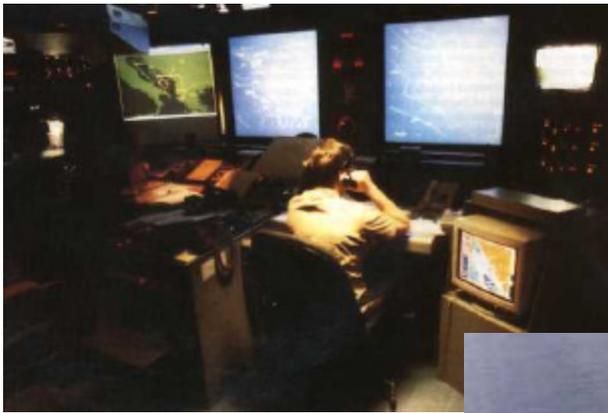


ASN (RDA) CHIEF ENGINEER



TST MCP Architectures, Assessments, and Interoperability

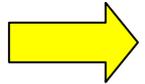


Cheryl Walton
TST/Strike MCP Lead



Outline

**RDA
CHIEF
ENGINEER**



- **Using MCPs to Resolve the Dilemma**
- **TST MCP Assessment Methodology**
- **Interoperability in the TST MCP Family-of-Systems**

Purpose: Illustrate the Architecture Methodology Used for the Assessment and Interoperability of the TST MCP Family-of-Systems



Mission Capability Package (MCP)

RDA
CHIEF
ENGINEER

N70 Warfighting Wholeness

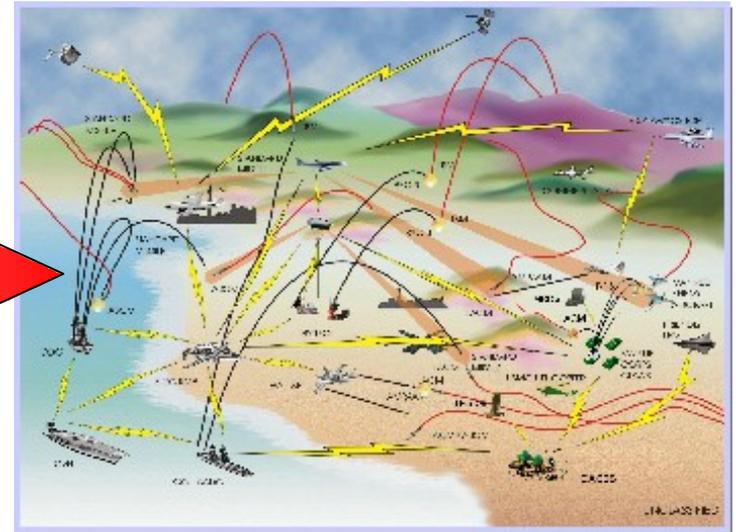
Mission Capability Packages (MCPs) are an Alignment Tool

What's a MCP?

- Introduced by the concept of Network Centric Warfare / Operations
- A task-organized "bundle" of ...
 - CONOPS, processes and organizational structures
 - Networks, sensors, weapons and systems
 - The people, training and support services to sustain it

A MCP treats all of the above not as a collection of things and processes - - but as an integrated system

Architectures should be aligned to MCPs



Note: An MCP is not a mission area but could be an acquisition business unit

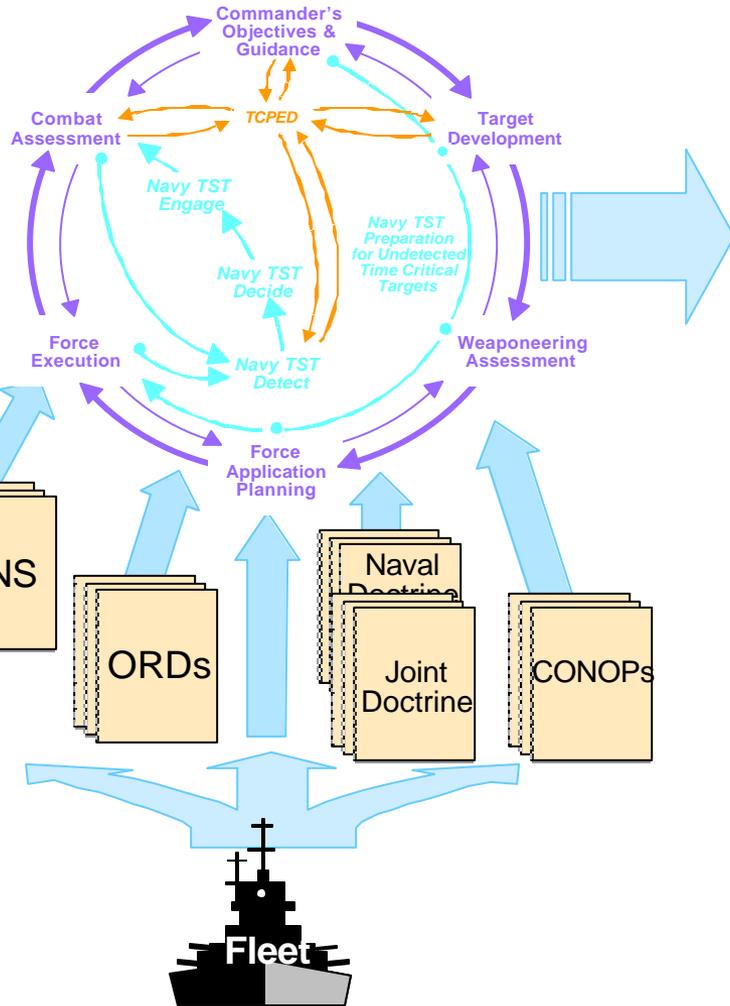
Source: "Integration, Interoperability and Architectures", CAPT J. Yurchak, Assessment Division (OPNAV N81) dtd 28 Feb 2001



TST MCP Transforms Organized Bundles To An Integrated System

**RDA
CHIEF
ENGINEER**

Operational Concept Architecture

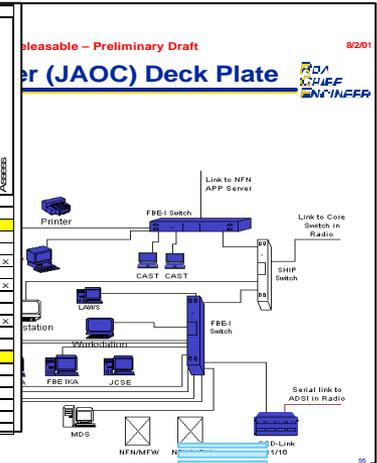


Architectures System Function to Operational Map

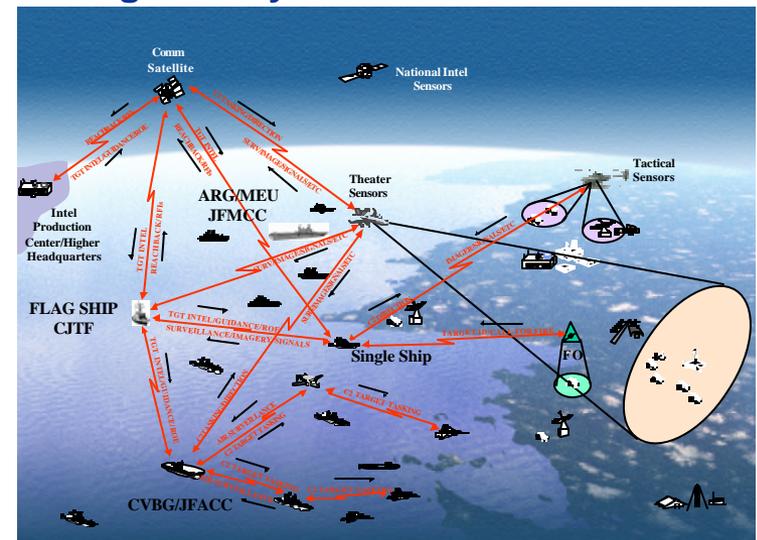
		TCPED	Joint Targeting	Navy TCS
Tasking				
Collection				
Processing				
Exploitation				
Classification				
CDRS/CPAs&Guidance				
Target Development				
Weaponering/Assessment				
Force Application				
Execution/Planning&Force Execution				
Control/Assessment				
Prepare				
Detect				
Decide				
ET/EP				
Assess				
SF#	System Functions - 1.0 (Sense)			
1.1	Search			
1.1.1	Create Search strategy	x	x	x
1.1.1.1	Generate Organic Sensor	x	x	x
1.1.1.2	Generate Non-Organic Sensor	x	x	x
1.1.2	RF Search	x	x	x
1.1.2.1	Conduct Active RF Search	x	x	x
1.1.2.2	Manual RF Search	x		
1.1.3	Spectrum search			x
1.1.3.1	Manually Programmed Automated			x
1.1.4	Search IR/E/O	x	x	x
1.2	Signal Detection			
1.2.1	Detect RF signals	x	x	x
1.2.2	Detect Imagery Signals	x	x	x
1.2.3	Detect IR/E/O Signals	x	x	x
1.2.4	Detect Acoustic/Seismic	x		
1.2.5	Detect Radar/IFF Signals	x		x
1.2.6	Detect Navigation Signals	x	x	x

*Preliminary Description
For Illustration Purposes Only*

Systems



Integrated System



TST MCP Aligns TST Organizations, Products, and Processes to form an Integrated System



Outline

**RDA
CHIEF
ENGINEER**

- Using MCPs to Resolve the Dilemma
- • TST MCP Assessment Methodology
- Interoperability in the TST MCP Family-of Systems

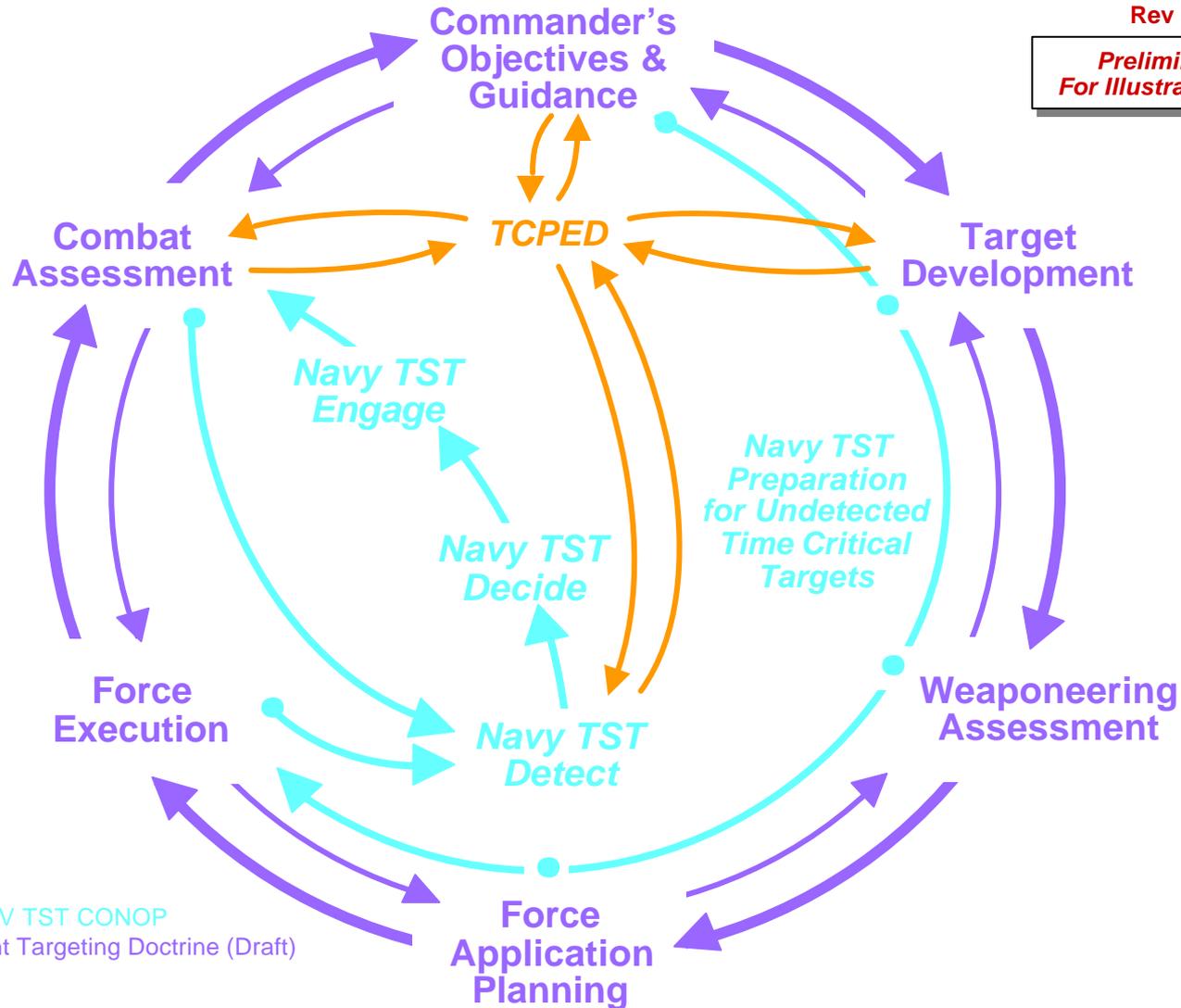


Navy Targeting Concept

RDA
CHIEF
ENGINEER

Rev 5 5/7/01

Preliminary Description
For Illustration Purposes Only



References:

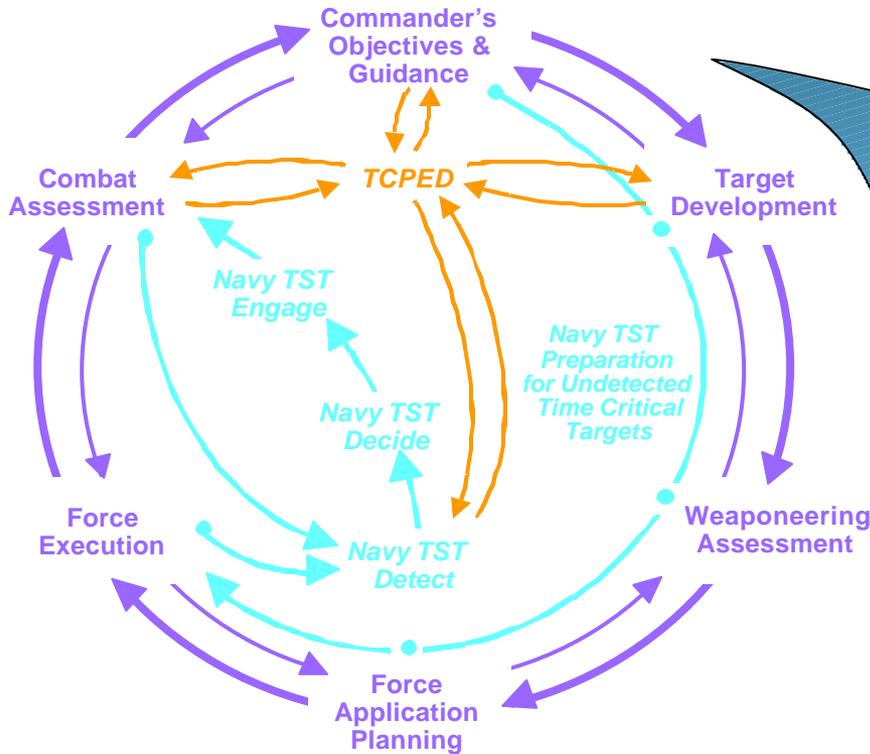
- Draft OPNAV TST CONOP
- JP 3-60 Joint Targeting Doctrine (Draft)
- NIMA USIG

The Various Aspects of Targeting Are Integrated into a Unified Targeting Architecture



Activities to Functions Mapping (SV-5)

RDA
CHIEF
ENGINEER



Preliminary Description
For Illustration Purposes Only

SF#	System Functions - 1.0 (Sense)	TCPED										Joint Targeting				Navy TCS			
		Testing	Collection	Processing	Exploitation	Dissemination	CDRS Objectives & Guidance	Target Development	Weaponing/Assessment	Force Application	Execution Planning & Force Execution	Combat Assessment	Prepare	Detect	Decide	Engage	Assess		
1.1	Search																		
1.1.1	Create Search strategy	x		x		x			x	x	x			x				x	
1.1.1.1	Generate Organic Sensor									x						x		x	
1.1.1.2	Generate Non-Organic Sensor															x		x	
1.1.2	RF Search	x				x	x	x				x	x		x			x	x
1.1.2.1	Conduct Active RF Search																	x	x
1.1.2.2	Manual RF Search		x																
1.1.3	Spectrum search															x			
1.1.3.1	Manually Programmed Automated Search IR/E0																	x	x
1.1.4	Search IR/E0	x	x						x					x	x		x		x
1.2	Signal Detection																		
1.2.1	Detect RF signals	x	x		x	x	x												
1.2.2	Detect Imagery Signals	x	x											x					x
1.2.3	Detect IR/E0 Signals													x		x			x
1.2.4	Detect Acoustic/Seismic				x														
1.2.5	Detect Radar/IFF Signals													x					x
1.2.6	Detect Navigation Signals	x	x			x	x									x			

Mapping of the System Functions to the Activities of the Operational View Ensures That All Operational Activities Are Adequately Supported by the System Functions



Naval TST MCP Portfolio (Preliminary)

Major Systems Only

RDA
CHIEF
ENGINEER

• Networks

- F/A-18 MIDS-LVT*
- NFN
- JTW/JTT
- DCGS*
- MCS 21*
- Tactical Data Links*
- Submarine CCS, Comms

• C2

- GCCS-M*
- NFCS
- TBMCS*
- AFATDS*

• Sensors

- CG Conversion
- AIEWS
- SHARP
- Maritime Cryptologic Assets
- AESA
- GMTI
- ATFLIR
- TERPES

• Weapons

- TACTOM
- JSOW
- JDAM
- ERGM/AGM
- LASM/ALAM
- HARM
- FLAM

• Platforms

- F/A-18
- New SSN
- DD X
- DDG-51
- SSGN
- JSF
- CVN-X/CVN RCOH
- UAV
- LPD-17

• S&T

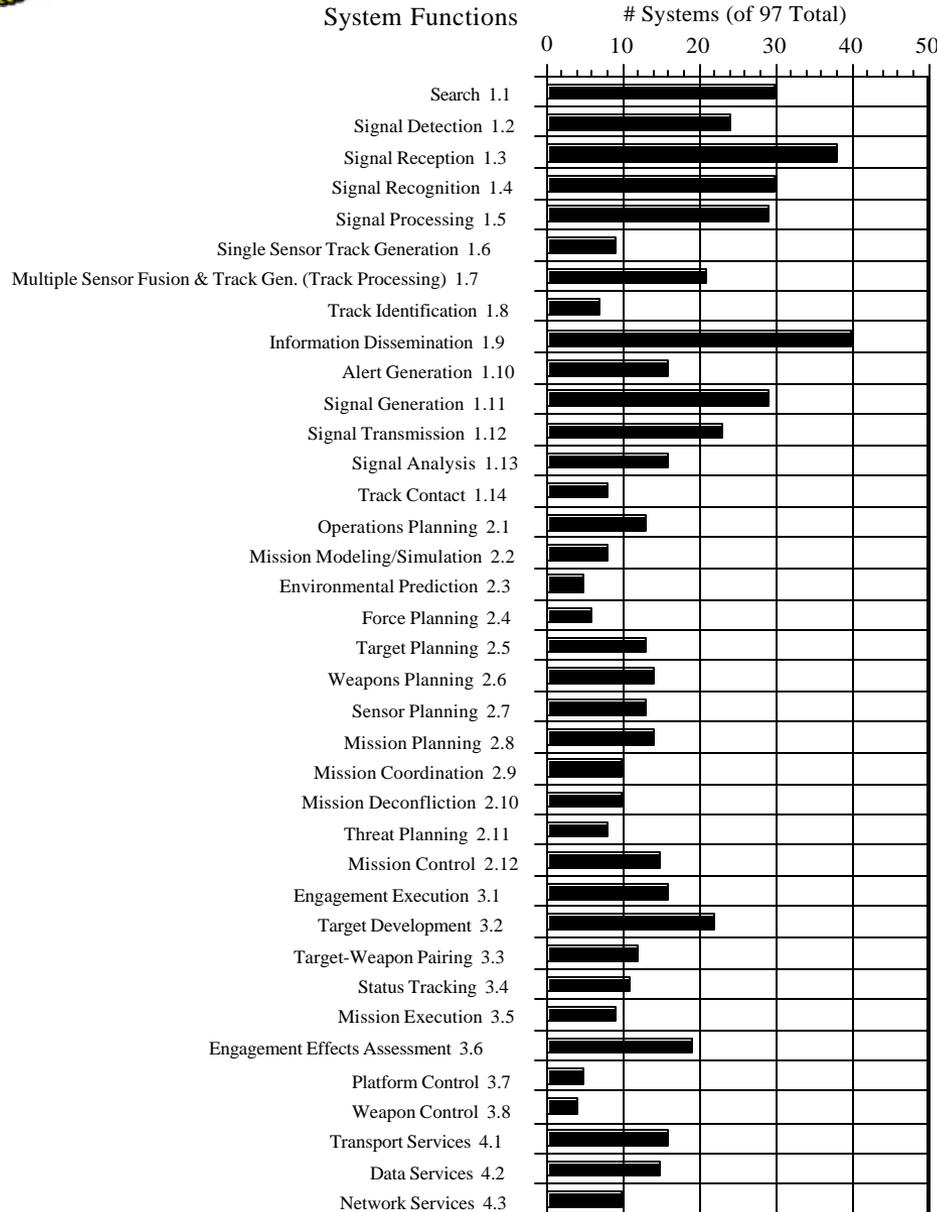
- ETALS
- RtPt Radar
- HIS
- REDS
- GPS Anti-Jam*

* Note: BFC2, ISR and NAV MCPs will have some overlap with TST and include additional enabling systems. (eg. Advanced EHF)



Map of TST Systems to 2nd Level System Functions

RDA
CHIEF
ENGINEER



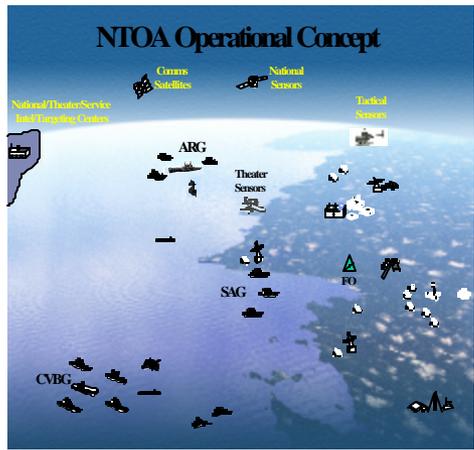
- Large numbers of systems performing the same function are an indicator of possible duplication
- Small numbers of systems are an indicator of possible gaps
- Indications of duplications and gaps are not decisional but point to the need for further analysis



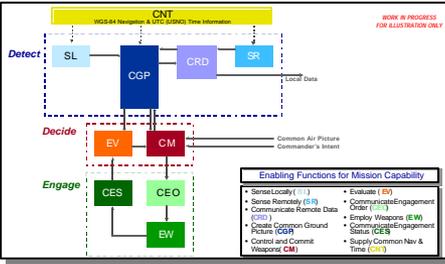
Using Architectures & Analysis to Influence POM Decisions

**RDA
CHIEF
ENGINEER**

Operational Architecture Views



System Functional View

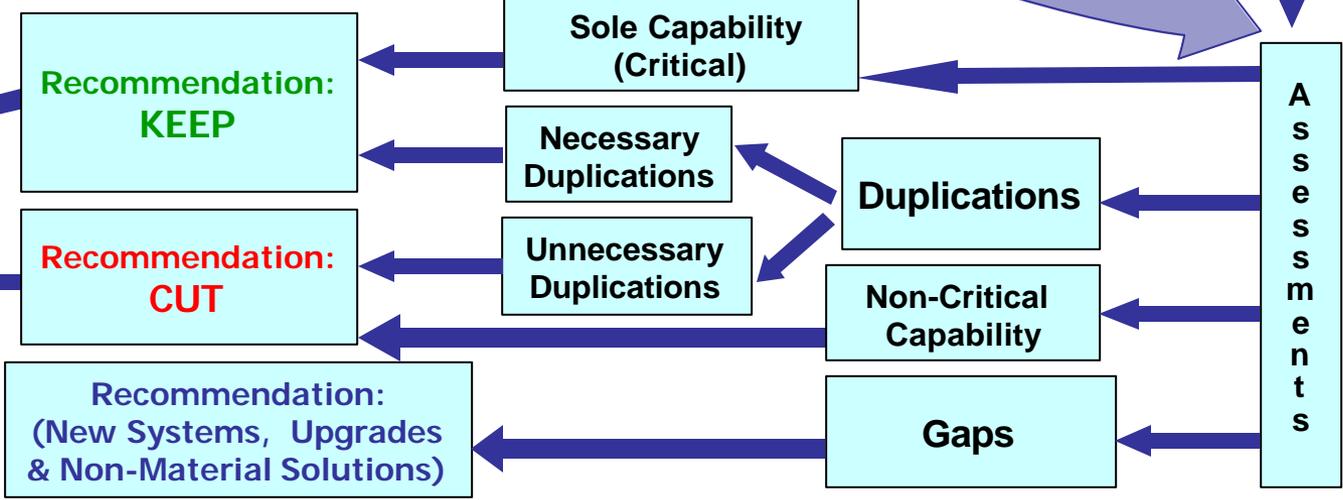
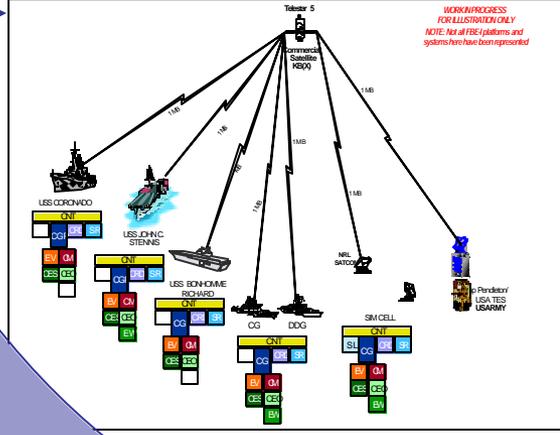


SERVICE AREA	SERVICE CATEGORY	SERVICE CAPABILITY	FEASIBILITY
SYSTEMS SERVICES	OPERATIONAL SYSTEM	PERFORMABLE OPERATIONAL SYSTEM	PERFORMABLE OPERATIONAL SYSTEM
APPLICATION SERVICES	OPERATIONAL SYSTEM	PERFORMABLE OPERATIONAL SYSTEM	PERFORMABLE OPERATIONAL SYSTEM
APPLICATION SERVICES	OPERATIONAL SYSTEM	PERFORMABLE OPERATIONAL SYSTEM	PERFORMABLE OPERATIONAL SYSTEM
APPLICATION SERVICES	OPERATIONAL SYSTEM	PERFORMABLE OPERATIONAL SYSTEM	PERFORMABLE OPERATIONAL SYSTEM
APPLICATION SERVICES	OPERATIONAL SYSTEM	PERFORMABLE OPERATIONAL SYSTEM	PERFORMABLE OPERATIONAL SYSTEM

Technical Architecture Profile

Mapping

Functions of Current Naval Family of Systems





Outline

**RDA
CHIEF
ENGINEER**

- Using MCPs to Resolve the Dilemma
- TST MCP Assessment Methodology
- • Interoperability in the TST MCP Family-of Systems



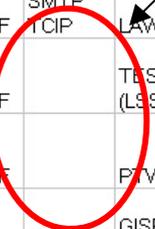
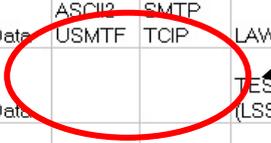
Interoperability Assessment

RDA
CHIEF
ENGINEER

	A	B	C	D	E	F	H	I	J	K	L	M
	Identifier	Content	Size	Media	Format	Protocols Used	Source System Element	Source System Function	Source Node	Receiving System Element	Receiving System Function	Receiving Node
2	56	Artillery Target Intelligence Target Request	Low	Data	ASCII2 USMTF	SMTP TCIP	TES-Forward (LSS)	Generate New Target Nomination	Coronado (AGF-11)	LAWS	Conduct Target to Weapon Pairing	Coronado (AGF-11)
3	57	BDA Support Request Information	Low	Data	ASCII2 USMTF	SMTP TCIP	LAWS	Generate Intelligence Product Update Requests				Coronado (AGF-11)
4	59	Track Data	Low	Data			TES-Forward (LSS)	Generate Track	Coronado (AGF-11)	GCCS-M	Update Track Database	Coronado (AGF-11)
5	60	Artillery Target Intel Target Request (w/BDA)	Low	Data	ASCII2 USMTF	SMTP TCIP	TES-Forward (LSS)	Transmit Information	Coronado (AGF-11)	LAWS	Engagement Effects Assessment	Coronado (AGF-11)
6	61	Geo-refinement request	Low	Data	ASCII2 USMTF	SMTP TCIP	LAWS	Process Formatted Messages	Coronado (AGF-11)	TES-Forward (LSS)	Process Messages	Coronado (AGF-11)
7	62	Engagement Information	Low	Data	ASCII2 USMTF	SMTP TCIP	LAWS	Generate Engagement Orders	Coronado (AGF-11)	TES-Forward (LSS)	Receive Mission Update	Coronado (AGF-11)
8	63	BDA Support Request Information	Low	Data	ASCII2 USMTF	SMTP TCIP	LAWS	Select Optimum BDA Support System	Coronado (AGF-11)	TES-Forward (LSS)	Receive Mission Update	Coronado (AGF-11)
9	64	Artillery Target Intelligence Target Request	Low	Data	ASCII2 USMTF		TES-Forward (LSS)	Transmit Information	Coronado (AGF-11)	PTW/PTW+	Calculate Geolocation	Coronado (AGF-11)
10	65	Artillery Target Intelligence Target Request	Low	Data	ASCII2 USMTF		PTW/PTW+	Transmit Information	Coronado (AGF-11)	TES-Forward (LSS)	Process Messages	Coronado (AGF-11)
11	67	Track Data	Low	Data			GISRSC	Generate Track	DDG/CG	GCCS-M	Update Track Database	DDG/CG
12	68	BDA Support Request Information	Low	Data	ASCII2 USMTF	SMTP TCIP	GISRSC	Err As				Coronado (AGF-11)
13	69	Artillery Target Intelligence Target Request	Low	Data	ASCII2 USMTF	SMTP TCIP	GISRSC	Ge No				DDG/CG
14	70	LAWS Fire Mission	Low	Data	ASCII2 USMTF	LAWS TCP/IP	LAWS	Transmit Information	DDG/CG	LAWS	Update	Coronado (AGF-11)

Gap Analysis

SV-6 System Data Exchange Matrix

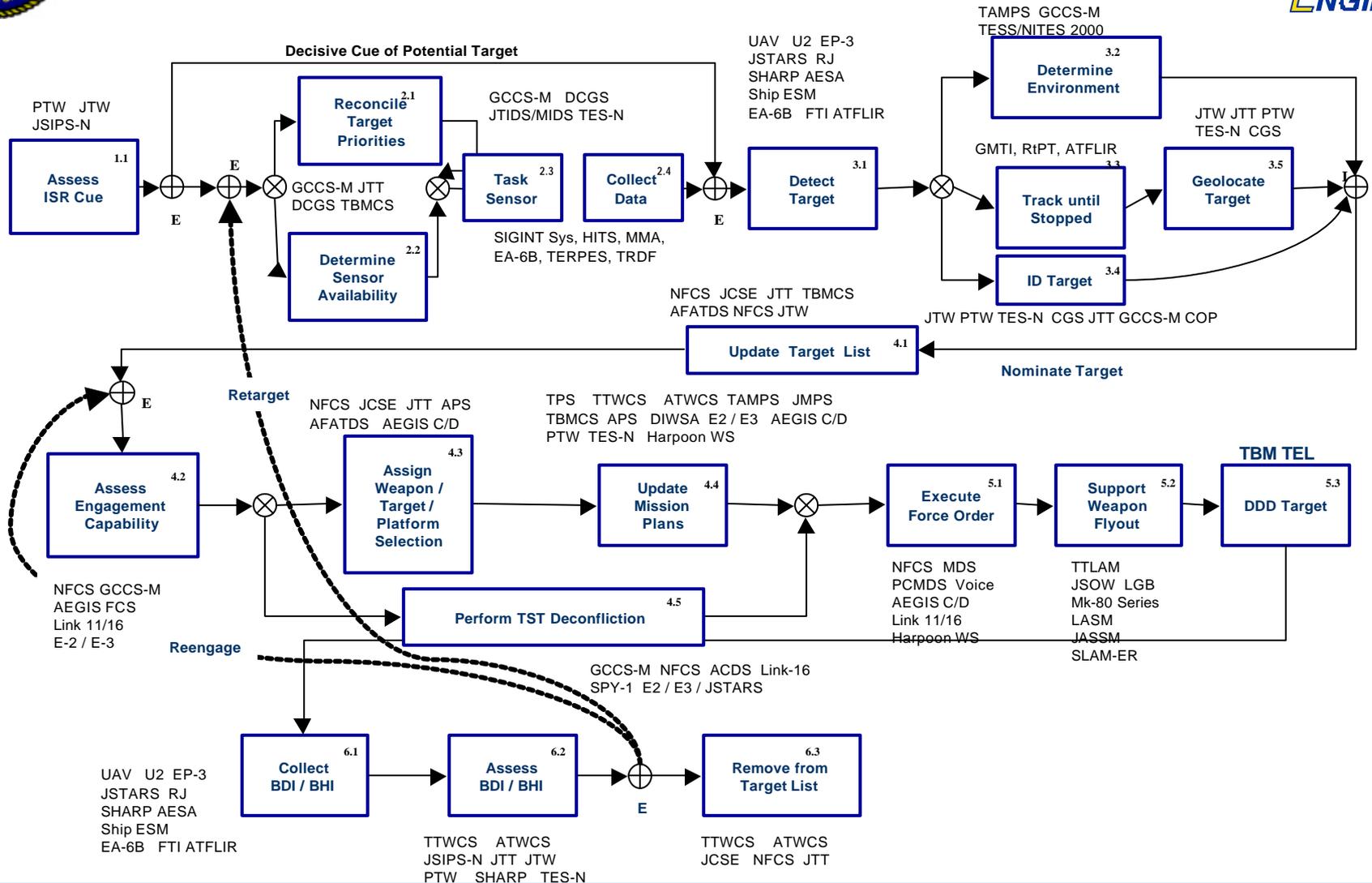




TBM TEL TST Scenario

Activity Flow Diagram with Systems Mapping

**RDA
CHIEF
ENGINEER**



Systems Mapping Provides Traceability and Potential Connectivity in Capabilities Based Acquisition



Summary

**RDA
CHIEF
ENGINEER**

- **MCPs Provide an Integrated Approach to Solving the Dilemma**
- **Architectures and Assessments Are Key to Bounding the Problem and Executing the Methodology**
- **The Methodology Provides an Approach to Greatly Improving Interoperability**

Organizational Cooperation and Collaboration Are Essential Components of the Methodology to Successfully Solve the Dilemma



Acronyms

RDA
CHIEF
ENGINEER

- **ASN (RDA)** Assistant Secretary of Navy for Research, Development, and Acquisition
- **CONOPS** Concept of Operations Document
- **MCP** Mission Capability Package
- **MNS** Mission Needs Statement
- **OPSIT** Operational Situation (Scenario)
- **ORD** Operational Requirements Document
- **POM** Program Objectives Memoranda
- **POR** Program of Record
- **RDA CHENG** ASN (RDA) Chief Engineer
- **TCPED** Tasking, Collection, Processing, Exploitation, Dissemination
- **TPED** Tasking, Processing, Exploitation, Dissemination
- **TST** Time Sensitive Targeting