



PM MAGTF Command, Control & Communications (MC3) Overview

**Col Peter C. Reddy USMC
Program Manager**

**AFCEA QUANTICO-
POTOMAC CHAPTER**



November 2012



We Acquire, Integrate and Sustain Sensors, Communications, Command and Control, Networking and Counter Improvised Explosive Device Electronic Warfare Systems to Enable the Marine Air-Ground Task Force to Accomplish Its Mission.





Enduring priorities: accomplish the mission, take care of each other, represent our command, corps, and country honorably.

- **Support to Operating Forces (deployed (OEF, MEU), preparing to deploy, and other Operating Forces).**
- **Develop & sustain world-class, high performance C3 and Force Protection Systems capable of operating in integrated MAGTF, Joint, and coalition environments; & *do so affordably and efficiently.***
- **Develop programmatic work force (military and civilian) through appropriate acquisition and professional training, education, certification and leadership development; enhance project planning processes; support workforce with adequate space and computer resources.**
- **Ensure effective integration and support of all MC3 programs into overarching portfolio; consolidate MC3 into a high performing team of teams providing essential capability to the warfighter.**



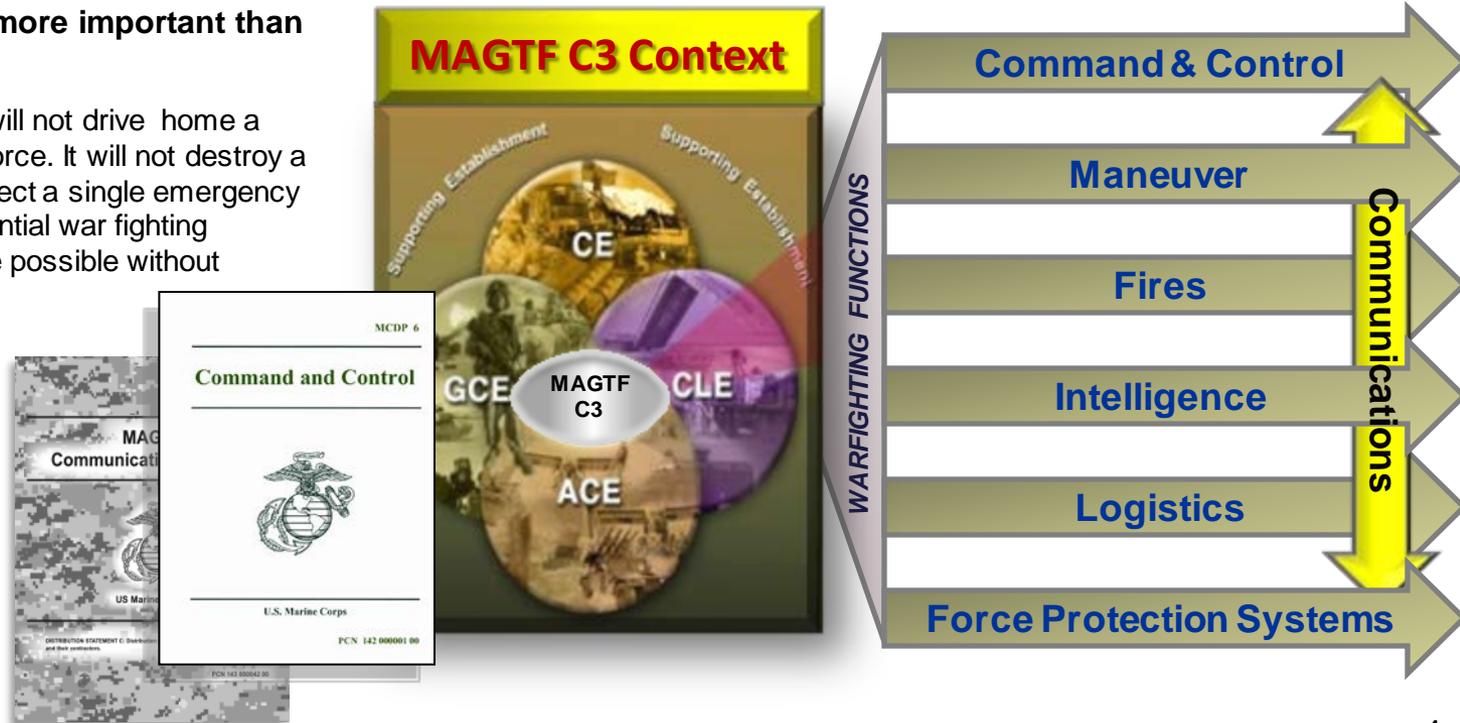
The Marine Corps is America's **Expeditionary Force in Readiness** — a **balanced air-ground-logistics team**. We are forward-deployed and forward-engaged: shaping, training, deterring, and responding to all manner of crises and contingencies. We create options and decision space for our Nation's leaders. Alert and ready, we respond to today's crisis, with today's force ... TODAY. **Responsive and scalable**, we team with other services, allies and interagency partners. We enable and participate in **joint and combined operations** of any magnitude. A **middleweight force**, we are light enough to get there quickly, but heavy enough to carry the day upon arrival, and capable of operating independent of local infrastructure. We **operate throughout the spectrum of threats — irregular, hybrid, conventional — or the shady areas where they overlap**. Marines are ready to respond whenever the Nation calls ... wherever the President may direct.

--Gen James F. Amos, 35th CMC, Commandants Planning Guidance

“No single activity in war is more important than command and control. “

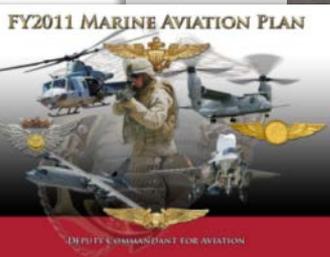
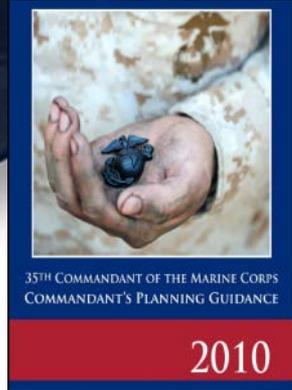
“Command and control by itself will not drive home a single attack against an enemy force. It will not destroy a single enemy target. It will not effect a single emergency resupply. Yet none of these essential war fighting activities, or any others, would be possible without effective command and control.

Without command and control, campaigns, battles, and organized engagements are impossible, military units degenerate into mobs, and the subordination of military force to policy is replaced by random violence. In short, command and control is essential to all military operations and activities.”





EQUIPPING THE WARFIGHTER TO WIN



- **Planning and executing in response to Priorities of the 35th CMC:**
 - We will continue to provide the best trained and equipped Marine units to Afghanistan. This will not change. This remains our top priority!
 - We will rebalance our Corps, posture it for the future and aggressively experiment with and implement new capabilities and organizations.
 - We will better educate and train our Marines to succeed in distributed operations and increasingly complex environments.
 - We will keep faith with our Marines, our Sailors and our families.

- **Planning and executing in response to Vision & Strategy 2025.**
 - Develop necessary capability and capacity to effectively operate in the information environment.
 - MAGTF CE's optimized for amphibious and contingency operations; properly equipped with modern and secure C2, intelligence, communications, and networking systems.
 - Integrate C2 and ISR capabilities down to the squad level.
 - ACE: secure, network-enabled, and digitally interoperable to ensure it is responsive, persistent, lethal, and adaptive.

- **Efforts and support of the Marine Operating Concepts 2010's direction for the MAGTF & CE:**
 - Command will continue to decentralize—and the MAGTF commander and his staff need to be networked into the major subordinate elements (MSE) to command and facilitate coordination and information flow. Improved communications, over-the-horizon, on-the-move, will aid in facilitating information flow.
 - Improved surveillance and reconnaissance, increased fidelity from UAS and sensors tied in with reports from Company Level Intel Cells (CLIC) to create a more descriptive picture of the battlefield.
 - Enhanced sharing information throughout the MAGTF allows commanders at all levels to better predict and understand enemy actions and maneuver their forces ahead of those of the enemy.

- **Efforts and support of the Marine Operating Concepts 2010's direction for the ACE:**
 - To become better networked both within the aviation component and within each component of the MAGTF; to leverage the networking capability and sensors developed for the JSF and integrate the JSF into Marine Aviation Command and Control to enable information-sharing between dispersed elements of the MAGTF.
 - To provide the MAGTF with a common, secure data link capability and improved long-range communications suite to counter line-of-sight complications resulting from operations in geography or at extended distance.

- **MAGTF C2 Core Ideas:**
 - Commander/Leader centric
 - Network enabled
 - Information Assurance
 - Collaborative, shared situational understanding
 - Performed by all echelons
 - Can be performed anywhere in the battlespace

- **MCSC adjusting and executing in response to USD(AT&L) Mandate for Better Buying Power: Guidance for Obtaining Greater Efficiency & Productivity in Defense Spending**
 - Target Affordability and Control Cost Growth.
 - Incentivize Productivity and Innovation in Industry.
 - Promote Real Competition.
 - Improve Tradecraft in Services Acquisition.
 - Reduce Non-Productive Processes and Bureaucracy.
 - *Do more without more.*

- **Staying on target with ASN RDA Priorities**
 - Getting the requirements right
 - Making every dollar count
 - Performing to Plan
 - Minding the health of the industrial base
 - Strengthening the acquisition workforce

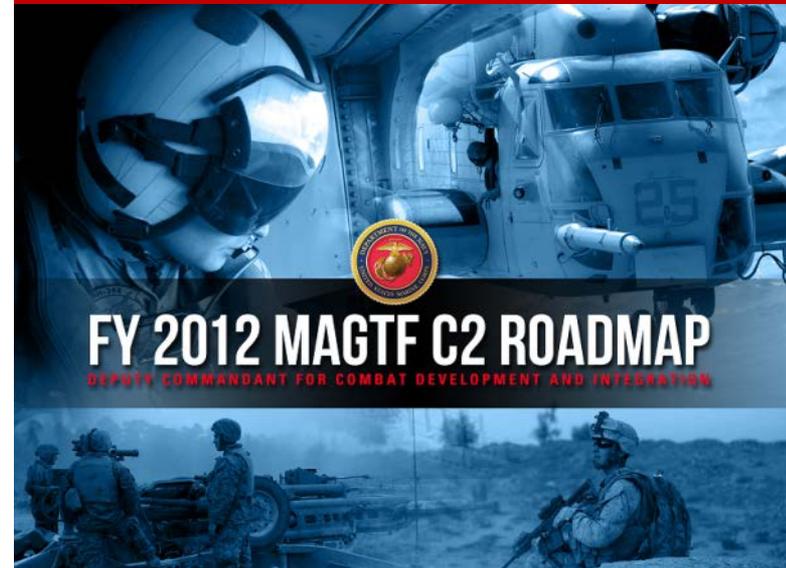


“Predominant in all command and control development are the essential human factors in war characterized by friction, uncertainty and complexity.”

Richard P. Mills
Lieutenant General, USMC

- Pursue development of solutions that are not system-centric, but that **enhance leader-centric, network enabled operations today and in the future.**
- Make decisions regarding capability, density or a combination of the two so that the solutions provided to our operating forces are the **best that available resources can buy.**
- Reduce the structure and emphasize the Marine Corps as a middleweight force in an environment of **fiscal constraint.**
- Reduce our systems inventory and our sustainment and training costs by balancing desired capability with **economic reality.**
- Sustain and educate our force to better prepare for future conflict in increasingly dynamic, hostile and widely dispersed conditions with **innovative approaches.**

Leverage technology to enable decentralized command, rapid feedback, and independent decision-making at all levels.



Command and control is the glue that connects the MAGTF.

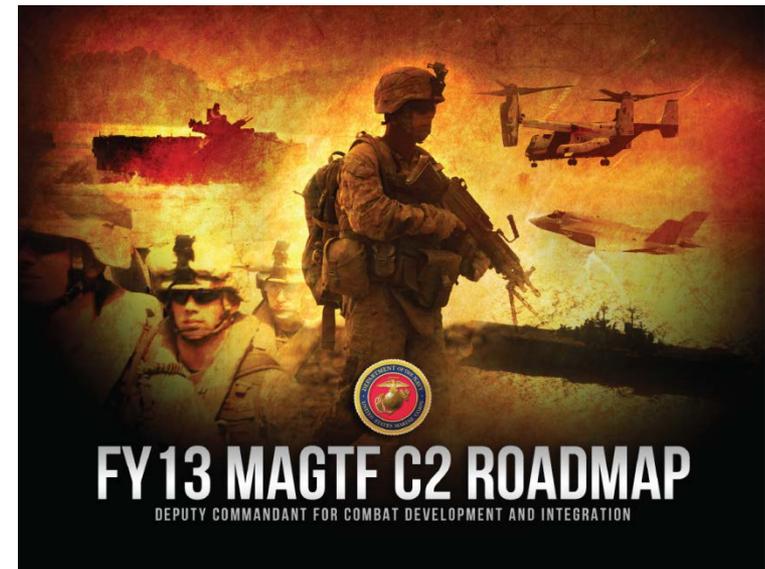


“As the Corps continues to fight the war in Afghanistan, we must ensure that our Marines are provided the finest command and control (C2) assets available resources can buy while looking towards future operating environments, particularly from the sea and in the littorals while refining the art and science of command and control.”

*Richard P. Mills
Lieutenant General, USMC*

The FY-13 MAGTF Command & Control Roadmap focuses on three strategic areas:

- Amphibiosity in the context of future expeditionary operations.
 - Robust, integrated C2 architecture solution with the Navy to ensure seamless transition of command and control, in support of littoral maneuver, in all phases of action from afloat to sustained operations ashore
 - Integrated Joint C2 architecture solution in concert with other Services and Agencies .
- Success in a period of austerity.
 - Balancing operational risk versus capability and capacity shortfalls associated
 - Mitigate risks by training and education.
- Institutionalization of Mission Command.
 - Basic tenets of Mission Command: commander’s intent, mission-type orders and decentralized execution
 - Requires an unprecedented degree of trust, nerve and restraint on the part of senior leaders while fostering a bias for action in subordinate leaders unafraid to fail.
 - Mission Command requires a balance of the art and science of command and control that transcends technology



Commandant of the Marine Corps

Assistant Secretary of the Navy Research, Development & Acquisition

MARCORSYSCOM

JPEO MRAP

PEO EIS

PEO Land Systems

Staff

PM USMC MRAP
Mine Resistant Ambush Protected

Staff

Staff

Deputy Commander
Resource Management

PM Marine INTEL
Marine Intelligence

PM ISI
Information Systems and
Infrastructure

PM NEN
Naval Enterprise
Networks

PM AAA
Advanced Amphibious
Assault

Deputy Commander
SIAT

PM AMMO
Ammunition

PM MC3
MAGTF Command, Control,
and Communications

PM EIS
Enterprise IT Services

Amphibious Assault
Vehicle

Commanding Officer
MCTSSA
Camp Pendleton, CA

PM LAV
Light Armored Vehicle
Warren, MI

PM IWS
Infantry Weapons Systems

PM GCSS-MC
Global Combat Support
System-Marine Corps

Amphibious Combat
Vehicle

Assistant Commander
Contracts

PM TRASYS
Training Systems
Orlando, FL

PM AFSS
Armor and Fire
Support Systems

PM GCSS-MC
Global Combat Support
System-Marine Corps

Marine Personnel
Carrier

Assistant Commander
Acquisition Logistics/
Product Support

PM CSS
Combat Support Systems

PM AC2SN
Aviation Command & Control
And Sensor Netting

Assistant Commander
Programs

Assistant Secretary of the Army Research, Development & Acquisition

PEO Ground Systems

JPEO Chem/Bio Defense

PM RS
Robotic Systems
Warren, MI

PM
Protection

PM GBAD/GATOR
Ground/Air Task Oriented
Radar

PM LTV
Light Tactical Vehicles

PM TAS
Towed Artillery Systems
Lightweight 155
Picatinny, NJ

PM M&HTV
Medium and Heavy
Tactical Vehicles

Medium Tactical Vehicle
Replacement

Logistics Vehicle System
Replacement



Program Manager
Col Peter C. Reddy

Deputy PM: Mr. Jim Westerholm

APMs

Ops/Admin

PMO Staff

Force Protection Systems:
Mr. Harry Downey

- USMC CREW**
 - CVRJ/Chameleon (II)
 - CVRJ Band C (IV-M)
 - Thor III (IVM)
 - QRD (UUNS - TPE)
 - CREW 3.1 (USON)
 - USMC JCREW 3.3 (II)
 - Mounted
 - Dismounted
 - Fixed Site
- Identification & Detection**
 - RMNIIS
 - Secure 1000
 - CSBS
 - IED Detection Dogs**
 - BAT (UUNS)
 - HIIDE (UUNS)
 - BESD (AAP)
 - IDS
- Surveillance Systems**
 - VOSS
 - PRDSS
 - GBOSS (IVM)
 - GBOSS(E) (III)
 - MORSS (S&T)

Digital Fires and Situational Awareness:
LtCol Thomas King

- Digital FIRES**
 - AFATDS (II-A)
 - BUCS
 - MTS
 - TLDHS (III)
 - Blk 1/2 (III)
 - Blk 3 (IVT)
- BFSA**
 - JBC-P Incr 1 (II-A)
 - BFT
 - MRC
 - JCR
 - BFT II
 - KGV-72
 - JBC-P Incr 2 (II-A)
- TTS**
 - RVVT (Pre-ACAT)
 - Corporal-JCTD (S&T)
 - Video Scout (AAP)
 - RQ-21 STUAS (III-N)
 - RAVEN B (IV-N)
 - WASP (IV-N)
 - MPVDL (AAP)

MAGTF C2 Systems:
LtCol Ty Ferrel

- COC**
 - COC (V) 2-4 (III)
 - COC (V) 1 (AAP)
 - COC OTM (UUNS)
- MC2SA**
 - JTCW (IVT)
 - C2PC
 - TSOA (Pre-ACAT)
 - GCCS (IAM-OSD)
 - TCO (IVT)
 - JC2
 - TAC-Chat (S&T)
- CCS**
- PAE**
- MARCIM (S&T)**
- TTO**
 - NOTM Incr 1 (Ph 1/2) (IV)
 - BMDL (S&T)
 - SCC (S&T)
 - DBMA/BMS-MC (S&T)
 - SIE/DTN (S&T)
 - BSN (S&T)
 - TEDS JCTD (S&T)
 - M2C2/COBRA3 (S&T)
 - H2 (H2C2, VSCP, Trusted H2, C2 Sleeve) (S&T)
 - SPAN (S&T)

Networking and SATCOM:
Mr. Greg Pardo

- TACNET Systems**
 - OEF CC (UUNS)
 - COMSEC
 - DTC/-R (IVT/IVM)
 - TSM-U (AAP) / SoS (IVM)
 - RSAM
 - DEOS
 - DITS
 - JECCS (IVM) /-R (Pre-ACAT)
- SATCOM Systems**
 - GBS (I-USD)
 - SMART-T (II-A)
 - DAGR (II-JPO)
 - Phoenix (II-A)
 - ECSS-Blk 0/Blk 1 (IVM)
 - LMST (IVT)
 - SI VSAT (AAP)
 - SI Comms (AAP)
 - Mobile (AAP)
 - Palletized (III)
 - TEAM
 - SWE-DISH
- EXCOMM**
 - VSAT-L (IVM)
 - VSAT-M/S (IVM)
 - SWAN (USON)
 - TDN DDS-M (IVM)
 - NOTM Incr 2 (Pre-ACAT)
 - SPEED

Radar Systems:
Mr. Dave Buck

- Long Range Radar**
 - AN/TPS-59 (IVT)
 - (V)3 PPM I
 - (V)3 PPM II
 - AN/TPS-63
 - 3DELRR (Pre-ACAT-AF)
 - VWC
- FMS (13 Cases)**
- FTAS**
 - AN/TPQ-46 (II-A)
 - LCMR (AAP)
 - TPS (AAP)

Tactical COMM Systems:
LtCol Kirk Mullins

- Platform Integration**
- Hand Held**
 - THHR Maritime (V) 3 (AN/PRC-148/AAP)
 - THHR SVA (IVM)
 - THHR Urban (IVM)
 - IISR (IVM)
 - WB THHR
- C2 Radios**
 - MBR II (IVM)
 - MBR (USON)
 - HFR (IVM)
 - SINCGARS
- Tactical Data Radios**
 - WPPL-D (USON)
 - TRC-170 (II-AF)
 - TRC-170 Ant Replacement (AAP)
 - MRC-142 B (AAP)
 - MRC-142 C (IVM)
 - TEAMS (AAP)
 - EPLRS (II-A)
 - TSSR (USON)
 - TALON (S&T)
 - NGTS (S&T)



Providing MAGTF-Wide C3 Integration

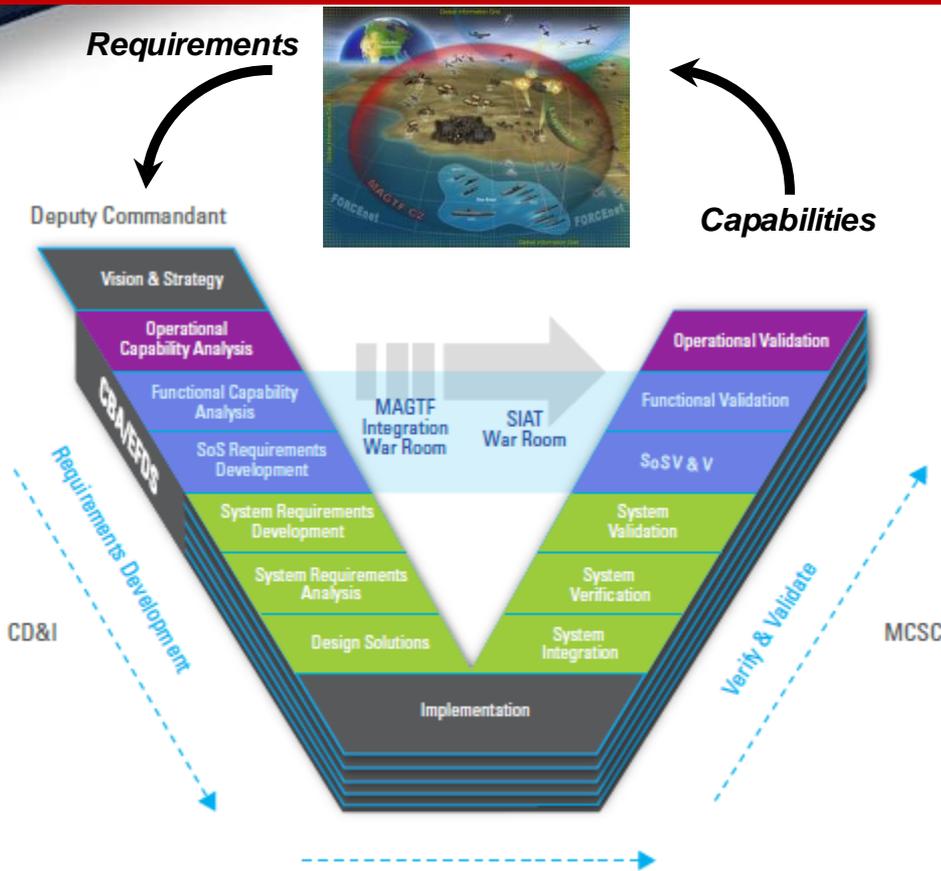


Figure 2.1: System of Systems Engineering V

- Capability objectives met through grouped and aligned capabilities and capability sets rather than individual programs
- Engineering trade-offs across the integrated MAGTF C3 portfolio
- Integrated, end-to-end SoS testing, evaluation and certification
- Body of domain expertise able to flex across systems to efficiently and effectively engineer systems

Working in Concert with the Capability Developer (CD&I) and Technical Authority (SIAT) to Engineer MAGTF C3

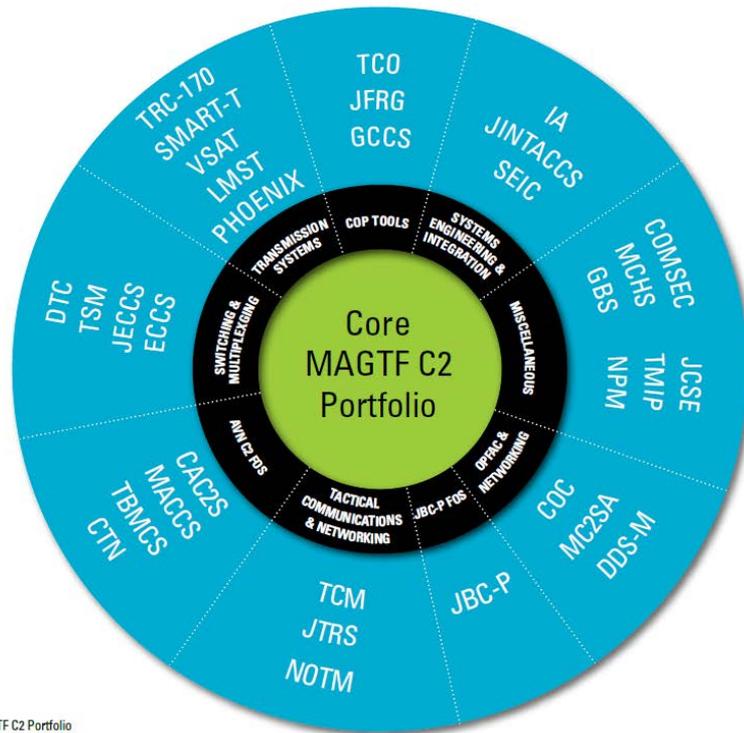


Figure 3.1: Core MAGTF C2 Portfolio

Complex C3/Communications/Sensor/Weapons Programs

- Multiple Program, Technical, and Organizational Interdependencies
- Significant Integration Effort
- Interoperability and Information Assurance Certification Required for ~80% of MC3 Programs
- Software Intensive
 - Significant Maintenance Effort

Joint/Other Service Programs

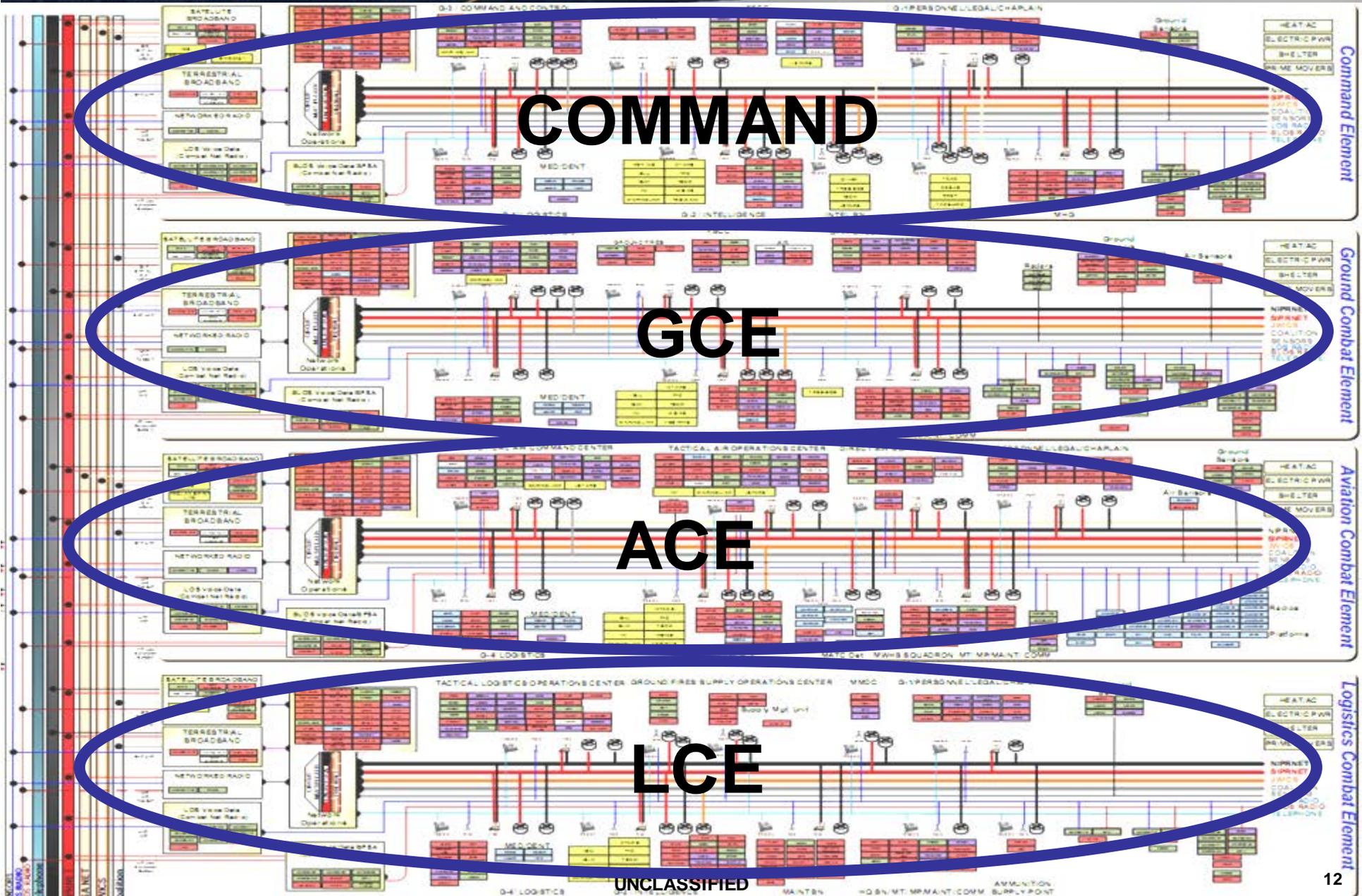
- ~50% of MC3 Programs
- Significant Interaction and Partnering
- Joint C3 & Service Oriented Architecture Mandates

Closely linked to PEO LS efforts

- Common Aviation Command & Control System
- Ground/Air Task Oriented Radar



EQUIPPING THE WARFIGHTER TO WIN



COMMAND

GCE

ACE

LCE

Command Element

Ground Combat Element

Aviation Combat Element

Logistics Combat Element



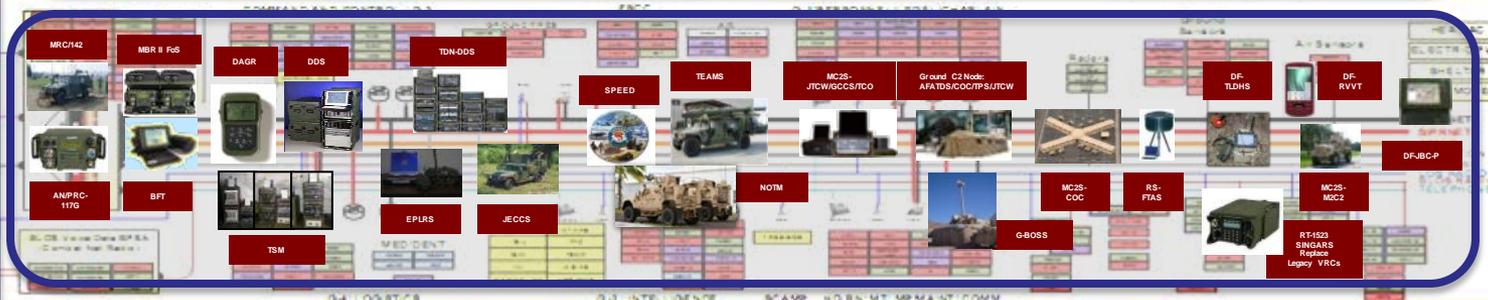
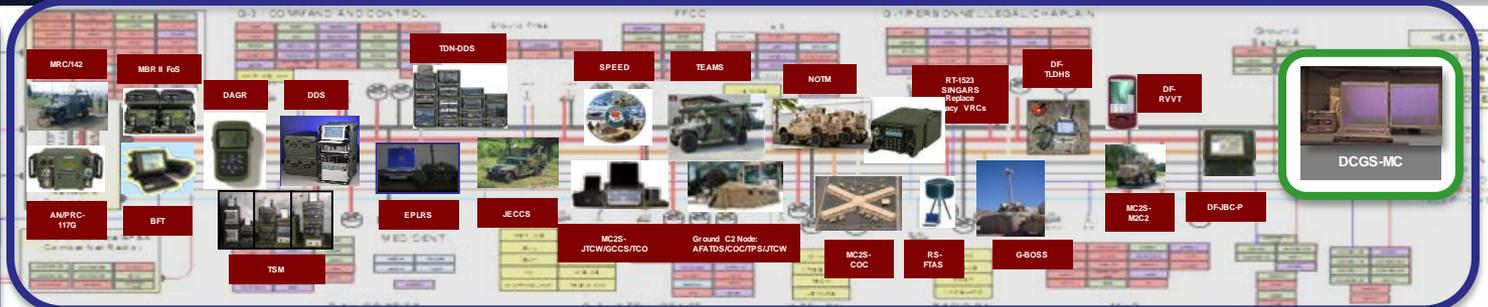
Command Element

Ground Combat Element

Aviation Combat Element

Logistics Combat Element

- AN/TRC-170
- EPLRS
- SCI-COMMS
- LMST
- W PPL
- SW AN
- Phoenix
- SMART-T



UNCLASSIFIED



MC3 leverages other service programs, Naval Warfare Centers, Systems Centers, Experimentation Centers, academia, and industry partners.



Marine Air Ground Task Force (MAGTF) Command, Control and Communications (MC3)

PdM Force Protection Systems MISSION

To develop, procure, and provide life cycle management of logistically supportable, fully integrated, USMC systems in a timely and cost effective manner. PdM Force Protection Systems will participate and coordinate programmatic efforts with other U.S. Military Services to leverage systems development, interoperability, supportability and cost effectiveness.



IDD Dogs

First infantry unit deployed with 34 IDD's in Sep 2011 (up from 13). UUNS requirement met in Jan of 2012. Certified 504 USMC and 69 UK IDD's

RMNIIS

Rugged Mobile Non-Intrusive Inspection System (RMNIIS). The RMNIIS provides the Warfighter the ability to scan vehicles and cargo at entry control points for organic and inorganic threat material.

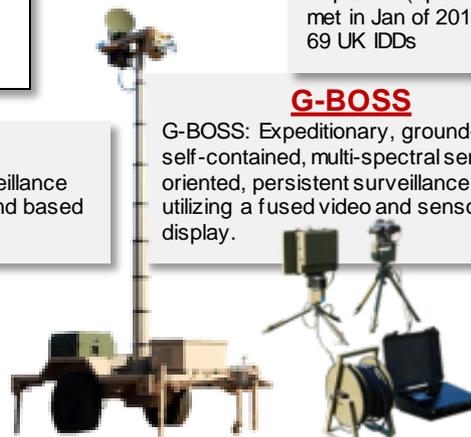


PRDSS

Portable Rapid Deployment Surveillance System (PRDSS). Supports ground based 360 degree camera systems.

G-BOSS

G-BOSS: Expeditionary, ground-based, self-contained, multi-spectral sensor-oriented, persistent surveillance system utilizing a fused video and sensor data display.



Counter Suicide Bomber

Counter Suicide Bomber System (CSBS). The Counter Bomber provides the capability to screen personnel at a stand-off distance of up to 100 meters.



VOSS

Vehicle Optical Sensor System (VOSS). Route Clearance for EOD Teams vehicle crews identify IED hazards with a 360 degree camera which utilizes high quality color daylight, night vision, and thermal imagery.



MEU(SOC USON)

Interim CREW System for Global MEU(SOC) Operations.



JCREW

JCREW: Next Generation CREW System for Global Operations.

JCREW 11B1

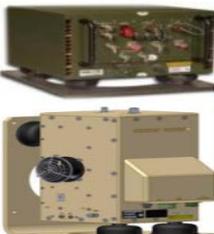


SECURE 1000

The Secure 1000 (S-1000) is a non-intrusive personnel scanning system.

CVRJ

CREW Vehicle Receiver Jammer (CVRJ). Vehicle-mounted active and reactive electronic countermeasure.



THOR III 3.1



THOR III & Biometrics

THOR III: Man-portable Counter RCIED solution for selected threats. BAT: Toolset for personal biometric identification.

Biometric Automated Toolset



Biometric Automated Toolset (BAT) Client



Marine Air Ground Task Force (MAGTF) Command, Control and Communications (MC3)

PdM DFSA MISSION

PdM DFSA develops, modernizes, and sustains affordable, world class, high performance Blue Force Situational Awareness and Advance Targeting Systems capable of operating in integrated MAGTF, joint and coalition environments.



DIGITAL FIRES

Advanced Field Artillery Tactical Data System (AFATDS) Family of Systems provides the MAGTF the ability to rapidly integrate all fire support assets into maneuver plans via digital data communications links.

Target Location, Designation, and Hand-off System (TLDHS) is a modular, man-portable, equipment suite that provides the capability to quickly and accurately acquire targets in day, night, and near-all weather visibility conditions.



UNMANNED SYSTEMS

MAGTF C2 Integration of Unmanned Systems and Remote Video Terminals (RVT). The portfolio currently consists of two general capabilities: Unmanned Aircraft Systems (UAS) which is Group 1 WASP, RAVENB, PUMA and STUAS along with RVT which is VideoScout and RVVT.

SITUATIONAL AWARENESS

Joint Battle Command-Platform Family of Systems (JBC-P) Increment I, Blue Force Tracker (**BFT FoS**), will provide tactical input/output battlefield digitized PLI and SA to enhance friendly forces, and integrate the blue force COE into a COP. Increment II, The Joint Battle Command Platform (**JBC-P**) will consist of JBC-P software, a stand-alone dismountable computing platform (handheld or end user device), and improvements to dismountable variants in future refreshes.





Marine Air Ground Task Force (MAGTF) Command, Control and Communications (MC3)

PdM MC2S MISSION

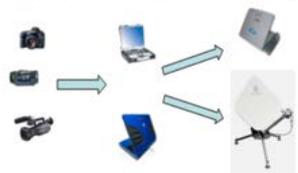
PdM MC2S delivers to the Marine warfighter an end-to-end, fully integrated, cross functional set of MAGTF Command & Control (C2) Capabilities across five-echelons of Combat Operations Centers through a Common MAGTF C2 Software Baseline.



TEAM MC2SA

MAGTF C2 Systems and Applications (MC2SA) provides the common, modular and scalable collaborative planning software for all elements and echelons of the MAGTF and is the software baseline for MAGTF C2.

Acquire Produce Transmit



PUBLIC AFFAIRS EQUIPMENT

Provides PA Marines the capability to collect, produce, transmit, and manage still, video, written, and audio communication products in order to globally engage various publics.

COMBAT CAMERA SYSTEMS

CCS supports all elements of the MAGTF by providing a full range of professional imagery collection, print and reproduction capabilities.



TECH TRANS

The transition of S&T projects such as the Mobile Modular Command & Control (M2C2) system and the Network-On-The-Move (NOTM) capability into Programs of Record (PoRs) ensures warfighters are equipped with cutting edge technology .



COC

The Combat Operations Center (COC) is a deployable, self-contained, centralized facility that provides shared command and control / situational awareness (C2/SA) functionalities in a collaborative environment.





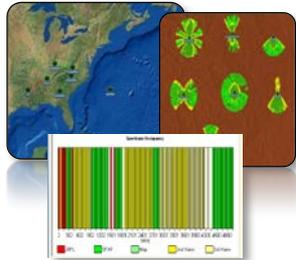
Marine Air Ground Task Force (MAGTF) Command, Control and Communications (MC3)

PdM NSC MISSION

PdM NSC Team leads the Marine Corps' effort in research and development, acquisition and sustainment of tactical networking and switching equipment; wireless broadband, and satellite ground communication systems, as well as cryptographic equipment.

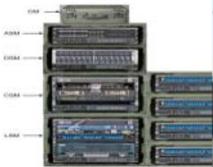
SATCOM SYSTEMS

EHF and SHF wideband SATCOM systems providing long-haul communications to higher headquarters for reach back into the GIG and intra-MAGTF communications down to the Battalion level. Systems include ECCS, LMST, Phoenix, SMART-T, DAGR, GBS TGRS, and SCI COMMS.



EXPEDITIONARY COMMUNICATIONS

Tactical networking systems and other GIG-enabling technology that enhances the expeditionary Operating Forces. Systems being developed include NOTM, TDN DDS-M, VSAT, and NPM/SPEED.



TACTICAL NETWORKS

Tactical switched systems, technical control functions, communications security to our Operating Forces. Systems being developed include COMSEC, DTC-R, TSM, and JECCS.





Marine Air Ground Task Force (MAGTF) Command, Control and Communications (MC3)

PdM RS MISSION

To develop, procure, integrate, field and provide life cycle management of logistically supportable, fully integrated and interoperable Radar Systems and to provide our customers timely and cost effective support while maintaining the highest standards of professional integrity.

Foreign Military Sales(FMS) Team

The FMS Team supports multiple FMS cases for Kuwait, Bahrain and Egypt to provide sensor and C2 platforms that are interoperable with US forces. The FMS Team are representatives of the Command in these international communities, and support US Foreign Policy objectives as well.



Family of Target Acquisition Systems (FTAS)

FTAS: Equipment required to search, detect, track, locate and process hostile indirect fire (IDF) weapons - mortar, artillery, and rocket projectiles for counter fire or servicing . The equipment includes the AN/TPQ Firefinder, the AN/TPQ-48 Lightweight Counter-Mortar Radar and the AN/TSQ-267 Target Processing Set.



AN/TPQ-48

AN/TPQ-46



AN/TSQ-267



Long Range Radar Systems

AN/TPS-59: 3-D Long Range Radar, which detects aircraft and tactical ballistic missiles.
AN/TPS-63: 2-D Medium Range Radar

AN/TPS-59



AN/TPS-63





Marine Air Ground Task Force (MAGTF) Command, Control and Communications (MC3)

PdM TCS MISSION
(PdM TCS) leads the Marine Corps' tactical communication modernization effort through the acquisition and life cycle management of tactical communication systems supporting combat and training operations.



Tactical Data Radio Systems
Line-of-Sight (LOS) and Beyond LOS voice and data tactical radio capabilities.



Command and Control Radios
Multiband Line-of-Sight and Satellite man-packable and vehicular mounted capabilities.



Handheld Radios
Tactical Hand Held Radio (THHR) :Line-of-Sight handheld and vehicular mounted capabilities supporting the United States Marine Corps.



