	Tier
C 5.0	74.086	0.611	↔	1	6	8	5	2	4	7	3
Decision List	74.086	0.581	↔	0	0	0	0	0	0	0	0
Quest	74.005	0.590	↔	1	4	2	3	7	5	6	8
SVM	73.924	0.626	↔	1	3	2	4	6	5	7	8
Bayesian	73.761	0.643	↔	1	2	3	5	6	4	7	8
C&RT	73.680	0.632	↔	1	2	6	7	3	4	5	8
Neural Net	73.274	0.646	↔	1	2	4	3	6	7	8	5
Logistic Regression	73.274	0.655	↔	1	2	3	7	4	6	8	5
CHAID	72.380	0.588	↔	2	1	5	3	5	5	5	4
KNN	62.794	0.525	↔	3	5	6	1	4	7	2	8
Discriminant	53.452	0.547	↔	2	6	1	3	4	6	5	6
Total					33	40	41	47	53	60	63
	70.792	0.604	↔	14							

ARMY STRONG[sm]

Remove the Highest Scoring Variable

Model	% Accurate	Area Under Curve	Change	TERMTier	MaritalSMD	Depend	Race_White	AFQT	Edyrs	Gender
Neural Net	74.980	0.655	↑	1	2	3	5	4	7	6
SVM	74.249	0.618	↑	1	3	2	4	5	6	7
Decision List	74.086	0.582	↔	0	0	0	0	0	0	0
QUEST	74.005	0.520	↔	1	4	2	3	6	5	7
C&RT	73.680	0.632	↔	1	2	2	6	3	4	7
Bayesian	73.680	0.644	↓	1	2	5	5	4	6	7
Logistic Regression	73.436	0.655	↓	1	2	3	6	4	7	5
C 5.0	73.274	0.607	↓	1	2	3	3	7	5	6
CHAID	72.380	0.588	↔	2	1	4	3	5	5	4
KNN	62.551	0.523	↓	2	6	5	1	3	4	5
Discriminant	53.452	0.547	↔	2	6	7	3	4	5	6
				13	30	36	39	45	54	60
Total	70.888	0.597	↑							

ARMY STRONG[sm]

Remove the Highest Scoring Variable

Model	% Accurate	Area Under Curve	Change	TERMTier	Depend	MaritalSMD	AFQT	Race_White	Edyrs
Neural Net	74.655	0.645	↓	1	2	3	5	4	6
SVM	74.330	0.605	↑	1	2	3	4	5	6
Logistic Regression	74.086	0.648	↓	1	2	3	4	5	6
Decision List	74.086	0.581	↔	0	0	4	0	0	0
QUEST	74.005	0.590	↔	1	2	4	6	3	5
Bayesian	73.924	0.634	↑	1	3	2	4	5	6
C&RT	73.680	0.632	↔	1	5	2	3	6	4
C 5.0	73.111	0.624	↓	1	2	3	4	6	5
CHAID	72.380	0.582	↔	3	5	1	5	2	4
KNN	72.136	0.549	↑	2	6	5	1	3	4
Discriminant	53.452	0.547	↔	2	1	6	4	3	5
				14	30	36	40	42	51
Total	71.804	0.603	↑						

ARMY STRONG[sm]

Remove the Highest Scoring Variable

Model	% Accurate	Area Under Curve	Change	TERMTier	Depend	MaritalSMD	Race_White	AFQT
Neural Net	74.411	0.647	↓	1	2	4	3	5
SVM	74.330	0.606	↔	1	2	4	3	5
Logistic Regression	74.249	0.649	↔	1	2	3	4	5
Bayesian	74.167	0.631	↑	1	4	3	2	5
Decision List	74.009	0.581	↓	0	0	0	0	0
QUEST	74.005	0.590	↔	1	2	3	5	4
C 5.0	73.680	0.626	↑	1	5	4	3	2
C&RT	73.680	0.632	↔	1	4	2	5	3
CHAID	72.380	0.584	↔	2	4	1	3	4
KNN	71.487	0.579	↓	2	5	4	3	1
Discriminant	53.290	0.546	↓	2	1	5	3	4
Total	71.790	0.606	↓	13	31	33	34	38

ARMY STRONG[sm]

Remove the Highest Scoring Variable

Model	% Accurate	Area Under Curve	Change	TERMTier	Depend	MaritalSMD	Race_White
Bayesian	75.223	0.636	↑	1	2	3	4
SVM	75.142	0.574	↑	1	2	3	4
Neural Net	74.086	0.621	↓	1	3	2	4
QUEST	73.924	0.590	↓	2	4	1	3
Logistic Regression	73.924	0.647	↓	1	2	3	4
C 5.0	73.842	0.581	↑	1	3	2	3
C&RT	72.949	0.630	↓	1	3	2	4
Decision List	72.868	0.566	↓	0	0	0	0
CHAID	72.380	0.584	↔	1	2	4	3
KNN	72.055	0.568	↑	2	1	4	3
				11	22	24	32
Total	73.639	0.600	↑				

ARMY STRONG[sm]

Remove the Highest Scoring Variable

Model	% Accurate	Area Under Curve	Change	TERMTier	MaritalSMD	Depend
Neural Net	75.061	0.637	↑	2	1	3
Decision List	74.655	0.600	↑	0	0	0
Bayesian	74.492	0.628	↓	1	3	2
C&RT	74.411	0.632	↑	1	2	3
Logistic Regression	74.249	0.638	↑	1	3	2
SVM	74.249	0.623	↓	1	2	3
C 5.0	74.005	0.580	↑	1	2	2
QUEST	72.868	0.589	↓	1	3	2
KNN	72.868	0.502	↑	1	2	3
CHAID	72.380	0.586	↔	2	1	3
				11	19	23
Total	73.924	0.601	↑			

ARMY STRONG[sm]

Remove the Highest Scoring Variable

Model	% Accurate	Area Under Curve	Change	TERMTier	Depend
Neural Net	74.086	0.626	↓	1	2
Bayesian	74.086	0.633	↓	1	2
KNN	74.086	0.602	↑	1	2
QUEST	74.005	0.599	↑	1	2
C&RT	73.842	0.621	↓	1	2
SVM	73.842	0.627	↓	1	2
Logistic Regression	73.680	0.634	↓	1	2
C 5.0	72.055	0.500	↓	1	1
CHAID	72.055	0.573	↔	2	1
Decision List	69.131	0.607	↓	0	0
Total	73.087	0.602	↓	10	16

ARMY STRONG[sm]

Remove the Highest Scoring Variable

Model	% Accurate	Area Under Curve	Change	TERMTier	MaritalSMD
C&RT	74.411	0.632	↑	1	2
Neural Net	74.167	0.635	↑	1	2
Bayesian	74.167	0.626	↑	1	2
SVM	74.167	0.625	↑	1	2
C 5.0	74.005	0.580	↑	1	2
KNN	74.005	0.542	↓	1	2
QUEST	73.924	0.553	↓	1	2
Logistic Regression	73.924	0.637	↓	1	2
CHAID	72.380	0.586	↑	2	1
Decision List	67.262	0.630	↓	0	0
Total	73.241	0.605	↑	10	17

ARMY STRONG[sm]

Remove the Highest Scoring Variable

Model	% Accurate	Area Under Curve	Change	TERMTier
Logistic Regression	74.005	0.602	↔	1
Bayesian	74.005	0.602	↓	1
KNN	74.005	0.558	↔	1
SVM	74.005	0.602	↓	1
Decision List	73.599	0.602	↑	1
Neural Net	72.055	0.602	↓	1
C 5.0	72.055	0.500	↓	1
Total	73.390	0.581	↑	7

ARMY STRONG[sm]

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

