ISG **Interoperable Systems Group**

iSMART ∣ **MANDRIL** ∣ **CIVET** ∣ **Uncage Your Data**

Why iSMART?

Because it's proven to save $M's in TDL integration, test, and operation costs. Over the last several years a quiet revolution has taken place in the way the US plans-for, procures, designs, develops, integrates, tests, certifies, and operates **T**actical **D**ata **L**ink**s**(**TDLs**). TDLs (e.g. Link 16, 11, 22, etc.) are used to execute warfighting operations over wireless encrypted networks, most notably, Link 16. This "revolution" has been driven by a combination of lessons learned, the growing importance of TDLs in warfighting, and technology advancement. It has saved many $M's for US DoD resulting in a **C**hairman of the **J**oint **C**hiefs of **S**taff DoD-wide **I**nstruction called **CJCSI** 6610.E. CJCSI 6610.E requires iSMART[1] implementation and use of the eSMART[2] toolset as part of the **I**nteroperability **E**nhancement **P**rogram(**IEP**) sponsored by CIO, DoD. It applies to the Joint Staff, Combatant Commands, Military Departments, DoD Agencies, and activities throughout the TDL life cycle (development, test, and operation).

The eSMART Apps automate several key iSMART systems engineering processes:
1. Procurement Requirements Development – IER Capability Gap Analysis – **eIER App**
2. System Design/Integration – Bit-Level S/W development Specifications/Evaluations – **eDOC App**
3. Verifying that Design Meet Requirements – Bit-Level Verification – **eBIT App**

Automating these processes makes development faster, more technically rigorous, and enables implementation comparison without expensive platform operations. Many $M's have been invested in the development of eSMART, which is driven by active user feedback from the iSMART nations[3]. As a result of costly lessons learned in TDL development and operation, CJCSI 6610.E requires DoD-wide iSMART implementation in the US. And while not an international requirement, US DoD considers iSMART a best practice for Link 16 nations and strongly recommends its implementation as a way speed development, save resources, and make coalition forces more effectively interoperable.

Cost savings metrics include both ROM costs avoided, and saved from implementing iSMART:

1. Key C2 platform could initially only communicate with itself on Link 16-$76M
2. Ground C2 and AEW issue with J7 Message-$1M
3. Astor/E-3 communication(message implementation) issue-$5M
4. -Same C2 with different national message implementation-$2M
   -C2/nonC2 Mission assignment message protocol
5. Developed Gulf Coalition Link 16 SOPs without live operations-$5M
6. E3/F3/F15 Target reporting issue-$1M
7. E2C/F3/F15/F14/E3D-Message/Protocol issue found-$3M
8. Astor/Typhoon needed S/W update found during development-$1M
9. E3D/Tornado upgrades found without operating-$5M
10. NAPMA IOE on E3A/NACCS pre-operation issue resolved-$1M

Why iSMART? Because it saves time, money, and makes warfighter TDL operations more effectively interoperable. iSMART solves real world problems using a rigorous, repeatable, systems engineering process, developed as a result of lessons learned in 30 years of TDL development. Critically, it uses feedback loops from test and evaluation activities, mission operations, and operators to inform and evaluate interoperability, which is required for Link 16 to be effective.

1-**i**nteroperable **S**ystems **MA**nagement and **R**equirements **T**ransformation (**iSMART**) process
2-**e**lectronic **S**ystems **MA**nagement and **R**equirements **T**ransformation (**eSMART**) tool
3-iSMART nations manage S/W functionality through a multi-nation interoperability working group