Major ASVAB R&D Efforts
Milestones and Project Schedules

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Briefing presented to the DAC

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Projects

- **ASVAB Development**
  - Item Development Efforts*
  - New CAT-ASVAB Item Pools*
  - New P&P-ASVAB Forms
  - Evaluations of CAT-ASVAB and Form Development Methodologies
  - Implementation of Calculators

- **ASVAB and Enlistment Testing Program (ETP) Revision**
  - Next Generation ASVAB/ASVAB Evaluations
    - Adverse Impact Analyses
    - Differential Prediction Analyses
    - Training Relevance Survey
    - High School Curriculum Study*
    - Focus Groups
    - Validity Frameworks
    - Norming Investigations

*Will be presented/discussed at this meeting.

NOTE: Dates given in this document are subject to change depending on available resources, unexpected issues that arise, and other factors that may be beyond our control. Any changes will be communicated as soon as possible.

Projects

- **ASVAB and ETP Revision**
  - Evaluating New Cognitive Tests/Composites for ASVAB
    - Complex Reasoning*
    - Computational Thinking*
    - Cyber Test
    - Mental Counters
  - Adding Non-cognitive Measures to Selection and/or Classification
    - TAPAS Validity Framework*
    - Joint-Service TAPAS*
- **Career Exploration Program***
- **Military Compatibility Assessment***
- **Expanding Test Availability**
  - Web/Cloud Delivery of ASVAB and Special Tests
  - Device Expansion

*Will be presented/discussed at this meeting.

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Item Development Efforts*

- **Objective**
  - Develop new items for the ASVAB

- **Projected Completion**
  - Ongoing

- **Subtasks**
  - Develop items and graphics for GS, AR, WK, PC, MK, EI, AI, SI, and MC subtests using the ASVAB item bank platform (ongoing)
  - Conduct copy edits (ongoing)
  - Conduct sensitivity reviews, content reviews, and content edits (ongoing)
  - Develop training materials for the ASVAB item bank (ongoing)

Item Development Efforts* (continued)

- **Predecessors**
  - Development of ASVAB item bank

- **Successors**
  - Item tryouts on CAT-ASVAB platform
  - CAT-ASVAB form development

New CAT-ASVAB Item Pools*

- **Objective**
  - Develop CAT-ASVAB item pools (designated as Forms 11–15) from new items

- **Projected Completion**
  - CAT-ASVAB Forms 11–15 implementation: Summer 2023

- **Subtasks**
  - Conduct item tryouts ✓
  - Conduct calibration and scaling ✓
  - Conduct item analyses and screening ✓
  - Assemble item pools and prepare for online administration ✓
  - Collect Initial Operational Test & Evaluation (IOT&E) data ✓
  - Conduct final equating analyses and evaluations (Mar 2023) ✓

New CAT-ASVAB Item Pools* (continued)

- **Subtasks** (continued)
  - Update software for operational implementation (Summer 2023)
  - Implement Forms 11–15 Operationally (Summer 2023)

- **Predecessors**
  - ASVAB item development

- **Successors**
  - Use of CAT-ASVAB Forms 5–9 in Career Exploration Program (CEP), AFCT, P*i*CAT, overseas
  - Documentation of CAT-ASVAB Forms 11–15 development in a technical bulletin
  - Development of CAT-ASVAB Forms 16–20

New P&P-ASVAB Forms

- **Objective**
  - Develop P&P-ASVAB Forms 29F/G, 30F/G, 31F/G, 32F/G from new items

- **Projected Completion**
  - New form implementation: TBD

- **Subtasks**
  - Conduct item analyses ✓
  - Conduct scaling (in progress) ✓
  - Assemble test forms (in progress) ✓
  - Resolve issues with PC, AS (in progress)
  - Assemble and print test booklets (TBD)
  - Prepare for operational implementation (TBD)
  - Implement P&P-ASVAB Forms 29–32 operationally (TBD)

New P&P-ASVAB Forms* (continued)

- **Predecessors**
  - Development of CAT-ASVAB Forms 11–15

- **Successors**
  - Implementation of new P&P-ASVAB forms in the ETP
  - Implementation of new P&P-ASVAB forms in the CEP
  - Documentation of P&P-ASVAB Forms 29–32 development in a technical bulletin

Evaluation and Implementation of Calculators

- **Objective**
  - Move forward with incorporating calculator use on the ASVAB

- **Projected Completion**
  - TBD

- **Subtasks**
  - Identify calculator-sensitive items (TBD)
  - Conduct data collection and evaluate calculator impact (TBD)
  - Conduct needs assessment with Services (TBD)
  - Determine next steps[†] (TBD)

†Next steps will depend on findings in the initial phases and on receipt of funding.

Evaluation and Implementation of Calculators
(continued)

- **Predecessors**
  - Development of MK and AR items and CAT-ASVAB pools

- **Successors**
  - Possible equating (if no multidimensionality found in impact analysis)
  - Possible new MK, AR, or special purpose test (if multidimensionality is found in impact analysis)

Evaluations of CAT-ASVAB and Form Development Methodologies

- **Objective**
  - Evaluate CAT-ASVAB methodologies and ways to streamline form development efforts

- **Projected Completion**
  - TBD

- **Subtasks**
  - Evaluate modernization options for CAT-ASVAB and technical approaches to test administration and scoring (Mar 2023) ✓
  - Explore the efficacy of using machine learning methods to streamline the form assembly process (Sep 2023)
  - Develop and carry out a Bayesian item calibration sample size reduction study (Dec 2023)

Evaluations of CAT-ASVAB and Form Development Methodologies (continued)

- **Predecessors**
  - Transition form development responsibilities from the government to the contractor

- **Successors**
  - Possible adjustments to item calibration practices
  - Possible adjustments to form assembly practices

Next Generation ASVAB/ASVAB Analyses

- **Objective**
  - Evaluate state of the ASVAB and prepare for the next generation of ASVAB and special purpose tests to be administered on the ASVAB platform in the ETP

- **Projected Completion**
  - Ongoing

- **Subtasks**
  - Conduct training relevance survey (June 2022) ✓
  - Conduct adverse impact analyses for the ASVAB and special tests on FY 2021 applicants (Oct 2022) ✓
  - Conduct differential prediction analyses for the AFQT (Mar 2023) ✓
  - Conduct differential prediction analyses for Service-specific classification composites (Sep 2024)

Next Generation ASVAB/ASVAB Analyses
(continued)

- **Subtasks** (continued)
  - Conduct focus groups with stakeholders (Mar 2023) ✓
  - Establish and refine validity argument for the AFQT (Sep 2023)
  - Establish and refine validity argument for the ASVAB (Sep 2023)
  - Develop and implement a plan for annually evaluating the need for re-norming the ASVAB (Sep 2023)
  - Conduct a norming needs assessment (Sep 2023)
  - Conduct high school curriculum study* (Jun 2024)
  - Develop a roadmap for next generation ASVAB (July 2024)
- **Predecessors**
  - Prior revisions to ASVAB contents
  - Evaluations of special tests of interest
- **Successors**
  - Possible revisions to ASVAB contents

Evaluating New Cognitive Tests: Complex Reasoning*

- **Objective**
  - Develop a non-verbal reasoning assessment and evaluate for possible inclusion in the ASVAB
  - Develop an item generator for Complex Reasoning

- **Projected Completion**
  - TBD

- **Subtasks**
  - Evaluate existing, non-proprietary item generator ✓
  - Generate items for pilot study ✓
  - Pilot and evaluate items/initial Complex Reasoning capability with a non-military sample ✓
  - Finalize Complex Reasoning Item Generation Tool (Summer 2023)
  - Generate items for a follow-up pilot study and evaluation of refined Complex Reasoning capability ✓

Evaluating New Cognitive Tests:
Complex Reasoning* (continued)

- **Subtasks** (continued)
  - Conduct data collection for follow-up study (in progress)
  - Conduct data analyses for follow-up study (Sep 2023)
  - Document findings from follow-up study (Sep 2023)
  - Provide test forms, tryout items, and programming requirements for implementing on ASVAB platform (Sep 2023)
  - Provide research and development/maintenance plan (Jan 2024)

- **Predecessors**
  - Evaluation of Abstract Reasoning Test

- **Successors**
  - Program Complex Reasoning application for administration on the ASVAB test delivery platform
  - Development of Computational Thinking composite

Evaluating New Cognitive Tests: Computational Thinking*

- **Objective**
  - Develop a Computational Thinking composite score to meet National Defense Authorization Act (NDAA) requirement to address Computational Thinking skills

- **Projected Completion**
  - TBD

- **Subtasks**
  - Conduct alignment study to establish Computational Thinking composite from existing ASVAB and military tests (Sep 2023)
  - Program necessary modifications to ASVAB test delivery application (Sep 2024)
  - Conduct empirical validation study of Computational Thinking composite score (Sep 2024)

Evaluating New Cognitive Tests: Computational Thinking* (continued)

- **Predecessors**
  - Development and evaluation of Cyber Test
  - Development and evaluation of Complex Reasoning test

- **Successors**
  - Possible inclusion of Computational Thinking composite into selection and classification decisions

Evaluating New Cognitive Tests: Cyber Test

- **Objectives**
  - Develop a CAT version of the Cyber Test and program for administration on DTAC's cloud platform

- **Projected Completion**
  - June 2023

- **Subtasks**
  - Develop CAT item pools ✓
  - Evaluate feasibility of CAT-Cyber Test ✓
  - Program and QA CAT-Cyber for administration on the cloud platform (June 2023) ✓
  - Implement CAT-Cyber operationally (June 2023) ✓
  - Implement new tryout items in CAT-Cyber (June 2023) ✓

Evaluating New Cognitive Tests: Cyber Test
(continued)

- **Predecessors**

  - Development of conventional version of Cyber Test

  - Programming of conventional Cyber Test for cloud platform

- **Successors**

  - Conduct additional validation studies

  - Develop new items

  - Possible revisions to ASVAB content

Evaluating New Cognitive Tests: Mental Counters

- **Objective**
  - Refine the Mental Counters test of working memory and program for administration on DTAC's cloud platform

- **Projected Completion**
  - Fall 2023

- **Subtasks**
  - Investigate psychometric properties ✓
  - Refine instructions and practice items to eliminate floor effect ✓
  - Evaluate new instructions and practice items ✓
  - Gather IT requirements for the cloud platform ✓
  - Program for administration on the cloud platform (in progress)
  - Conduct quality assurance activities (Fall 2023)
  - Implement operationally (Fall 2023)

Evaluating New Cognitive Tests: Mental Counters
(continued)

- **Predecessors**
  - Program Mental Counters for administration on DTAC's WinCAT platform (now decommissioned)

- **Successors**
  - Conduct additional validation studies
  - Possible revisions to ASVAB content

Adding Non-cognitive Measures to Selection and/or Classification: TAPAS*

- **Objective**
  - Evaluate the use of the Tailored Adaptive Personality Assessment System (TAPAS) in the military selection and classification process

- **Projected Completion**
  - Ongoing

- **Subtasks**
  - Empirically evaluate Service-specific versions of TAPAS
    - Army (Ongoing)
    - Air Force/Space Force (Ongoing)
    - Marine Corps (Ongoing)
    - Navy (Ongoing)†

† Navy TAPAS administration was initiated Spring 2023 utilizing the Army version

Adding Non-cognitive Measures to Selection and/or Classification: TAPAS* (continued)

- **Subtasks** (continued)
  - Establish and refine a validity argument for TAPAS (ongoing)
  - Develop a joint-Service version of TAPAS
    - Explore TAPAS effect on adverse impact (May 2023) ✓
    - Develop research plan for a criterion data collection (Summer 2023)
    - Make recommendations for an interim joint-Service composite (Fall 2023)
    - Identify best model for a joint-Service TAPAS (Fall 2023)
    - Conduct initial evaluation of interim composite (TBD)
    - Evaluate composite on archival data (TBD)

- **Predecessors**
  - Program TAPAS for administration on the cloud platform

- **Successors**
  - Possible revisions to the ASVAB or addition of new special tests
  - Possible software updates

Military Compatibility Assessment

- **Objective**
  - Inform the future development of an evidence-based accessions instrument for military compatibility assessment

- **Projected Completion**
  - Ongoing

- **Subtasks**

  - Develop plans for evaluating applicable tests and feasibility of clinical/holistic evaluation for enlisted accessions (Sep 2023)
  - Identify TAPAS-based compatibility composite for initial operational test and evaluation (IOT&E) with applicants (Sep 2023)
  - Identify possible alternate compatibility composites (Sep 2023)
  - Refine TAPAS validity argument (Sep 2023)
  - Make software changes to TAPAS/update facets and implement on cloud platform (June 2024)
  - Begin data collection for enlisted population (Sep 2024)

Military Compatibility Assessment (continued)

- **Subtasks** (continued)

  - Review avenues for non-cognitive assessment in the officer population (Jul 2023) ✓
  - Evaluate IT options for implementation with officers (Sep 2024)
  - Conduct research on non-cognitive assessment methodologies (Sep 2024)

- **Predecessors**

  - Develop TAPAS Conduct composite (Army)

  - Data collections on Service-specific versions of TAPAS (Army, Air Force, Marine Corps)

- **Successors**

  - Develop and implement a roadmap for officer implementation and evaluation

  - Possible software updates

Career Exploration Program*

- **Objective**
  - Revise/maintain all CEP materials (websites & print materials), conduct program evaluation studies, and conduct research studies, as needed

- **Projected Completion**
  - Ongoing

- **Subtasks**
  - Develop CEP program briefings and materials for external sources, as needed (ongoing)
  - Revise program materials as suggested by expert panel and evaluation efforts (ongoing)
  - Develop enhancements to the ASVAB CEP website (in progress)
  - Cross-walk civilian and military occupations for inclusion in the OCCU-Find (in progress)
  - Refresh of Find your Interests (FYI) inventory items (item writing, tryout, analysis) (in progress)
  - Increase touch points with stakeholders, outline new reporting strategies, and establish priorities for lines of business (ongoing)

Career Exploration Program* (continued)

- **Subtasks** (continued)
  - Develop and deliver training (Spring-Summer 2023)
    - Website enhancements
    - Post-Test Interpretation recertification
    - New Test Coordinator Essentials
    - Implement training evaluation
  - Monitor state usage of ASVAB and ASVAB CEP as related to legislative changes (ongoing)
  - Develop plans for expanding CEP *i*CAT usage in schools (ongoing)

- **Predecessors**
  - Seeded new items for the FYI
  - Collated authoritative data sources for OCCU-Find
  - Redesigned website and launched new functionalities
  - Conducted Post-Test Interpretation training
  - Onboard new ASVAB CEP program manager

- **Successors**
  - Onboard new ASVAB CEP research psychologist

Expanding Test Availability: Web/Cloud Delivery of ASVAB and Special Tests

- **Objective**
  - Program ASVAB and special tests for delivery on DTAC's web-based/cloud-based platform and introduce enhancements

- **Projected Completion**
  - Ongoing

- **Subtasks**
  - Program CEP *i*CAT login enhancements and refactor code ✓
  - QA CEP *i*CAT login enhancements on the cloud platform ✓
  - Deploy *i*CAT login enhancements to production in the cloud ✓
  - Program CAT version of the Cyber Test ✓
  - QA CAT-Cyber on the cloud platform ✓
  - Deploy CAT-Cyber to production in the cloud ✓
  - Program Mental Counters for the cloud platform (in progress)
  - QA Mental Counters on the cloud platform (Fall 2023)
  - Deploy Mental Counters to production in the cloud (Fall 2023)

Expanding Test Availability: Web/Cloud Delivery of ASVAB and Special Tests (continued)

- **Subtasks** (continued)
  - Program Complex Reasoning and Computational Thinking Composite for the cloud platform (TBD)
  - QA Complex Reasoning and Computational Thinking Composite on the cloud platform (TBD)
  - Deploy Complex Reasoning and Computational Thinking Composite to production in the cloud (Sep 2024)

- **Predecessors**
  - Cyber hardening and code modernization (ongoing)
  - Develop cloud infrastructure ✓
  - Migrate *i*CAT test delivery suite to the cloud platform ✓
  - Migrate TAPAS, Cyber Test, and Coding Speed to the cloud platform ✓

- **Successors**
  - Evaluate additional CEP *i*CAT enhancements

Expanding Test Availability: Device Expansion

- **Objective**
  - Expand *i*CAT test delivery application to run on additional operating systems and browsers for desktops/laptops
  - Expand P*i*CAT and APT to run on tablets and smartphones

- **Projected Completion**
  - TBD

- **Subtasks**
  - Initiate development of implementation plan (Jun 2023) ✓
  - Update *i*CAT to run on additional browsers and operating systems for desktops and laptops (Fall 2023)
  - Expand P*i*CAT/APT to run on 1–2 tablets with touchscreen capabilities (Feb 2024)
  - Expand P*i*CAT/APT to run on additional tablets (TBD)
  - Expand P*i*CAT/APT to run on select smartphones (TBD)

Expanding Test Availability: Device Expansion
(continued)

- **Predecessors**

  - Evaluation of ASVAB performance across different devices

- **Successors**

  - Program interface changes

  - Evaluate need and feasibility of expanding delivery of special tests to additional devices

Appendix A
List of Acronyms

List of Acronyms

AFCT	Armed Forces Classification Test
AFQT	Air Force Qualification Test
APT	AFQT Predictor Test
ASVAB	Armed Services Vocational Aptitude Battery
ATO	Authority to Operate
CAT-ASVAB	Computerized Adaptive Testing version of the ASVAB
CEP	Career Exploration Program
CS	Coding Speed
CT	Cyber Test
DMDC	Defense Manpower Data Center
ETP	Enlistment Testing Program
FYI	Find Your Interests inventory
*i*CAT	Internet-based CAT-ASVAB
*i*CAT-A&R	*i*CAT Authorization and Registration
IOT&E	Initial Operational Test and Evaluation
MCt	Mental Counters
MEPCOM	Military Entrance Processing Command
MEPS	Military Entrance Processing Stations
MET	Military Entrance Test site

List of Acronyms (continued)

NDAA	National Defense Authorization Act
OCCU-Find	Occupational Finder
P&P	Paper and Pencil
P*i*CAT	Pending Internet CAT-ASVAB
QA	Quality Assurance
R&D	Research and Development
TAPAS	Tailored Adaptive Personality Assessment System
TBD	To Be Determined
WinCAT	Windows-based CAT-ASVAB