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Joint-Service TAPAS Update

Dan Putka

Tim McGonigle

Human Resources Research Organization

Briefing presented to the DACMPT

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Briefing Agenda

- Joint-Service (JS) TAPAS Background
 - What is TAPAS?
 - JS TAPAS Composites, Instrument, Development Phases/Timeline
- Identification of a Phase 0 Military Compatibility Composite and Preliminary Phase 1 Composite Recommendations
- Development of a Phase 0 Enlistment Composite and Preliminary Phase 1 Composite Recommendations
- JS TAPAS Instrument Planning and Refinement of Preliminary Phase 1 Composite Recommendations
- Questions for the DAC

Joint-Service TAPAS Background

What is the Tailored Adaptive Personality Assessment System (TAPAS)?

- Multidimensional forced-choice personality assessment
- Originally developed by Dragow Consulting Group (DCG) starting in 2004 under a Small Business Innovation Research (SBIR) grant with the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI)
 - Promising research led to Army use of TAPAS to support enlistment selection decisions
 - Findings prompted other Services to initiate their own TAPAS research programs

TAPAS Composition

- Five* versions of TAPAS are currently administered to applicants at Military Entrance Processing Stations (MEPS)
 - Versions vary by Service (Army, Air Force, Marine Corps)
 - Army version administered to Army and Navy applicants
- Each version consists of 12 to 17 facets (personality dimensions)
 - Facets included in TAPAS vary across versions
- DoD-owned statement pools for 25 facets in current use at MEPS by one or more Services

TAPAS Item Format and Scoring

- TAPAS uses multidimensional pairwise preference (MDPP) items
 - Most items present statements from two different facets; example:

Which of these statements is the most like you?

- People come to me when they want fresh ideas.
- Most people would say I am a “good listener.”

- Statements matched on extremity and socially desirability parameters
 - Statement pairs are selected on-the-fly by the TAPAS engine from pools of pre-calibrated statements that measure the facets
- Scored using multi-unidimensional pairwise preference IRT (ideal point) model

Objectives for a Joint-Service TAPAS

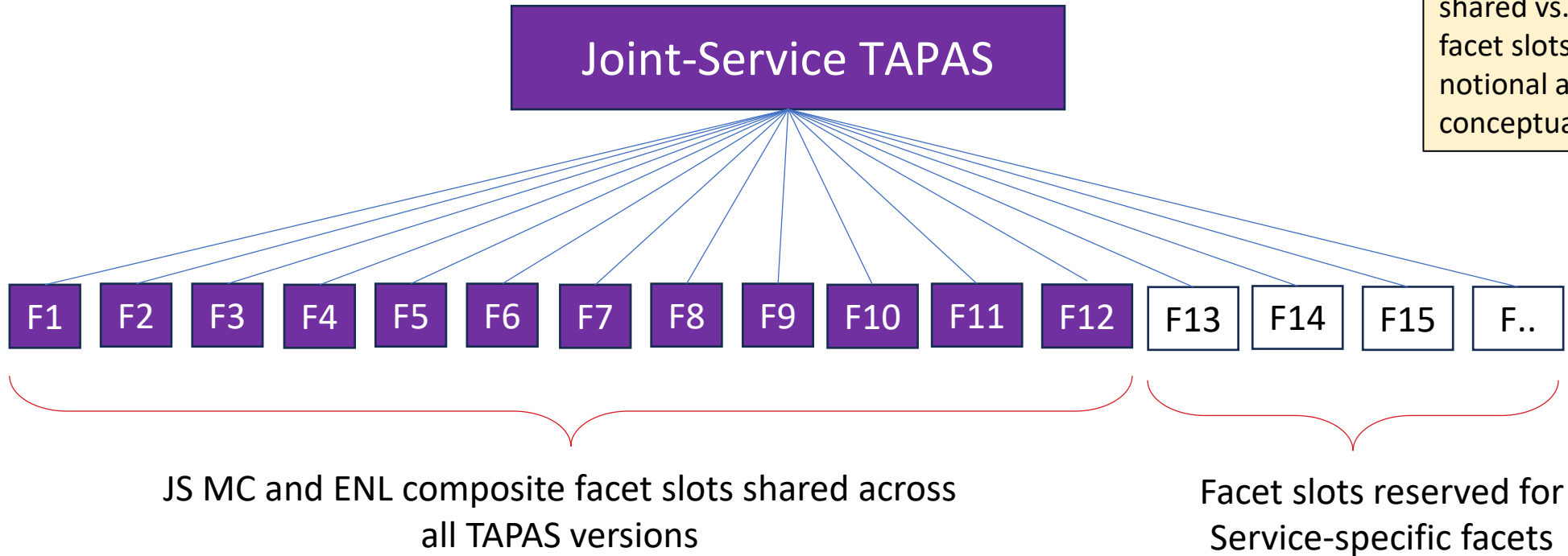
- OSD aims to develop two JS TAPAS composites
 1. JS composite for military compatibility
 - DoD directive that applies to enlisted personnel
 - Designed to predict alignment with military core values
 2. JS composite for enlisted selection
 - Expand qualified applicant pool without compromising valued outcomes
 - Designed to predict first-term enlisted job performance

JS TAPAS Concept: Instrument vs. Composites

- The concept of a JS TAPAS “instrument” is a bit of a misnomer in that it will not likely be a single instrument, but rather multiple Service-specific TAPAS versions that share a common core of facets that support scoring of the JS Military Compatibility (MC) and Enlistment (ENL) composites
- Versions must also support Service-specific TAPAS composites/models geared toward supporting Service-specific use cases

JS TAPAS Concept

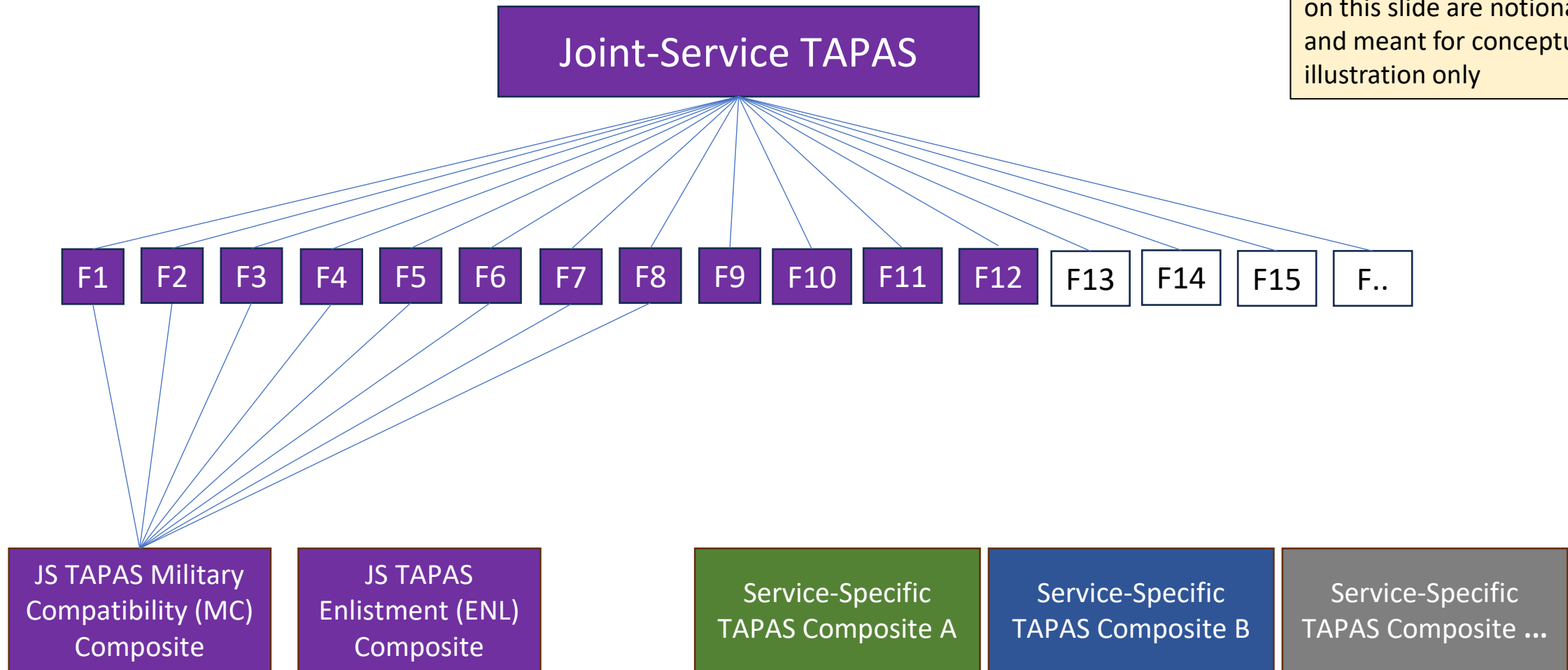
Note that all facet #s and relative distribution of shared vs. Service-specific facet slots on this slide are notional and meant for conceptual illustration only



Note. The split between shared-facet slots and Service-specific facet slots is the subject of research and discussion in 2024

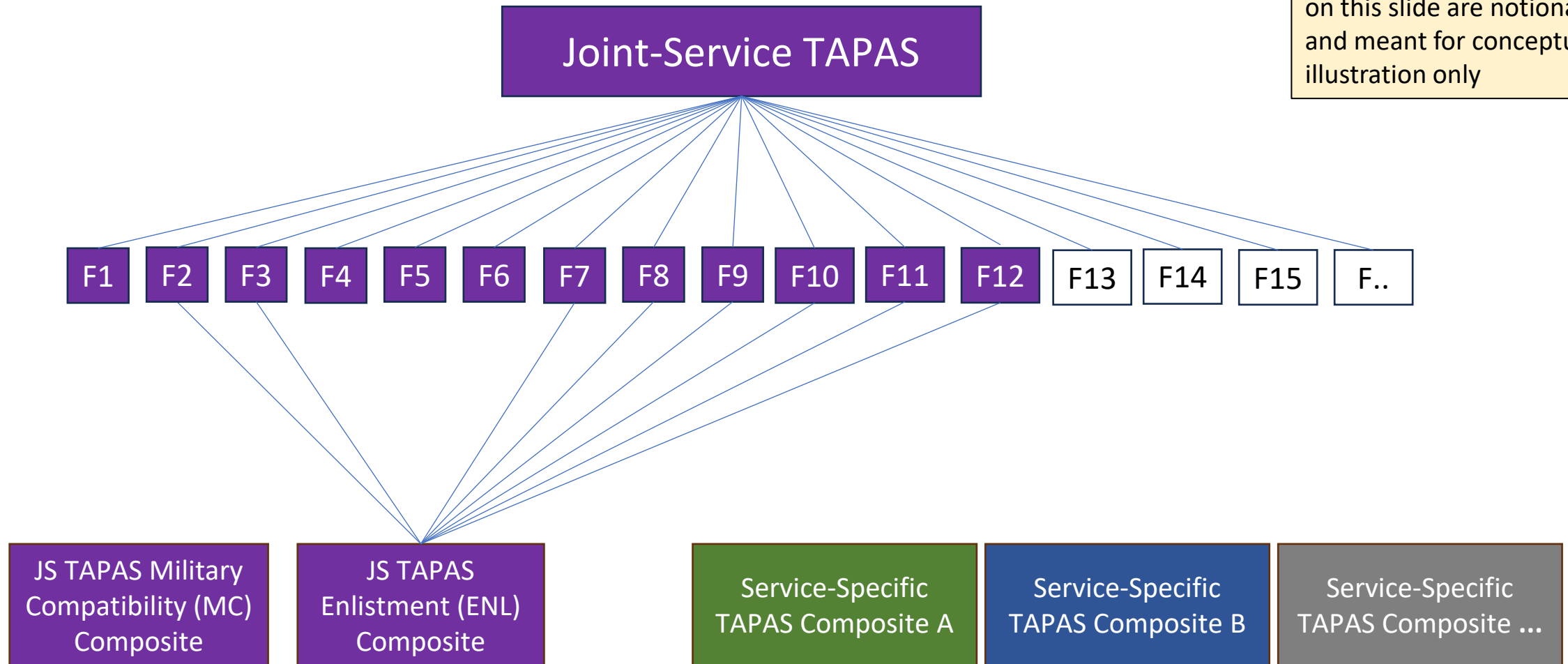
JS TAPAS Concept

Note that all facet #s and assignments to composites on this slide are notional and meant for conceptual illustration only



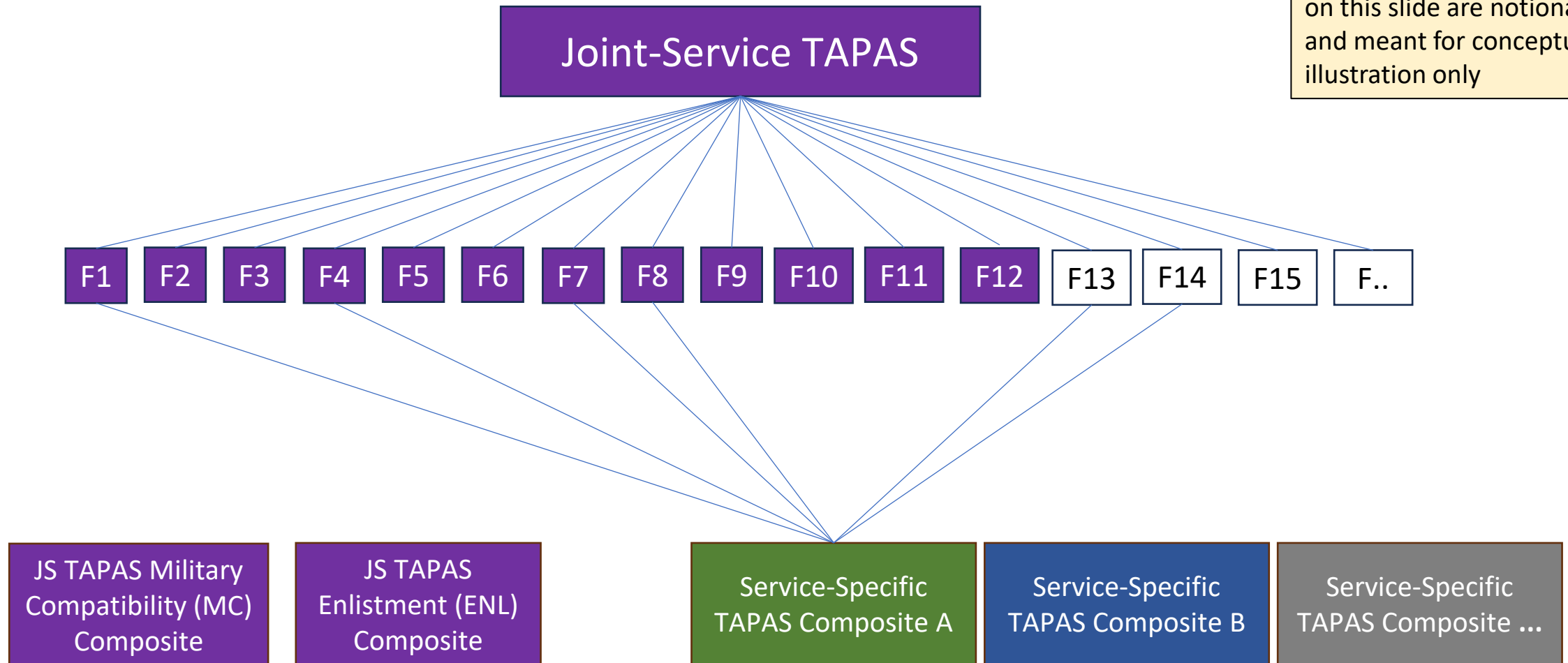
JS TAPAS Concept

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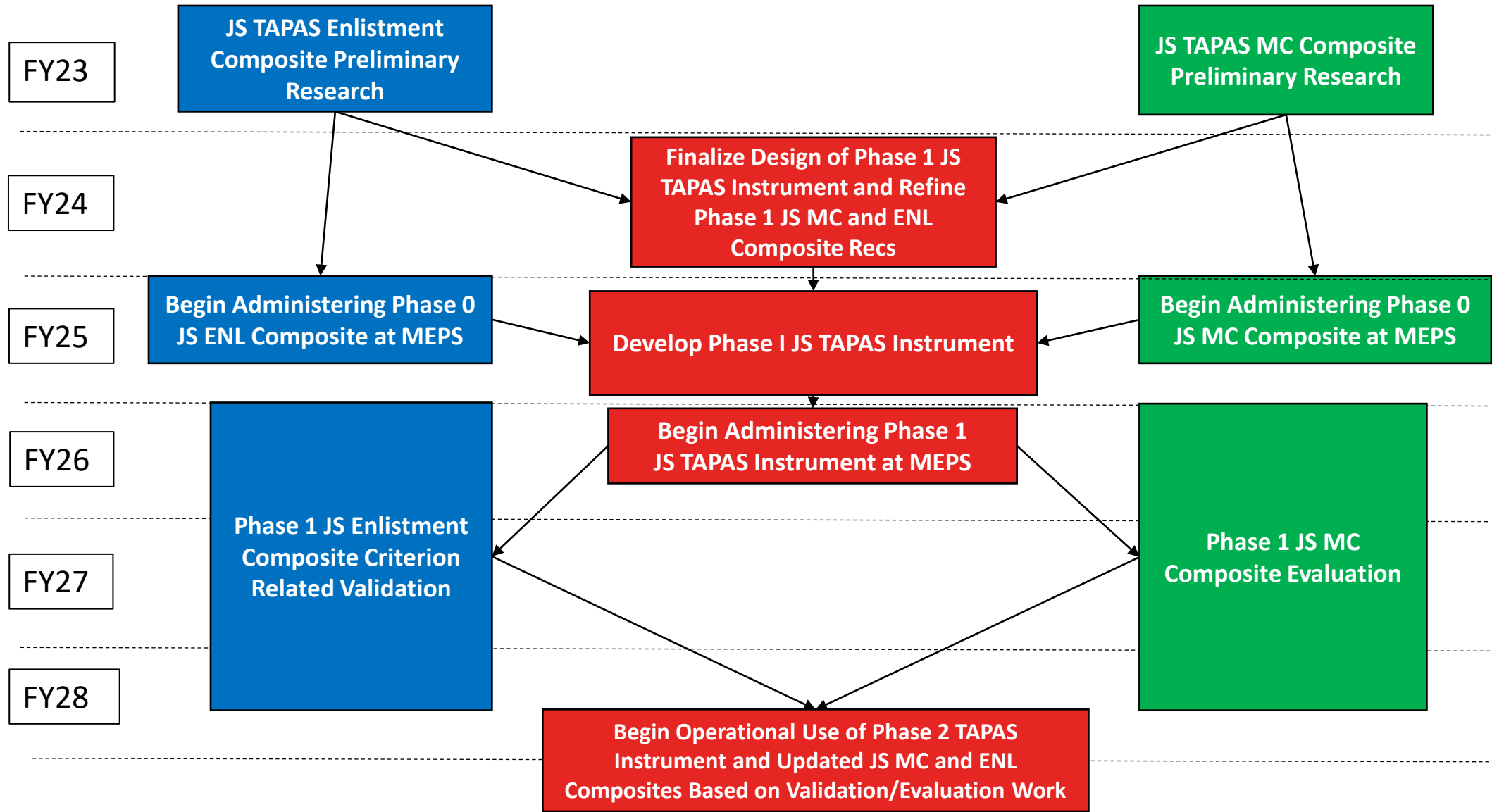
JS TAPAS Concept

Note that all facet #s and assignments to composites on this slide are notional and meant for conceptual illustration only



Phased Development Approach

- Phase 0: “Interim” solution
 - Designed to address immediate OSD tasking
 - Features interim Military Compatibility and Enlistment composites
 - Will be implemented at MEPS by end of FY24
- Phase 1: “Refined” JS composites for evaluation
 - Preliminary composite recommendations based on 2023 research
 - Refined recommendations based on 2024 research and DTAC/OSD/Service discussions
 - Design will be finalized by end of FY24, development by end of FY25, and implementation by end of FY26 (all approximated timelines)
- Phase 2: Operational joint-Service composites for operational decision-making
 - Informed by FY26-28 evaluation/validation work and resulting updates to Phase 1 composites



Identification of a Phase 0 Military Compatibility Composite and Preliminary Phase 1 Composite Recommendations

Conceptual Definition of Military Compatibility (MC)

- Independent Review Commission on Sexual Assault in the Military recommendation:
 - “An accessions compatibility instrument administered prior to Military Service entry could provide DoD an understanding of . . . harm against other Service members, civilians, and family members.”
- Military Compatibility Working Group (MCWG) objective:
 - “Ensure the men and women selected to serve as members of the military possess traits supportive of, and positively aligned with, military core values.”
- DoD Instruction 1304.26 character and conduct eligibility criteria:
 - “Minimize entrance of persons who are likely to become disciplinary cases, security risks, or who are likely to disrupt good order, morale, and discipline.”

Developing an Operational Definition of MC

- Literature review
 - Started with Spector et al.'s (2006) counterproductive work behavior (CWB) framework
 - Has a documented relationship to Big 5 personality traits
 - Uniform Code of Military Justice
 - DoD Instruction 1304.26
 - Comprehensive coverage of behaviors deemed objectionable by DoD
- Expert review resulted in final set of 10 categories of misconduct

Categories of Misconduct

Category of Misconduct	Short Definition	Example Behaviors
Violent Behavior	Behavior that causes physical harm to another	Workplace bullying, assault
Sexual Violence/ Assault	Sexual contact involving the use of force, threats, intimidation, or abuse of authority	Rape, sexual contact by coercion
Sexual Harassment	Unwelcome sexual advances, requests for sexual favors, and deliberate or repeated offensive comments or gestures of a sexual nature	Unwelcome sexual advances
Harassment & Non-Violent Abuse	Harmful behaviors directed toward coworkers and others that create an intimidating, hostile, or offensive environment	Threats, defamation
Disclosing Classified or Sensitive Information	Failing to maintain appropriate confidentiality of organizational information	Espionage, insider threat

Categories of Misconduct

Category of Misconduct	Short Definition	Example Behaviors
Rebellious/Extremist Behavior	Advocating, engaging in, or supporting the overthrow of the United States government	Conspiracy, sedition
Unethical Behavior	Behavior that violates a prescribed norm of the organization, a relevant regulatory statute, or that is widely discouraged in society	Cheating/fraud, abuse of power, deception
Vandalism/Sabotage	Defacing or destroying physical property belonging to the employer	Destruction of the physical workplace and/or output
Theft	Unauthorized acquisition of someone else's property or services	Larceny, misuse of resources, intellectual property violation
Production Deviance	Behaviors or actions that intentionally hinder or disrupt productivity, efficiency, or quality of work	Poor work quality, straggling

Phase 0 Military Compatibility Composite

- Regression-weighted composite of multiple TAPAS facets optimized for predicting conduct-related first-term attrition among actual Army accessions
 - Developed by the Army/DCG—Army “conduct” composite
 - OSD adopted the conduct composite as the Phase 0 MC composite given:
 - Relevance of conduct-related first-term attrition to military compatibility criteria of interest
 - Established research base behind the conduct composite
 - The requirement for a draft composite available for scoring at MEPS by end of FY24
- Not all Phase 0 MC composite facets are currently administered across all MEPS TAPAS versions
 - 5 facets missing from Marine Corps TAPAS
 - 2 facets missing from Air Force TAPAS
- Missing facets are being added and the Phase 0 composite will be in place and scorable for applicants at MEPS by end of FY24

Preliminary Phase 1 Composite Recommendations

- Phase 0 composite viewed as interim placeholder until Phase 1 composite can be formulated and refined
- Research conducted in 2023 informed *preliminary* Phase 1 composite recommendations
 - Research being conducted in 2024 and discussions between OSD and Services are informing *revised* Phase 1 composite recommendations

Preliminary Phase 1 Military Compatibility Composite Recommendations

- Subject matter experts (SMEs) evaluated conceptual and empirical evidence of alignment between TAPAS facets and 10 categories of misconduct
 - Rated alignment as strong, moderate, or weak
 - Reached consensus on a subset of facets
- Next steps
 - Revisit preliminary recommendations in light of 2024 research and OSD/Service discussions
 - Offer revised recommendations for Phase 1 composite facets and weighting

Development of a Phase 0 Enlistment Composite and Preliminary Phase 1 Composite Recommendations

Development Approach

- Approach detailed in Knapp & Putka, August 2023 DAC presentation
 - Step 1: Identify first-term enlisted performance dimensions
 - Step 2: Capture “overall performance” policy
 - Step 3: Define universe of potential TAPAS facets for composite
 - Step 4: Establish composite development and validation strategies
 - Step 5: Gather archival and SME data to support development and validation
 - Step 6: Build and provide initial evaluation of composite

We used this approach to develop Phase 0 Enlistment composite and preliminary Phase 1 composite recommendations

Conceptual Foundation for Phase 0 and 1 Enlistment Composites

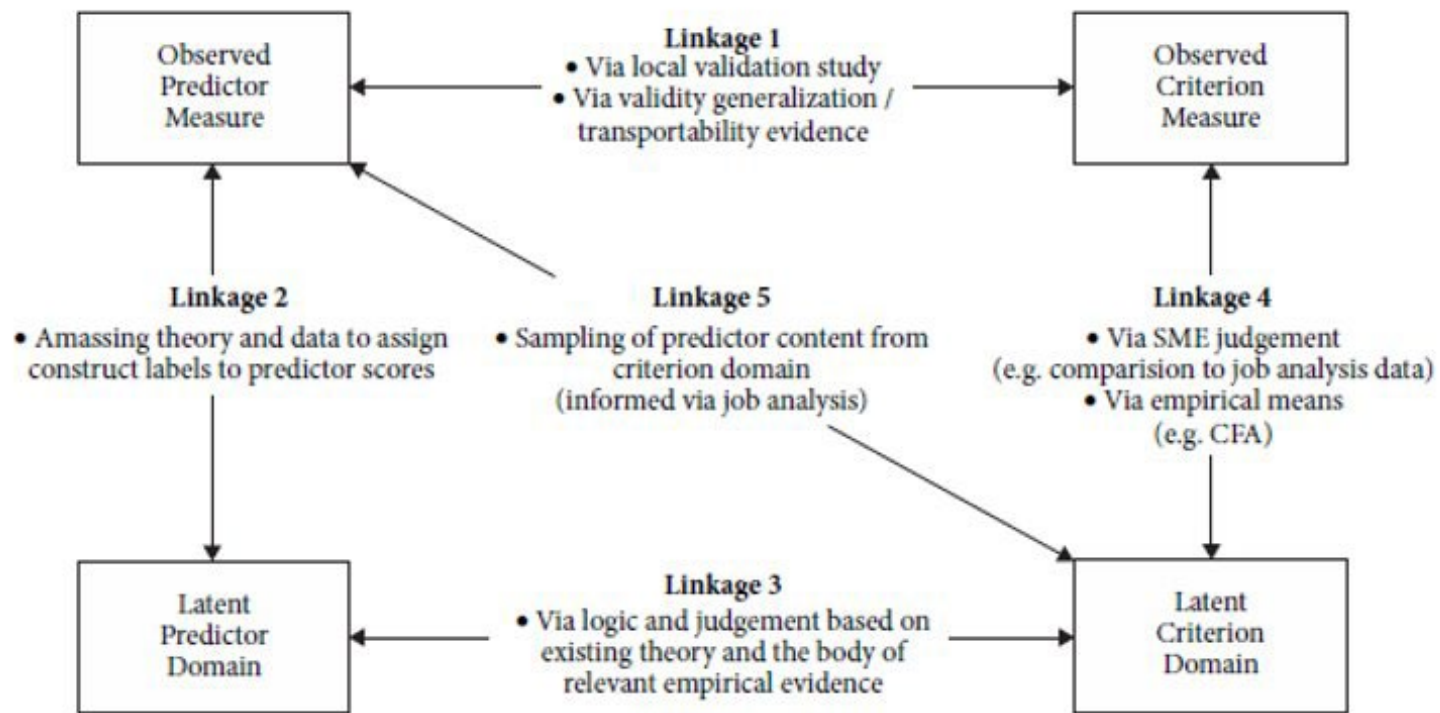


Fig. 6.1 Routes to Establishing the Predictive Inference.

- Approach to developing and evaluating Phase 0 and preliminary Phase 1 JS TAPAS ENL composites was based on establishing Linkages 2 and 3
- Evidence for Linkage 2 has arguably been well established (see TAPAS Validity Argument work)
- Evidence for Linkage 3 was the focus of initial Phase 1 composite development effort

Figure adapted from:

Sackett, P. R., Putka, D. J., & McCloy, R. A. (2012). The concept of validity and the process of validation. In N. Schmitt (Ed.), *Oxford Handbook of Assessment and Selection* (pp. 91–118). Oxford University Press.

Binning, J. F., & Barrett, G. V. (1989). Validity of personnel decisions: A conceptual analysis of the inferential and evidential bases. *Journal of Applied Psychology*, 74, 478–494.

Phase 0 Enlistment Composite

- Regression-weighted composite of multiple TAPAS facets optimized for predicting first-term enlisted job performance (in general) based on a mix of archival and SME-estimated correlations
 - Limited to facets that will be common across all MEPS TAPAS versions by end of FY24
 - Driven by requirement for a draft composite available for scoring at MEPS
- The Phase 0 composite will be in place and scorable for applicants at MEPS by end of FY24
- Phase 0 composites viewed as interim placeholder until Phase 1 composites can be formulated and refined
 - Research conducted in 2023 informed *preliminary* Phase 1 composite recommendations

Preliminary Phase 1 Enlistment Composite Recommendations

- Regression-weighted composite of multiple TAPAS facets optimized for predicting first-term enlisted job performance (in general) based on a mix of archival and SME-estimated correlations
 - Unlike the Phase 0 composite, it is not limited to the facets that will be common across all MEPS TAPAS versions as of the end of FY24
- Next steps
 - Revisit preliminary recommendations in light of 2024 research and OSD/Service discussions
 - Offer revised recommendations for Phase 1 composite facets and weighting

JS TAPAS Instrument Planning and Refinement of Phase 1 Composite Recommendations

Overview of JS Instrument Planning

- Refining Phase 1 composite recommendations is implicitly intertwined with planning for creation of Army, Air Force, Marine Corps variants on the JS TAPAS instrument
- Only a limited number of facets can be administered on any given version due to testing time constraints and the cognitive load associated with the use of more facets
- Also, must consider tradeoff between “number of facets” and “number of statements per facet”
 - More facets mean more flexibility to cover JS MC and ENL composites and Service-specific uses
 - But due to testing time constraints, more facets also mean fewer items per facet, resulting in a less reliable measurement
- Currently targeting no more than 17 facets per TAPAS version

Focus of FY24 Efforts

- Largely focused on work that will inform refining Phase 1 composite recommendations and preparing for associated FY25 development work
 - Engaging in multiple stages of discussion with OSD and Services to identify/prioritize TAPAS-related needs
 - Focus on identifying Service-specific uses of MEPS TAPAS and priorities
 - Focus on integration across OSD and Services to support MC/ENL composites and Service-specific needs with 17 or fewer facets per TAPAS version
 - Conducting multiple research studies pertinent to evaluating TAPAS facets (see next slide)
 - Evaluating the need for recalibration of statement parameters and plans for recalibration

FY24 TAPAS Research and JS TAPAS Refinement

- TAPAS research being conducted in FY24 is designed to help inform joint discussions with OSD and the Services regarding revision of Phase 1 composites and JS TAPAS versions
 - Measurement equivalence of facet scores depending on TAPAS composition
 - Retranslation of facet statements
 - Bias/sensitivity review of facet statements
 - Susceptibility of facet statements to transient error variance
 - Composite shortening analyses (best subsets)
- All of the above will provide additional perspectives on the functioning TAPAS facets beyond what is known to date based on past validation, reliability, and composite work

Putting It All Together

- Again, the research being conducted in FY24 will inform joint discussions with OSD and the Services regarding refined Phase 1 composites and JS TAPAS versions
 - Research results provide an important consideration when discussing best-bet facets for inclusion
- The goal of these discussions is to develop:
 - Refined recommendations for Phase 1 composites
 - This will help guide FY25 development and recalibration efforts and be the focus of FY26-28 evaluation effort
 - Facet composition recommendations for JS TAPAS instrument variants for Army, Air Force, and Marine Corps

Questions for the DAC

Questions for the DAC

1. Do you have any concerns about the use of TAPAS for purposes of predicting military compatibility? We are particularly interested in your thoughts on the use of TAPAS to predict very low base rate deviant behavior.
2. Do you have any suggestions for the evaluation of personality assessments (in general) for predicting very low base rate deviant behavior (e.g., given a traditional criterion-related validation approach may not be defensible)?
3. For both the Military Compatibility and Enlistment composites, conducting a high-quality criterion-related validation study may not be feasible. Can you offer your perspective on relying on a potentially limited criterion-related validity study vs. relying more on alternative strategies for defending the use of the Enlistment and MC composites for their intended purpose (e.g., strategies based on SME judgment of composite content or composite-criterion relations)?

Thank you!

For more information
please contact:

Dan Putka

dputka@humrro.org

703.706.5640

Tim McGonigle

tmcgonigle@humrro.org

703.706.5645

