Advanced Planning-Briefing to Industry
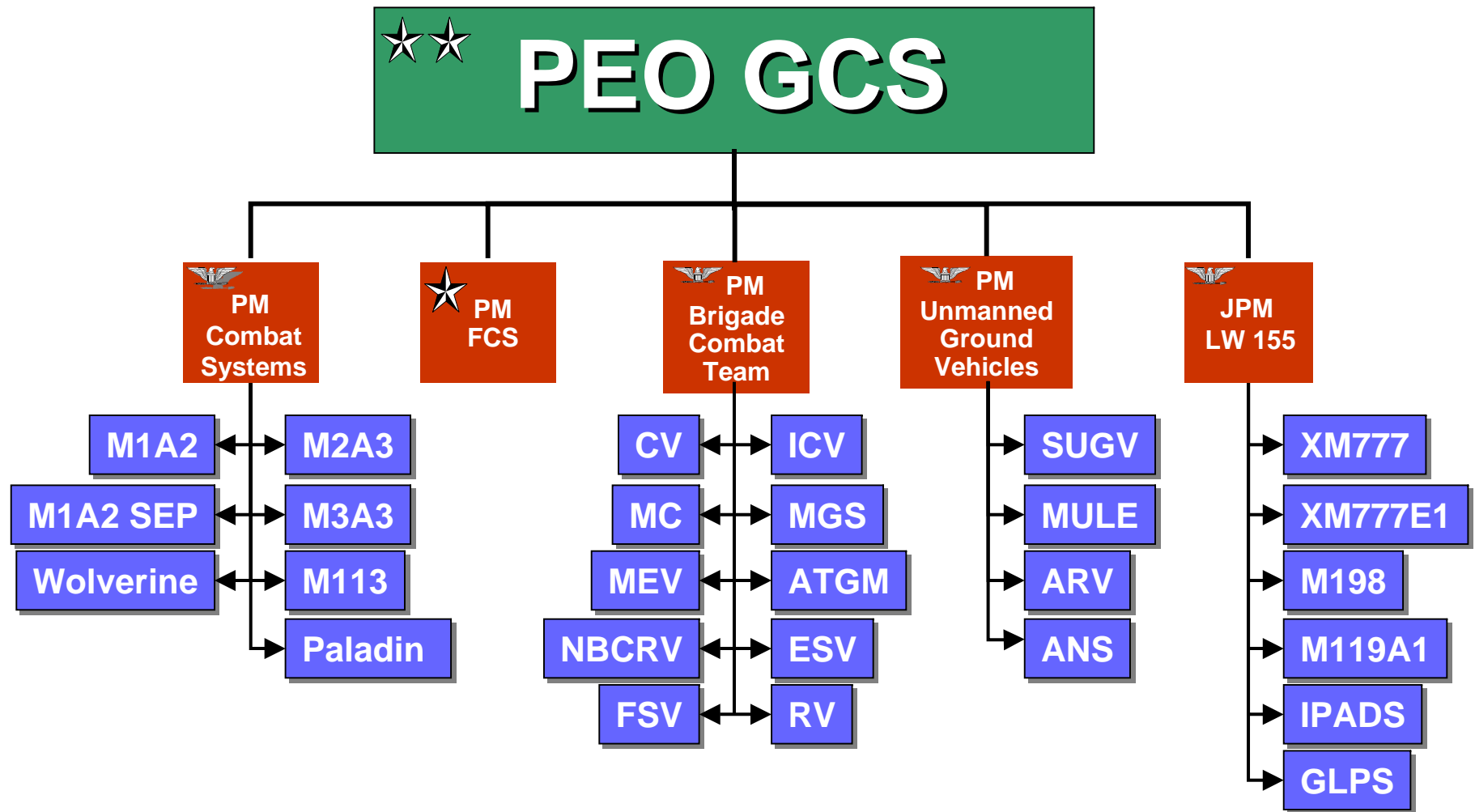

Albert Puzzuoli
Deputy Program Executive Officer
Ground Combat Systems
31 October 2003

Organization

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                    ★★ PEO GCS
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PM Combat Systems	PM FCS	PM Brigade Combat Team	PM Unmanned Ground Vehicles	JPM LW 155

M1A2 ↔ M2A3		CV ↔ ICV	SUGV	XM777
M1A2 SEP ↔ M3A3		MC ↔ MGS	MULE	XM777E1
Wolverine ↔ M113		MEV ↔ ATGM	ARV	M198
Paladin		NBCRV ↔ ESV	ANS	M119A1
		FSV ↔ RV		IPADS
				GLPS

American Heritage Dictionary Definition

System

A group of interacting, interrelated, or interdependent elements forming a complex whole…

System of Systems

System of Systems – A group of interacting, interrelated, or interdependent systems forming an even more complex whole…

Magnitude of the Task

- Significant Government Investment

- Impacts Every Unit and Soldier in the Army

- Shapes Government / Commercial Industrial and Sustainment Base

- Schedule Constrained and Technology Driven

- Technology transition

- Highly accelerated schedule
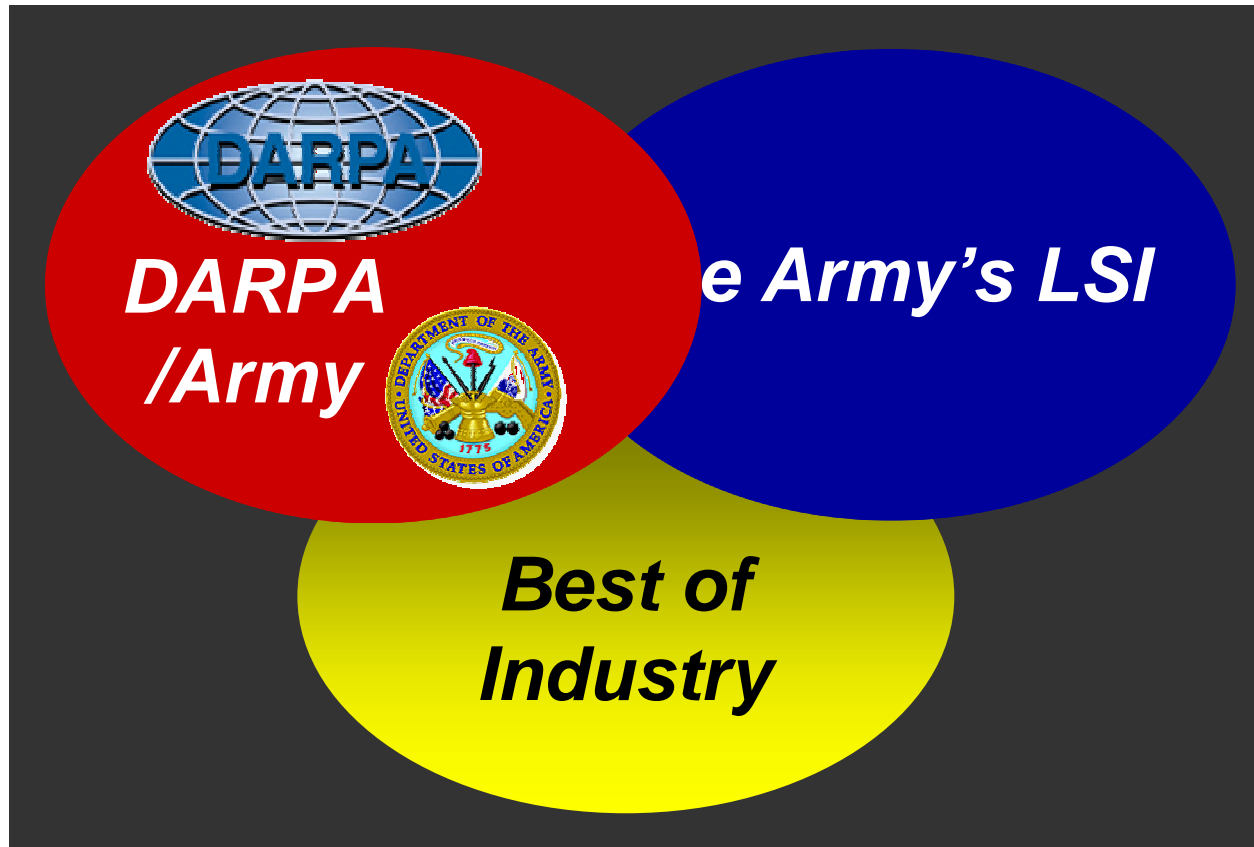
- High degree of concurrency

- Unmatched requirements

Requires Innovation and Leadership with unprecedented Govt. / Industry Partnerships

First True System-of-Systems Development, Production and Fielding

Government/LSI-Trusted Partners
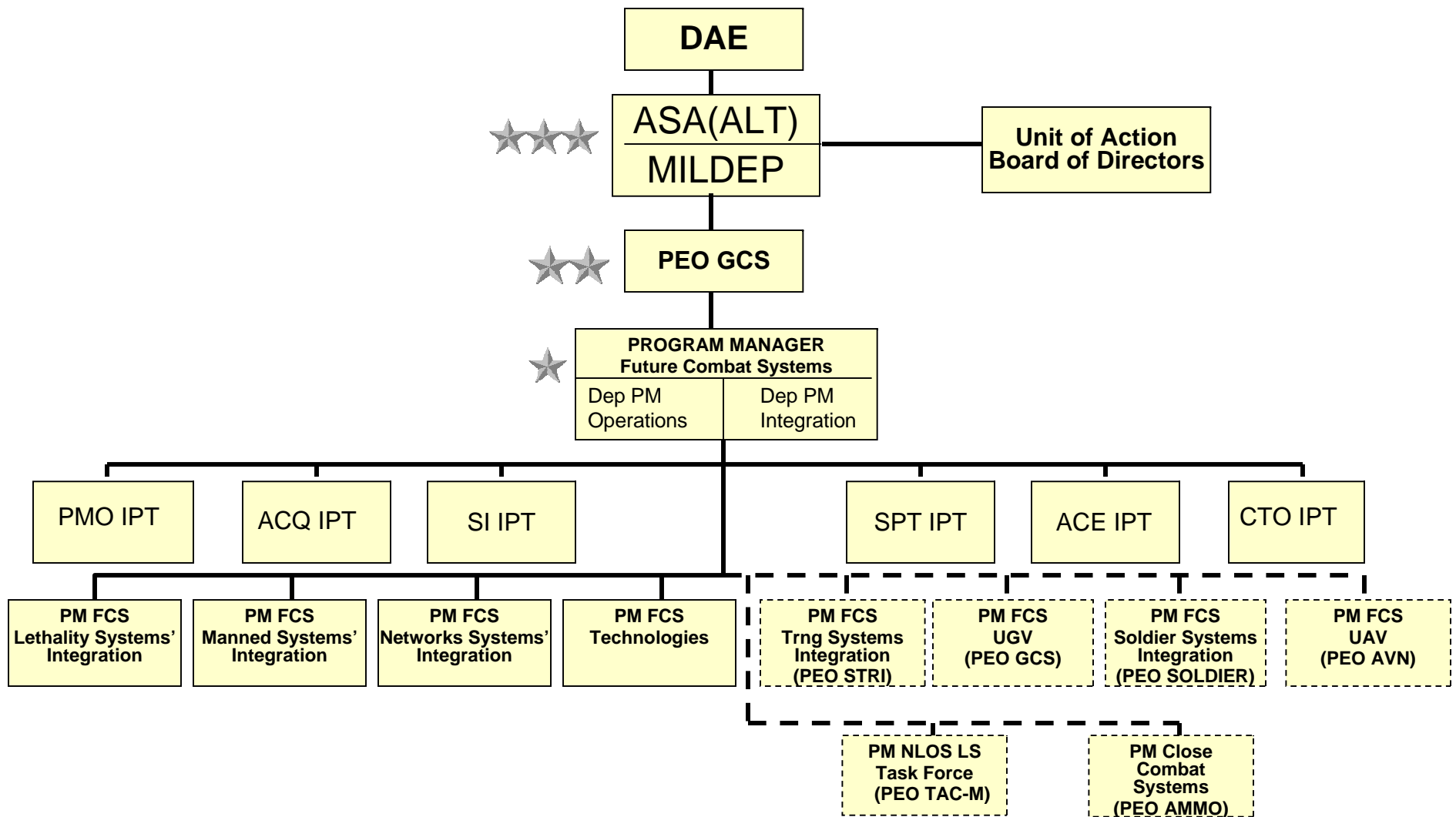
DARPA

DARPA /Army

e Army's LSI

Best of Industry

The Army's first large-scale "system-of-systems" development requires an integrated/dedicated organization

Management Structure

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                              ┌─────────────┐
                              │     DAE     │
                              └──────┬──────┘
                         ┌──────────────────┐        ┌──────────────────┐
     ★★★                 │   ASA(ALT)       │────────│  Unit of Action  │
                         │   MILDEP         │        │ Board of Directors│
                         └────────┬─────────┘        └──────────────────┘
                              ┌───────────┐
     ★★                       │  PEO GCS  │
                              └─────┬─────┘
                         ┌────────────────────┐
     ★                   │  PROGRAM MANAGER   │
                         │ Future Combat Systems│
                         ├─────────┬──────────┤
                         │ Dep PM  │  Dep PM  │
                         │Operations│Integration│
                         └─────────┴──────────┘
```

| PMO IPT | ACQ IPT | SI IPT | | SPT IPT | ACE IPT | CTO IPT |

| PM FCS Lethality Systems' Integration | PM FCS Manned Systems' Integration | PM FCS Networks Systems' Integration | PM FCS Technologies | PM FCS Trng Systems Integration (PEO STRI) | PM FCS UGV (PEO GCS) | PM FCS Soldier Systems Integration (PEO SOLDIER) | PM FCS UAV (PEO AVN) |

| PM NLOS LS Task Force (PEO TAC-M) | PM Close Combat Systems (PEO AMMO) |

Role of the LSI

- Why a Lead Systems Integrator (LSI)…
  - The Army's first large scale "system of systems" development, integration across many disciplines and platforms, requires a dedicated organization experienced in large scale systems integration

- What the LSI does…
  - Trusted Industry member of the FCS Team (Army/ Defense/ Best of Industry) that has total systems integration responsibility ("top down" development)
  - Provides the Team a "general contractor" *focused on integration* for resource allocation, subcontract implementation and coordination, and programmatic responsibilities
  - Provides the vital link to the "Best of Industry" including domestic / foreign contractors, Government programs / Labs, and educational institutions

- What the LSI does not…
  - Does NOT provide hardware solutions to subsystem / element requirements

Synchronize and influence the piece parts which will become the network

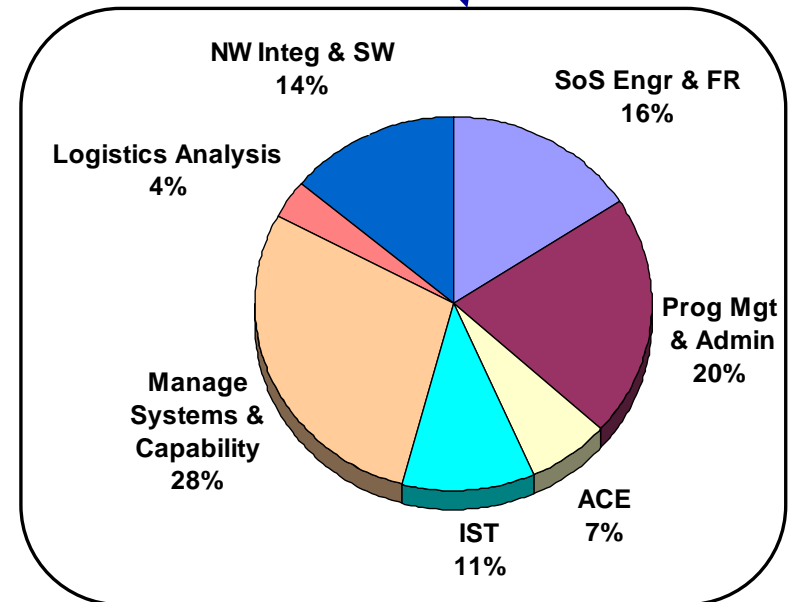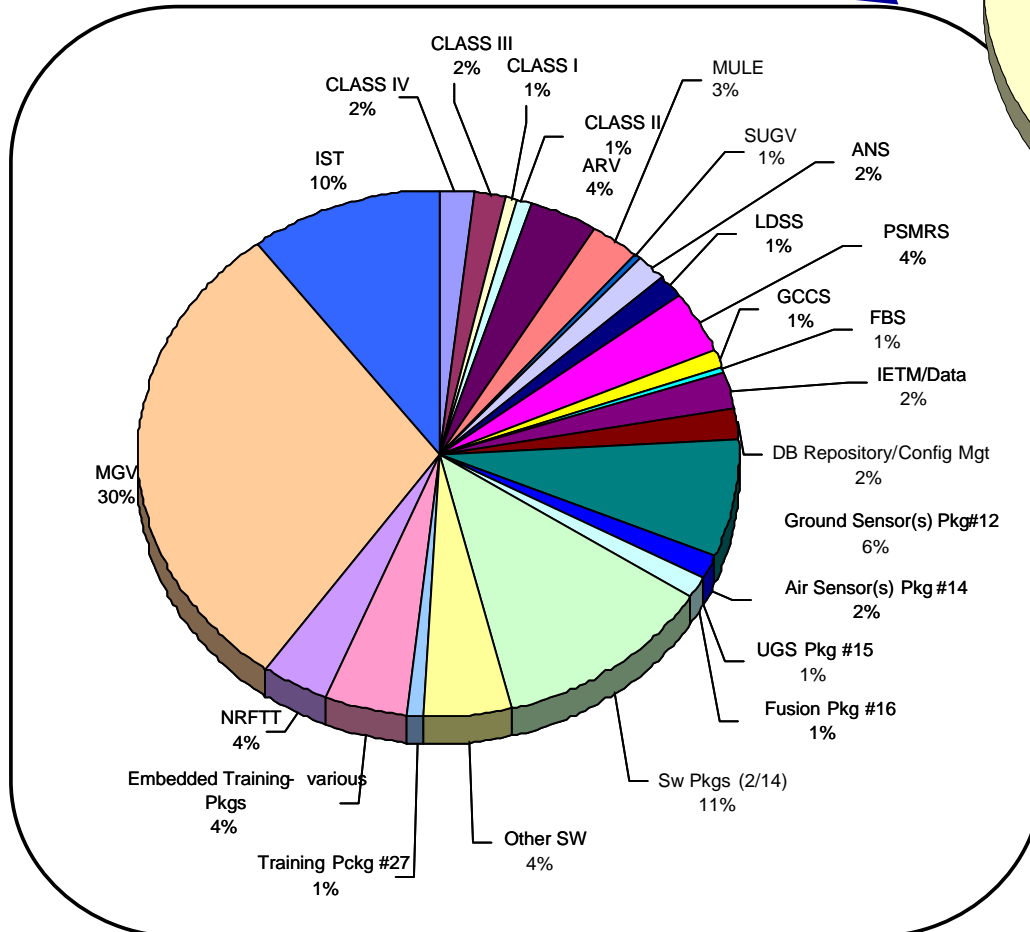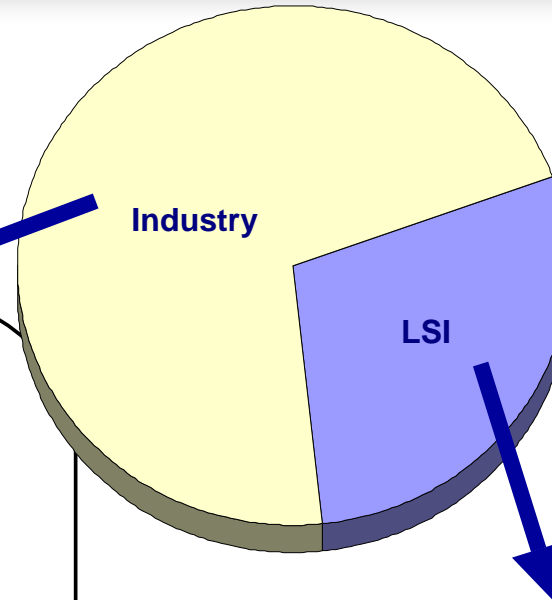*Dependent on players within and outside the Army*

Notional SDD Work Content

1/3 LSI Effort
1/3 MGV Effort
1/3 Competitive Subcontractor Effort

Industry

LSI

Pie chart 1 (Industry/Competitive Subcontractor Effort):
- CLASS IV 2%
- CLASS III 2%
- CLASS I 1%
- CLASS II 1%
- ARV 4%
- MULE 3%
- SUGV 1%
- ANS 2%
- IST 10%
- LDSS 1%
- PSMRS 4%
- GCCS 1%
- FBS 1%
- IETM/Data 2%
- DB Repository/Config Mgt 2%
- Ground Sensor(s) Pkg#12 6%
- Air Sensor(s) Pkg #14 2%
- UGS Pkg #15 1%
- Fusion Pkg #16 1%
- Sw Pkgs (2/14) 11%
- Other SW 4%
- Training Pckg #27 1%
- Embedded Training- various Pkgs 4%
- NRFTT 4%
- MGV 30%

Pie chart 2 (LSI):
- NW Integ & SW 14%
- SoS Engr & FR 16%
- Prog Mgt & Admin 20%
- ACE 7%
- IST 11%
- Manage Systems & Capability 28%
- Logistics Analysis 4%

Procurement Package Summary

LSI Integration

FCS SDD Procurement Packages

| Unmanned Systems | Supportability | C4ISR | Training | MGV Integration (UD / GD) | System of Systems Common Operating Environment (SoS COE) |

Unmanned Systems:

- Class I UAS (Continue DARPA ACTD)
- Class II UAS (Spiraled Forward)
- Class III UAS (Spiraled Forward)
- Class IV UAS (USN Fire Scout) Northrop Grumman
- Small Unmanned Ground Vehicle iRobot Corp
- Autonomous Navigation General Dynamics
- Armed Robotic Vehicle (ARV) ** United Defense
- MULE Lockheed Martin

** Engineering Study

Supportability:

- Logistics Decision Support System Northrop Grumman
- Platform Soldier Mission Readiness System Honeywell
- Network Management Northrop Grumman
- Integrated Computer General Dynamics

C4ISR:

- Ground Sensor Integrator Raytheon
- Air Sensor Integrator Northrop Grumman
- Unattended Ground Sensors Textron
- ISR Sensor Fusion/Sensor Data Management
  1) Lockheed Martin (Orincon Defense)
  2) General Dynamics
- Battle Mgmt & Mission Execution Raytheon
- Warfighter Machine Interface Boeing (Internal)
- Air Platform Communication BAE Systems
- Planning and Preparation General Dynamics
- Situation Understanding Austin Information Systems
- Ground Platform Communication BAE Systems

Training:

- Training Support Package
  1) Dynamics Research Corp
  2) Computer Science Corp
  3) Northrop Grumman

3 Competitive Procurement Packages not Awarded

19 Competitive Procurement Packages Awarded

PEO Ground Combat Systems

The Competitive Source Selection LSI Subcontract Packages

| Awards	LSI Pkg #	Package Name	Description	Partner
1	1	Class IV Unmanned Aerial Vehicle (UAV) System	UAV System controlled and operated at the Brigade level. Performs target acquisition and designation, reconnaissance, surveillance, and communications relay.	Northrop Grumman Systems Corporation, San Diego, CA
	2	Class III Unmanned Aerial Vehicle (UAV)	Award Deferred	N/A
3	3	Class I Unmanned Aerial Vehicle (UAV)	Award Deferred, Coordinating w/DARPA on existing technologies and opportunity to spiral in.	N/A
	4	Class II Unmanned Aerial Vehicle (UAV)	Award Deferred	N/A
2	5	Armed Robotic Vehicle (ARV) $9M Engineering Study Contract	Engineering Study Contract Only for the Armed Robotic Vehicle	United Defense, L.P., Ground Systems Division, Santa Clara, CA
3	7	Multifunction Utility/Logistics and Equipment Vehicle (MULE)	Unmanned Transport/Support Vehicle	Lockheed Martin Missiles and Fire Control, Grand Prairie, TX
4	8	Small Unmanned Ground Vehicle (SUGV)	Small Unmanned Multi-Mission Vehicle	iRobot Corporation, Burlington, MA
5	9	Autonomous Navigation System (ANS)	Autonomous and Semi-Autonomous Navigation for Manned and Unmanned Ground Vehicles	General Dynamics Robotics Systems, Westminster, MD
6	10	Logistics Decision Support Systems (LDSS)	Software Development and Integration	Northrop Grumman Mission Systems, Tactical Systems Division, Carson, CA
7	11	Platform Soldier Mission Readiness System (PS-MRS)	Software Development and Integration	Honeywell Defense & Electronic Systems, Albuquerque, NM
8	12	Ground Sensor Integrator	Sensor Procurement and Integration	Raytheon Network Centric Systems, Plano, TX
9	14	Air Sensor Integrator	Sensor Procurement and Integration	Northrop Grumman, Electronic Systems Division, Linthicum, MD
10	15	Unattended Ground Sensors, Tactical and Urban Sensors	Development	Textron Systems, Intelligent Battlefield Systems Division, Willington, MA

The Competitive Source Selection LSI Subcontract Packages

Awards	LSI Pkg. #	Package Name	Description	Partner
11	16	Sensor Data Management	Software Development and Integration	General Dynamics Decision Systems, Scottsdale, AZ
12	16	ISR Sensor Fusion, Level 1	Software Development and Integration	Lockheed Martin, Orincon Defense, San Diego, CA
13	17	Network Management	Software Development and Integration	Northrop Grumman Mission Systems, Tactical Systems Division, Carson, CA
14	18	Battle Management and Mission Execution	Software Development and Integration	Raytheon, Network Centric Systems, Ft. Wayne, IN
15	19	Planning and Preparation Services	Software Development and Integration	General Dynamics Decision Systems, Scottsdale, A
16	20	Situational Understanding	Software Development and Integration	Austin Information Systems, Austin, TX
17	23	Warfighter Machine Interface (WMI)	Provides customized situational understanding and warfighter collaboration tools for all platforms across the Unit of Action	The Boeing Company, Mesa, AZ
18	24	Ground Platform Communication	Development and Integration of all Ground Communication Systems	BAE Systems CNI, Wayne, NJ
19	25	Air Platform Communication	Development and Integration of all Air Communication Systems	BAE Systems IESI, Nashua, NH
20	26	Integrated Computers	All Computers for the Network	General Dynamics, Advanced Information Systems, Bloomington, MN
21	27	Training Support Package	Blanket Order for Training Software and Documentation Services	Computer Science Corp, Federal Sector Defense Group, Hampton, VA
22	27	Training Support Package	Blanket Order for Training Software and Documentation Services	Dynamics Research Corp System Division, Andover, MA
23	27	Training Support Package	Blanket Order for Training Software and Documentation Services	Northrop Grumman, Information Technology, Defense Enterprise Solutions Division, McLean, VA

Transportability

Critical Technologies

Survivability

Software

UGV's

UAV's

Lethality

MGV's
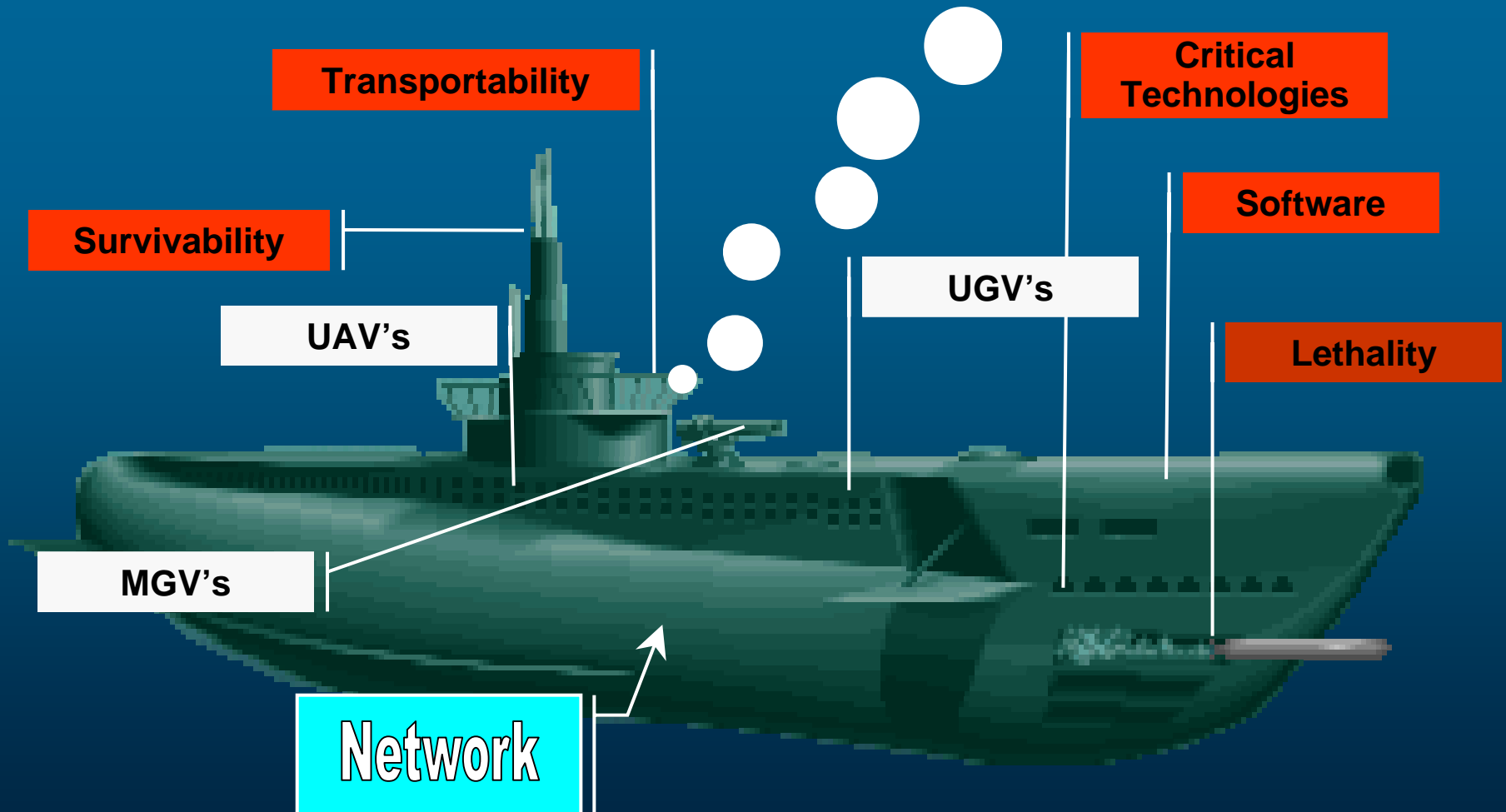
Network

If we don't have the network the whole program will sink