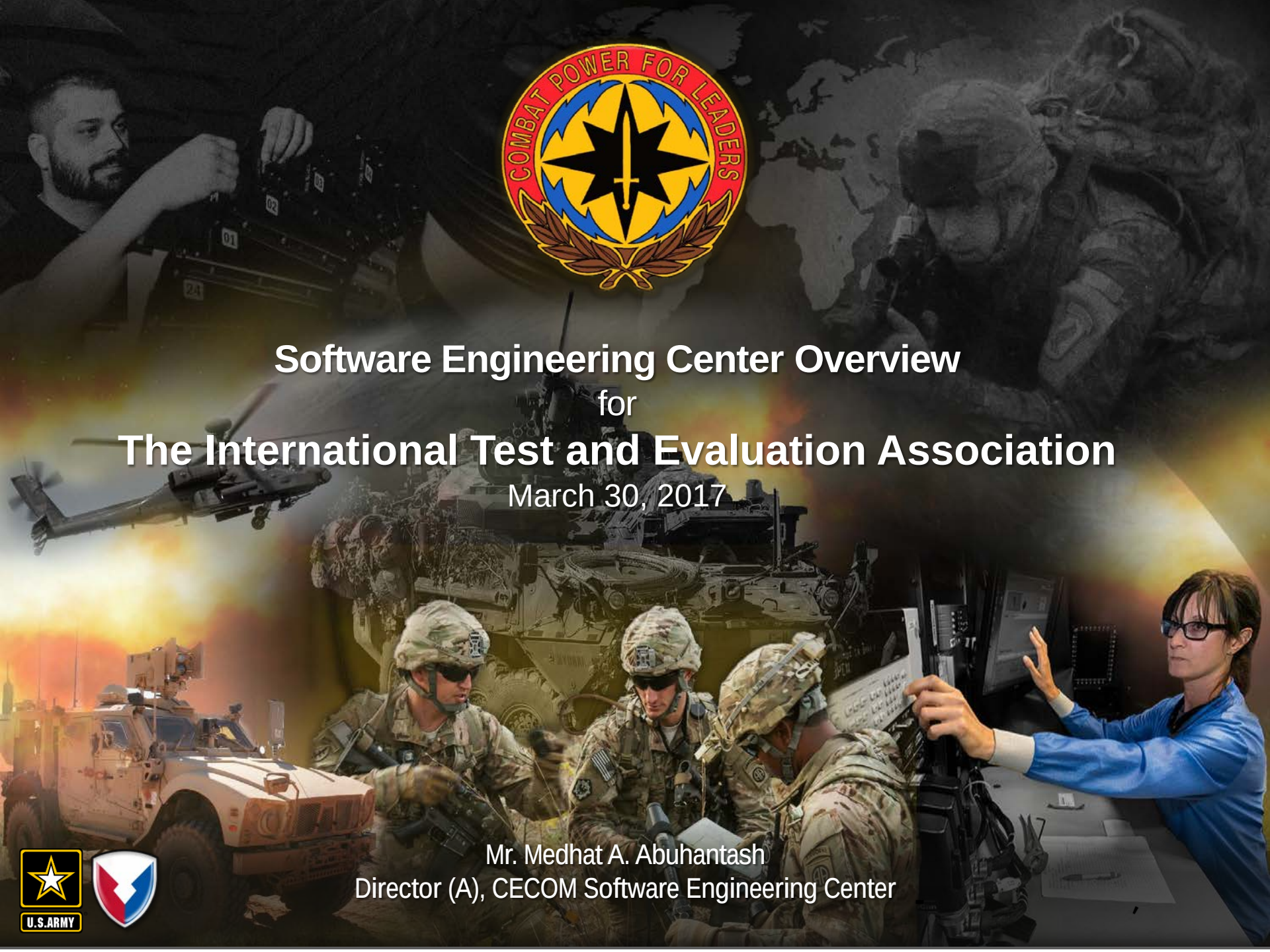


Software Engineering Center Overview
for
The International Test and Evaluation Association
March 30, 2017

Mr. Medhat A. Abuhantash
Director (A), CECOM Software Engineering Center

U.S.ARMY

Key Takeaways

- PPSS is a critical activity in the acquisition lifecycle – it ensures operational and cybersecurity readiness of Programs of Record
- PPSS mission for C4ISR systems has grown significantly over the past decade
- Complexity and software intensive nature of today's C4ISR PoRs present unique challenges
- CECOM is pro-actively addressing manpower, security patching, and COTS licensing cost challenges
- CECOM initiative to adopt common software assurance throughout a POR's life cycle
- Synchronize and integrate efforts with T&E community to improve cyber posture

PPSS:	Post Production Software Support
PoR:	Program of Record
C4ISR:	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
COTS:	Commercial Off-The-Shelf

CORE FUNCTIONS

Depot Level Manufacturing & Overhaul	Field Support	Foreign Military Assistance	Interoperability Certification	IT Systems Engineering & Integration	Logistics, Sustainment Planning & Execution	Software Sustainment & Cyber	Supply Chain Management

Tobyhanna Army Depot
Tobyhanna, PA

Tobyhanna Army Depot (TYAD) is a full-service electronics maintenance facility in the Department of Defense (DoD). The Army has designated Tobyhanna as its Center of Industrial and Technical Excellence for C4ISR and Electronics, Avionics and Missile Guidance and Control

U.S. Army Information Systems Engineering Command
Fort Huachuca, AZ

USAISEC provides systems engineering, installation, integration, implementation, and evaluation support for communications and information technology systems to Army Organizations in support of the Warfighter

Integrated Logistics Support Center
Aberdeen Proving Ground, MD

The ILSC prepares, sustains and resets the nation's Armed Forces before, during and after combat operations and deployments. This mission is accomplished through rapid acquisition, maintenance, production, fielding, new equipment training, operation and sustainment of CECOM equipment

Software Engineering Center
Aberdeen Proving Ground, MD

The Software Engineering Center (SEC) is one of the most comprehensive software support centers within the Department of Defense. SEC provides much of the DoD's software expertise needed to support C4ISR, as well as logistics, business and enterprise systems in the modern digital environment

Central Technical Support Facility
Fort Hood, TX

CTSF is the U.S. Army's strategic and central testing facility responsible for interoperability engineering, executing Army Interoperability Certification (AIC) testing, and maintaining configuration control for all operational through tactical-level IT/national security systems

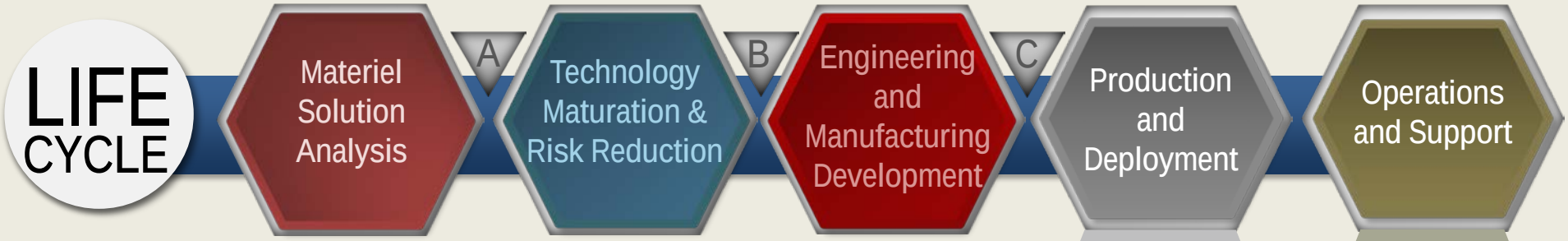
CERDEC — OPCON

CERDEC provides the diverse technical expertise and operational awareness and understanding to develop, engineer and foresee essential Army needs in mission command and intelligence technologies, applications and networks designed to connect and protect the Soldier.

ACC-APG — OPCON

ACC-APG provides comprehensive contracting, business advisory support and sustained expertise in various areas to include: Research and Development; C4ISR; Cybersecurity; Test and Evaluation; Chemical and Biological Defense; and Medical Research

Software Sustainment in the Acquisition Lifecycle



Reimbursable OPA $

Direct OMA $

Software Sustainment

PDSS | PPSS

Post Deployment Software Support (PDSS)

Starts from the point a system is provided to the First Unit Equipped (FUE) to the end of production or when software increment fully fielded (hardware production line may continue). Funding is the responsibility of the PM and generally funded with OPA or OMA.

Post Production Software Support* (PPSS)

Starts first year after production or for a software increment when that increments is fully deployed until item divested by the Army. Funded with OMA from Depot Maintenance (Army G4) accounts.

Software maintenance efforts entail similar software activities but have programmatic differences

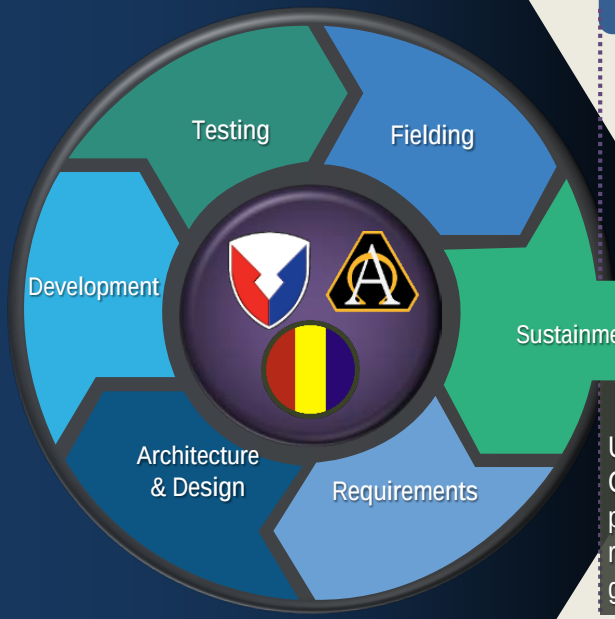
* PPSS is also referred to as Software Depot Maintenance

Software Sustainment

***Software Sustainment** is the processes, procedures, people, materiel, equipment, facilities and information required to support, maintain and operate a system's software*

Software Sustainment Activities

- Resolve anomalies preventing mission accomplishment
- Modify software to support operational needs or environment
  - Responding to new threats or requirements
  - Maintaining interoperability with other changing systems
  - Accommodating new weapons, systems or munitions
- Perform Software Tech Assist (Field Software Engineers)
- Acquire & manage COTS software licenses
- Incorporate fixes to address Information Assurance Vulnerability Alerts (IAVAs)



Software Development / Sustainment Life Cycle

Software Release Process

- **Collect & Consolidate** Software Problem Report (SPR)
- **Convene Configuration Control Board (CCB) to Adjudicate SPRs**
- **Perform** all software engineering activities to **Change and Test** the software
- Gain Safety, Logistics, Customer and SEC Leadership **Endorsement**

1 → 2 → 3 → 4 → 5 → 6 → 7

User/ Customer – problem report generated

- Analyze SPR to determine potential technical solution and level of effort
- **Pre-Release Planning to Determine** what SPR will be addressed **Release Control Board (RCB)**
- **Log & Track** Software Release in the SEC Software Release Dashboard

Approve, Distribute & Archive Software Release

Software Environment

PROBLEM STATEMENT

Lack of unity of effort in the development and sustainment of software in order to enable current and future Army Warfighting Functions in the execution of Unified Land Operations

Mission Command | Movement and Maneuver | Intelligence | Fires | Sustainment | Protection

CHALLENGES

- Exponential Growth in Software (size, complexity, cost)
- Enterprise Approach Lacking
- Hardware Focused Institution
- Evolving Cyber Threats
- Institutional Gap between Software and Cyber Enterprise
- Leveraging Enterprise-Wide Buying Power
- Lack of Adequate Cost Models
- Upfront Sustainment Considerations
- Maintaining Optimal Work Force

LINES OF EFFORT

LOE 1 Enabling a More Defensible Network by Improving the Integration of Enterprise Cyberspace Operations, Software Assurance and Software Acquisition Lifecycle Activities (Design, Development, and Sustainment)

LOE 2 Drive Army-wide Efficiencies in the Software Life Cycle to Dramatically Improve Readiness, While Reducing Cost, Risk, and Complexity

LOE 3 Optimize Enterprise Army Software Development and Sustainment Oversight and Policy

LOE 4 Develop the Optimal Government and Contractor Workforce Mix to Maintain Technology Overmatch in the Evolving and Increasingly Complex Software Environment

PRIORITIES

- Close the Institutional gap between Cyberspace Operations, the Intelligence Community, and the Software Enterprise
- Improve Total Life Cycle Cost Estimation to Reduce Sustainment Costs
- Reduce the Number of Software Baselines at Echelon
- Synchronize Software Activities Across the Army
- Build an Adaptable Software Workforce

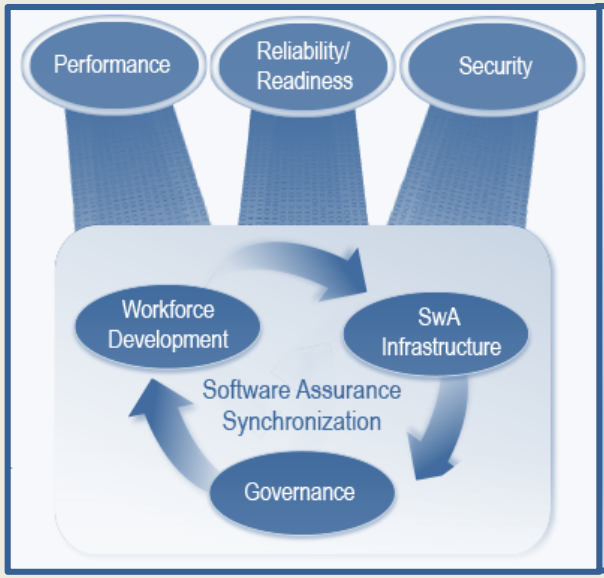
OBJECTIVES

- Repeatable processes to develop, sustain, and secure software
- Reduce complexity and improve Army readiness
- Reduce burden of software integration in the maneuver force
- Decrease total software lifecycle costs across total Army
- Optimize Army software for greater agility and improved security

Warfighting---Defense Intelligence---Business---Enterprise Information Environment

Software Assurance Program

Conducting an initiative to adopt common software assurance throughout a POR's life cycle



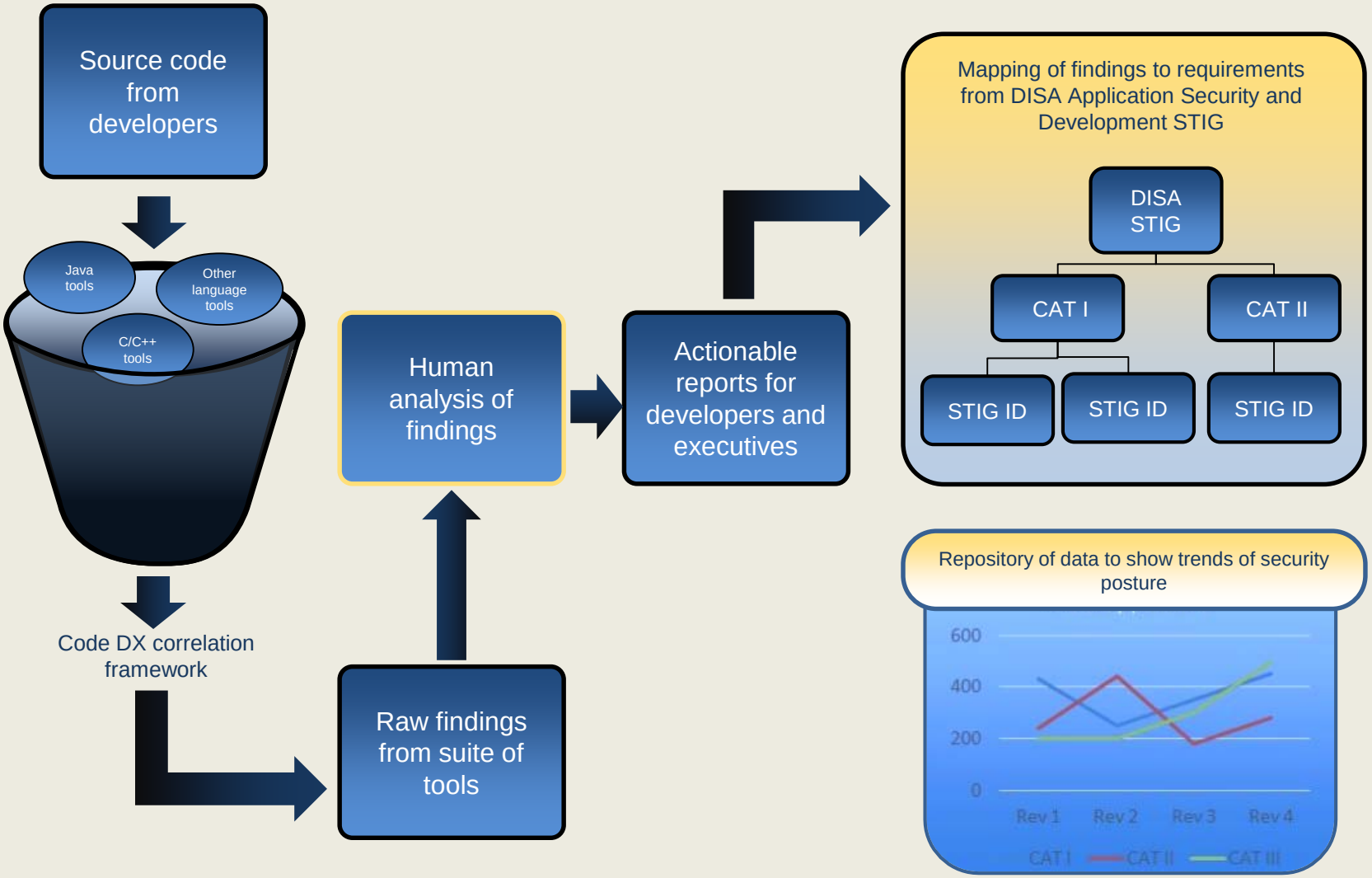
SEC is synchronizing Software Assurance (SwA) efforts for:

- Workforce Development - Our workforce must be developed to understand what SwA is and what their role is.
- Establishing and Maintaining a SwA Infrastructure - A good software development infrastructure includes tools and capabilities to enhance software assurance.
- Governance - Establishing and gaining adoption of regulations, instructions, tactics, techniques and procedures at all organizational levels.

Key Points

- Software Assurance (SwA) is the level of confidence that software is free from vulnerabilities,
- We are mitigating cybersecurity risks through Software Assurance
- A well established and executed SwA program delivers Performance, Readiness, and Security.

Static Code Analysis



Q&A
Discussion