

BRAC 2005 Infrastructure Steering Group (ISG)

Meeting Minutes of October 3, 2003

The Acting Under Secretary of Defense (Acquisition, Technology, and Logistics) chaired this meeting. The list of attendees is attached.

The Chair opened the meeting and asked Peter Potochney, the Director of the OSD BRAC Office, to review the upcoming briefing schedule. Mr. Potochney stated that on October 10th the Education and Training JCSG will brief the ISG on their approach to capacity for range functions and the ISG will review the functions the Intelligence JCSG believes should be subject to BRAC analysis. Mr. Potochney then introduced Mr. Bob Mason, Assistant Deputy Under Secretary of Defense for Maintenance Policy and Resources. Mr. Mason is the executive secretary of the Industrial JCSG.

Mr. Mason used the attached briefing slides to review the overall approach of the Industrial JCSG. After describing the functions the Industrial JCSG will review, he stated that the Industrial JCSG proposed to refine the functions under the JCSG's purview as follows:

- Include Government Owned Contractor Operated activities in the analysis
- Delete nuclear, biological, and chemical weapons from analysis
- Delete directed energy weapons from analysis
- Change the function name "Ammunition" to "Munitions" to address all ordnance
- Change the function name "Shipyards Overhaul and Repair" to "Ship Overhaul and Repair"

The ISG disagreed with the request to delete directed energy weapons from the analysis. The ISG agreed that the industrial infrastructure for directed energy weapons is not yet established, however, the BRAC process reflects a 20 year force structure projection. Therefore, the future industrial structure for directed energy weapons must be analyzed. The ISG chair directed Mr. Mason to revise the Industrial report to include directed energy weapons.

Mr. Mason then stated that each of the Industrial JCSG subgroup chairs would brief the ISG on their subgroup's approach to capacity analysis. Major General "Hamp" McManus, Commander Operations Support Command, United States Army, briefed the ISG on his subgroup's approach to ammunition and armaments. Major General

McManus pointed out that many of the facilities that support munitions and armament functions are already joint. He also emphasized the importance of calculating the capacity of the deployment network that moves munitions from the manufacturing sources to the operators. The ISG agreed with the munitions and armaments subgroup's approach to capacity analysis.

Mr. Ron Orr, Principal Deputy Assistant Secretary of the Air Force for Installations, Environment and Logistics, briefed the ISG on the maintenance subgroup's approach to capacity. The ISG and Mr. Orr agreed that the Department must come to a common understanding of how JCSGs should identify surge requirements. The ISG also agreed that the ability to meet surge cannot include capital investments such as military construction projects. Mr. Orr stated that the maximum capacity measure would assume a one and one-half shift operation of maintenance facilities. The ISG agreed with the maintenance subgroup's approach to capacity analysis.

Rear Admiral Bill Klemm, Deputy Commander, Maintenance, Industrial and Depot Operations, Naval Sea Systems Command, briefed the ISG on the Ship Overhaul and Repair subgroup's approach to capacity analysis. He emphasized the importance of retaining skilled people because it can require six to eight years to turn an apprentice into a highly skilled shipyard worker. Rear Admiral Klemm stressed that skilled manpower will be a limiting factor in calculating capacity. The ISG discussed how the analysis for Ship Overhaul and Repair must include a balanced review of the capacity available in industry, as well as an assessment of the necessity of maintaining a carrier overhaul capable shipyard on each coast. The ISG also discussed the ability of other DoD facilities to support Navy ship overhaul. The ISG agreed with the Ship Overhaul and Repair subgroup's approach to capacity analysis, but cautioned the subgroup to examine all scenarios and not assume that traditional assumptions about location of activities (e.g., one carrier overhaul facility on each coast) are hard requirements.

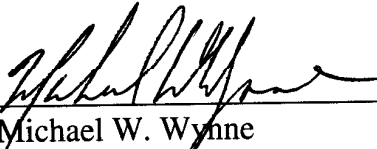
The ISG concluded its discussion of the Industrial JCSG capacity analysis approach by agreeing that the impact of existing legislation affecting depot maintenance would be considered later in the analysis. The ISG also agreed that the Industrial JCSG must carefully examine how business and procurement cycles affect the capacity of private and public shipyards.

Following the conclusion of the Industrial JCSG briefing, Dr. Ron Sega, Director of Defense Research and Engineering, and Chairman of the Technical JCSG briefed his JCSG's approach to capacity analysis using the attached slides. Dr. Sega noted that the Technical JCSG was organized specifically to enable the Technical JCSG to make meaningful recommendations across the spectrum of technical functions. In discussing the Technical JCSG "battle plan" (slide 4), Dr. Sega emphasized that the JCSG must:

- assess technology drivers that can transform the military’s warfighting capability (e.g., hypersonic flight, high temperature super conductors)
- identify areas in which the US has technology gaps compared to potential adversaries
- alter the technical infrastructure to allow it to become more agile

Next, Dr. Sega reviewed the list of functions the Technical JCSG will review. He noted that while in-service life cycle support is a function that is handled differently by the Services, the JCSG reached consensus that the function will be addressed by the Technical JCSG during their capacity analysis. Dr. Sega stated that the Technical JCSG is working with Education and Training JCSG’s Ranges Subgroup to ensure that the test and evaluation capabilities of ranges is properly assessed. Dr. Sega explained his slide 10 “Notional Formulation” by stating that the goal of the Technical JCSG is to enhance DoD’s technical capability by maximizing the synergy of the following attributes: people, facilities and equipment, natural resources and workload.

The ISG discussed the difficulties inherent in calculating the capacity of the technical function because its primary asset is intellectual prowess. The ISG also agreed that determining surge requirements for the technical area was difficult because wartime “surge” is typically handled by shifting priorities. The ISG concluded the meeting by agreeing that the Technical JCSG approach to capacity analysis was on track.

Approved: 
Michael W. Wynne
Acting USD (Acquisition, Technology & Logistics)
Chairman, Infrastructure Steering Group

Attachments:

1. List of Attendees
2. Briefing slides entitled “Industrial JCSG Capacity Analysis Report” dated October 3, 2003
3. Briefing slides entitled “Technical JCSG Capacity Analysis” dated October 3, 2003

Infrastructure Steering Group Meeting October 3, 2003

Attendees

Members:

- Hon. Michael Wynne, Acting Under Secretary of Defense (AT&L), Chair
- Mr. Raymond DuBois, Deputy Under Secretary of Defense (I&E)
- General William Nyland, Assistant Commandant of the Marine Corps
- Hon. Mario Fiori, Assistant Secretary of the Army (I&E)

Alternates:

- Ms. Anne Davis, Deputy Assistant Secretary of the Navy (Infrastructure Analysis) for Hon. H.T. Johnson, Assistant Secretary of the Navy (I&E)
- Major General Gary Heckman, Assistant Deputy Chief of Staff of the Air Force for Plans and Programs for General Michael Mosley, Vice Chief of Staff of the Air Force
- Vice Admiral Charles Moore, Deputy Chief of Naval Operations for Logistics, for Admiral William Mullen, Vice Chief of Naval Operations
- Mr. Ron Orr, Principal Deputy Assistant Secretary of the Air Force (IE&L) for Hon. Nelson Gibbs, Assistant Secretary of the Air Force (IE&L)
- Lieutenant General James Cartwright, Director, Force Structure, Resources and Assessment, Joint Staff for General Peter Pace, Vice Chairman, Joint Chiefs of Staff

Industrial JCSG

- Brigadier General Henry Taylor Vice Director, Logistics (J-4)
- Major General “Hamp” McManus Commander, Operations Support Command
- Rear Admiral Bill Klemm Deputy Commander, Maintenance and Industrial and Depots Operations, Naval Sea Systems Command
- Ms. Susan Kinney, Deputy Director, Logistic Plans, Policy and Strategic Mobility Division, Headquarters Marine Corps
- Mr. Bob Mason, Assistant Deputy Under Secretary of Defense for Maintenance Policy and Resources

Technical JCSG

- Dr. Ronald Segal, Director, Defense Research and Engineering
- Mr. John Erb, Deputy Director for Strategic Logistics, J-4
- Dr. John Foulkes, Director, Army Test & Evaluation Management Agency
- Mr. George Ryan, Deputy Director of Naval Research
- Dr. J. Daniel Stewart, Executive Director, Air Force Material Command
- BGen William Catto, Commander, Marine Corps Systems Command

Others:

- Mr. Phil Grone, Principal Assistant Deputy Under Secretary of Defense
- Colonel Kurt Weaver, Office of the Deputy Assistant Secretary of the Army (Infrastructure Analysis)
- Mr. Mike Aimone, Deputy Assistant Secretary of the Air Force (Basing and Infrastructure Analysis)
- Mr. Pete Potochney, Director, OSD BRAC
- Mrs. Nicole Bayert, Associate General Counsel, Environment and Installations, DoD
- Mr. Al Shaffer, Director Plans and Program, Office of the Director, Defense Research and Engineering
- Mr. Andrew Porth, Assistant Director, OSD BRAC
- Lieutenant Colonel Richard Wiersema, Junior Military Assistant, USD (AT&L)
- Ms. Deborah Culp, Program Director, Contract Management Directorate, Office of the Inspector General
- Commander John Lathroum, Force Integration Branch Officer, Forces Division, J-8
- Ms. Willie Smith, Chief BRAC Division, Joint Munitions Center



BRAC 2005 Issues

Briefing to the
Infrastructure Steering Group

October 3, 2003



JCSG Update

- All groups working on defining capacity analysis for ISG briefings
 - ✓ **August 29 @ 10:30**
 - ❑ Medical JCSG briefing
 - ✓ **September 16 @ 3:00**
 - ❑ Headquarters and Support Activities JCSG briefing
 - ✓ **September 24 @ 4:00**
 - ❑ Supply and Storage JCSG briefing
 - ❑ Education and Training JCSG briefing
 - **October 3 @ 3:30 (Rescheduled from Sep 19)**
 - ❑ Industrial JCSG briefing
 - ❑ Technical JCSG briefing
 - **October 10 @ 10:30 (Friday)**
 - ❑ Education and Training JCSG (Ranges)
 - ❑ Intelligence Functions briefing



Industrial JCSG Capacity Analysis Report

October 3, 2003

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Overview

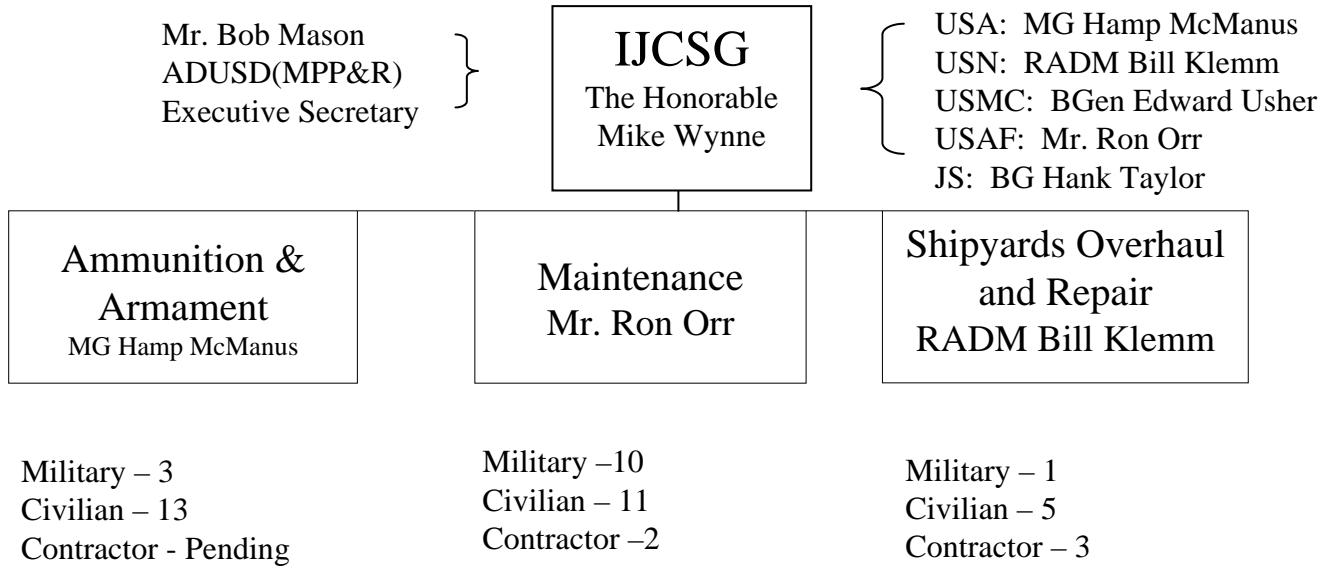
- Organization
- Functions
- Refinements
- Strategic Plan
- Capacity Analysis Methodology
- Issues Impacting Analysis

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Organization Industrial Joint Cross Service Group



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Functions

Ammunition and Armaments Subgroup

- Maintenance, Storage and Demilitarization (Industrial Base for Manufacturing, Production, Maintenance Storage and Demilitarization)
 - Small/Medium Ammunition
 - Large Ammunition
 - Propellants and Explosives
 - All Metal Parts
 - Nuclear, Biological and Chemical Weapons
 - Directed Energy Weapons

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Functions

Maintenance Subgroup

- Maintenance (Depot and Intermediate Levels)
 - Training Aircraft
 - Fighter/Bomber
 - Utility/Airlift
 - Rotary Wing
 - Ground Vehicle
 - Support Equipment
 - Electronics
 - Engines
 - Maintenance Combat Field Support

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Functions

Shipyards Overhaul and Repair

- Aircraft Carriers and other Large Deck Ships
- Submarines
- Other Surface Ships and Craft, combatant and noncombatant



Refinements

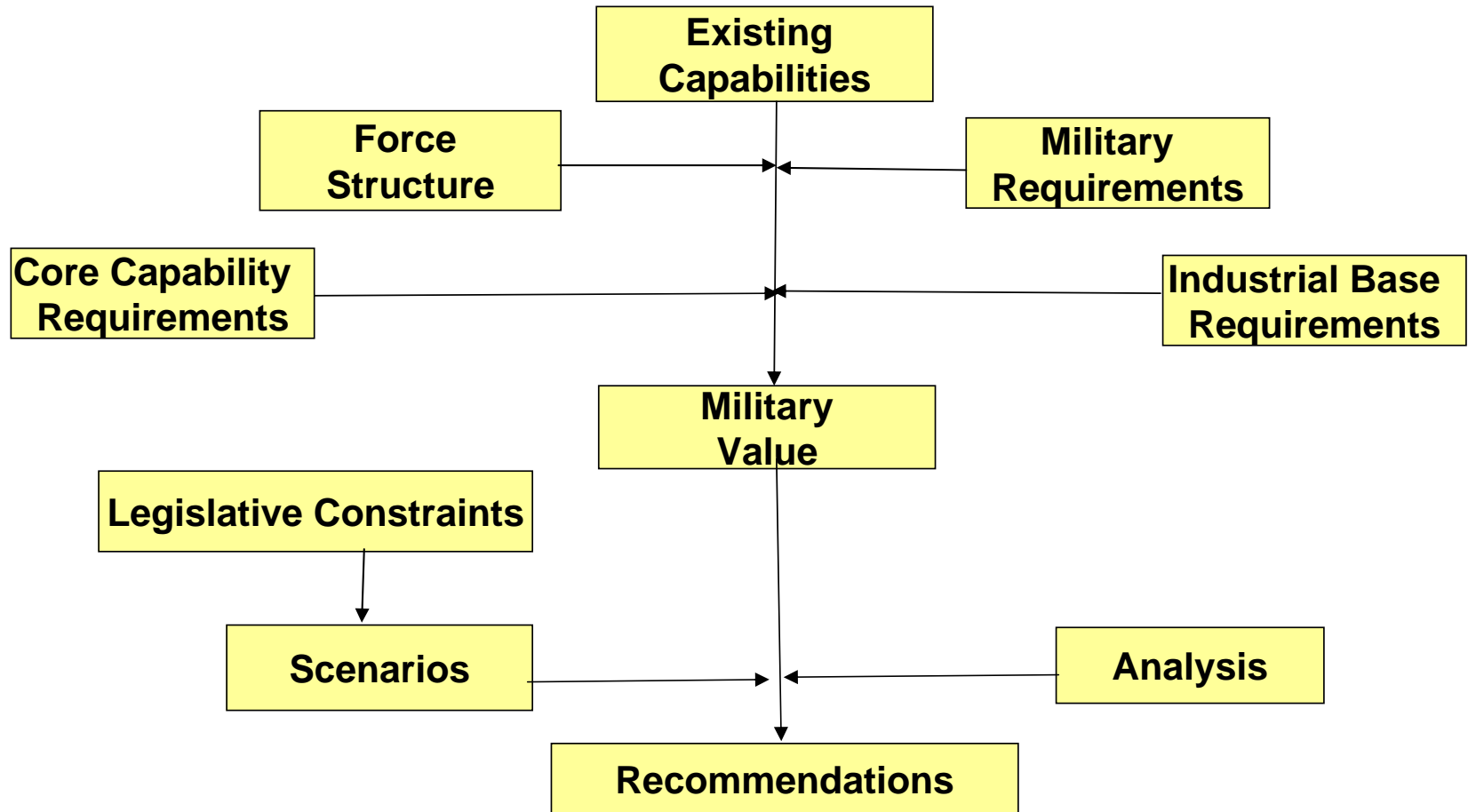
- Include Government Owned Contractor Operated (GOCO) activities in the analysis.
- Delete Nuclear, Biological, and Chemical weapons from analysis
- Delete Directed Energy Weapons from analysis
- Change Ammunition to Munitions to address all ordnance.
- Change the function name of Shipyards Overhaul and Repair to “Ship Overhaul and Repair.”

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Draft - Strategic Plan - Draft



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Approach to Capacity Analysis

- Ammunition and Armament
 - MG Hamp McManus

- Maintenance
 - Mr. Ron Orr

- Shipyards Overhaul and Repair
 - RADM Bill Klemm

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Ammunition and Armaments Capacity Analysis Methodology

- Function example: Large ammunition and armaments
 - Direct & Indirect
- Function attributes:
 - Production Capacity
 - Demilitarization
 - Manufacturing Flexibility
 - Enterprise Architecture
 - Infrastructure Condition/Readiness
 - Environmental
 - Safety (Explosives, Environmental, Occupational)

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Ammunition and Armaments Capacity Analysis Methodology

- Function Attributes (continued):
 - Renovation/Rework/Surveillance
 - Deployment Network
 - Specialized Capabilities
- Attribute metrics:
 - Square footage and acreage
 - Number of safety waivers
 - Out-loading capability
 - Age of facility
 - Number and types of commodities produced/renovated/reworked
 - Equipment uptime

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Ammunition and Armaments Capacity Analysis Methodology

- Attribute Metrics (continued):
 - Available vs. utilized space
 - Maximum vs. current throughput capability
 - Explosive vs. inert storage capability
 - Percent of workforce with specialized skills
 - Joint customer mission supported
 - Military unique processes
 - Industrial manufacturing certification levels
 - Buildable acreage
 - Encroachment

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Ammunition and Armaments Capacity Analysis Methodology

- Capacity Measurement Description:
 - Will synthesize four tools to conduct this analysis:
 - Deployment network/distribution analysis
 - DOD 4151.18H *Depot Maintenance Capacity & Utilization Measurement Handbook*
 - NAVSEA infrastructure analysis model
 - DoD 5000:
 - DoD 5000.60 Defense Industrial Capabilities Assessments
 - DoD 5000.60-H Assessing Defense Industrial Capabilities

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Maintenance Subgroup Capacity Analysis Methodology

- **Function:** Maintenance
- **Attributes:** Depot-Level Maintenance (Aircraft, Ground Vehicles, etc.)
- **Metrics of Attributes:** Workload, Capacity, Natural Resources
- **How Capacity Measured:**
 - DoDD 4151.18H Depot Maintenance Capacity and Utilization Measurement Handbook by commodity
 - Capacity Index, Capacity Utilization Index, Maximum Potential Capacity, etc.
 - Workload by commodity: Total Workload, Surge, Directed Workload, etc.
 - Natural Resource Capacity: Air permits; process constraints, etc.

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Maintenance Subgroup Capacity Analysis Methodology

- **Function:** Maintenance
- **Attributes:** Combat (I-level) Field Support (Non-deployable, Fixed Infrastructure)
- **Metrics of Attributes:** Workload, Capacity, Natural Resources
- **How Capacity Measured:**
 - DoDD 4151.18H Depot Maintenance Capacity and Utilization Measurement Handbook by commodity
 - Capacity Index, Capacity Utilization Index, Maximum Potential Capacity, etc.
 - Workload by commodity: Total Workload, Surge, Directed Workload, etc.
 - Natural Resource Capacity: Air permits; process constraints, etc.

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Shipyards - Approach to Capacity Analysis

Notional Data Collection Matrix (Skilled Labor)

| Platform | O/H, Maintenance, Repair & Fleet Support Element | | | | | | | | | | | | | | |
|-----------------------|--|-----------------------------|---------|-------|---------|--------|---------|-------|---------|------------|----------------|------------------|------------------|-----|---------------|
| | Structural | Mechanical (Examples Below) | | | | | | | | Electrical | Combat Control | Guns & Launchers | Radar, EW & Elex | ... | Other Systems |
| | | Valves | | Pumps | | Piping | | Other | | | | | | | |
| Nuc | Non-Nuc | Nuc | Non-Nuc | Nuc | Non-Nuc | Nuc | Non-Nuc | Nuc | Non-Nuc | | | | | | |
| Large Deck | | | | | | | | | | | | | | | |
| CVN/CV | | | | | | | | | | | | | | | |
| LHA/LHD | | | | | | | | | | | | | | | |
| ⋮ | | | | | | | | | | | | | | | |
| Submarine | | | | | | | | | | | | | | | |
| SSN | | | | | | | | | | | | | | | |
| 688/688I | | | | | | | | | | | | | | | |
| ⋮ | | | | | | | | | | | | | | | |
| SSBN | | | | | | | | | | | | | | | |
| SSGN | | | | | | | | | | | | | | | |
| MTS | | | | | | | | | | | | | | | |
| Other Surface | | | | | | | | | | | | | | | |
| CG/DDG | | | | | | | | | | | | | | | |
| ⋮ | | | | | | | | | | | | | | | |
| Amphibs | | | | | | | | | | | | | | | |
| Non-Combatant | | | | | | | | | | | | | | | |
| Land-Based Facilities | | | | | | | | | | | | | | | |
| ⋮ | | | | | | | | | | | | | | | |
| ⋮ | | | | | | | | | | | | | | | |

Description of Element Details

- Skilled Labor (incl special certifications)
- Includes Engineering, Planning & Artisan Trades
- Includes Skills & Knowledge "Pipeline"

Metrics -Skilled Labor by Category

- **Requirements Call - Trades & Engr'g**
 - Full Performance level - DLH
- **Capacity Call - Trades & Engr'g**
 - Apprentice - "Pipeline"- DLH
 - Journeyman - Full Performance - DLH
 - Post Journeyman - Senior Experts - DLH

Specify the Work Elements Consistent with Standard WBS That Characterize O/H, Maintenance, Repair & Fleet Support **Skilled Labor**, in terms of Artisan Trades, Planning, Engineering & Management

• Cells will be populated with data as appropriate.



Approach to Capacity Analysis - Shipyards

Notional Data Collection Matrix (Facilities & Equipment)

| Equipment Capabilities | O/H, Maintenance, Repair & Fleet Support Facilities | | | | | | | | | | | | | | Other | |
|------------------------------|---|------------|--------------|---------|--------------|---------|-------|------------|-------------|----------------------------|-----------------------|--------------------|----------------|-----|-------|--|
| | Dry Docks | Shops | | | | | | | | Nuclear Support Facilities | Piers / Moorage Space | Engineering Spaces | Lay-down Space | ... | | |
| | | Electrical | Ship Fitting | Machine | Pipe Fitting | Foundry | | Periscopes | Calibration | | | | | | | |
| Lifting Capability | | | | | | | | | | | | | | | | |
| Portal Cranes | | | | | | | | | | | | | | | | |
| Fixed Cranes | | | | | | | | | | | | | | | | |
| Mobile Cranes | | | | | | | | | | | | | | | | |
| Rail Access | | | | | | | | | | | | | | | | |
| Environmental Permits | | | | | | | | | | | | | | | | |
| Non-Nuclear | | | | | | | | | | | | | | | | |
| Nuclear | | | | | | | | | | | | | | | | |
| Heavy Industrial Capability | | | | | | | | | | | | | | | | |
| Light Industrial Capabnility | | | | | | | | | | | | | | | | |
| Product Testing | | | | | | | | | | | | | | | | |
| ⋮ | | | | | | | | | | | | | | | | |
| Other | | | | | | | | | | | | | | | | |

• Cells will be populated with data as appropriate.

Facility & Equipment Metrics

- Current Utilization - DLH
 - Peacetime
 - Surge
- Maximum Facility Capacity - DLH
- Key Specifications
 - Work-piece Weight (max)
 - Work-piece Dimensions (max)
 - Shop Space - KSF
 - Expansion Potential - KSF

Note: Capacity and Utilization to Use Definitions as specified in DOD 4151.18 - H, as modified

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Approach to Capacity Analysis - Shipyards

- Maximum potential capacity for Depots, e.g., Shipyards, is typically limited by Skilled Manpower, because of unique training/experience requirements.
- Surge is dictated by emergent deployments or ship repair requirements. Shipyards are normally loaded to their maximum workforce capacity; therefore, surge capability is limited to the use of overtime and delaying previously planned work.



Issues Impacting Analysis

- 10 USC 2464 requires that DoD maintain a core logistics capability that is Government-owned and Government-operated (including Government personnel and Government-owned and Government-operated, equipment, and facilities) to ensure a ready and controlled source of technical competence and resources necessary to ensure effective and timely response to a mobilization, national defense contingency situations, and other emergency requirements.
- 10 USC 2466 requires that not more than 50 percent of the funds made available in a fiscal year to a military department or a Defense Agency for depot-level maintenance and repair workload may be used to contract for the performance by non-Federal Government personnel of such workload for the Military Department or the Defense Agency.

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Technical JCSG Capacity Analysis

Briefing to the Infrastructure Steering Group

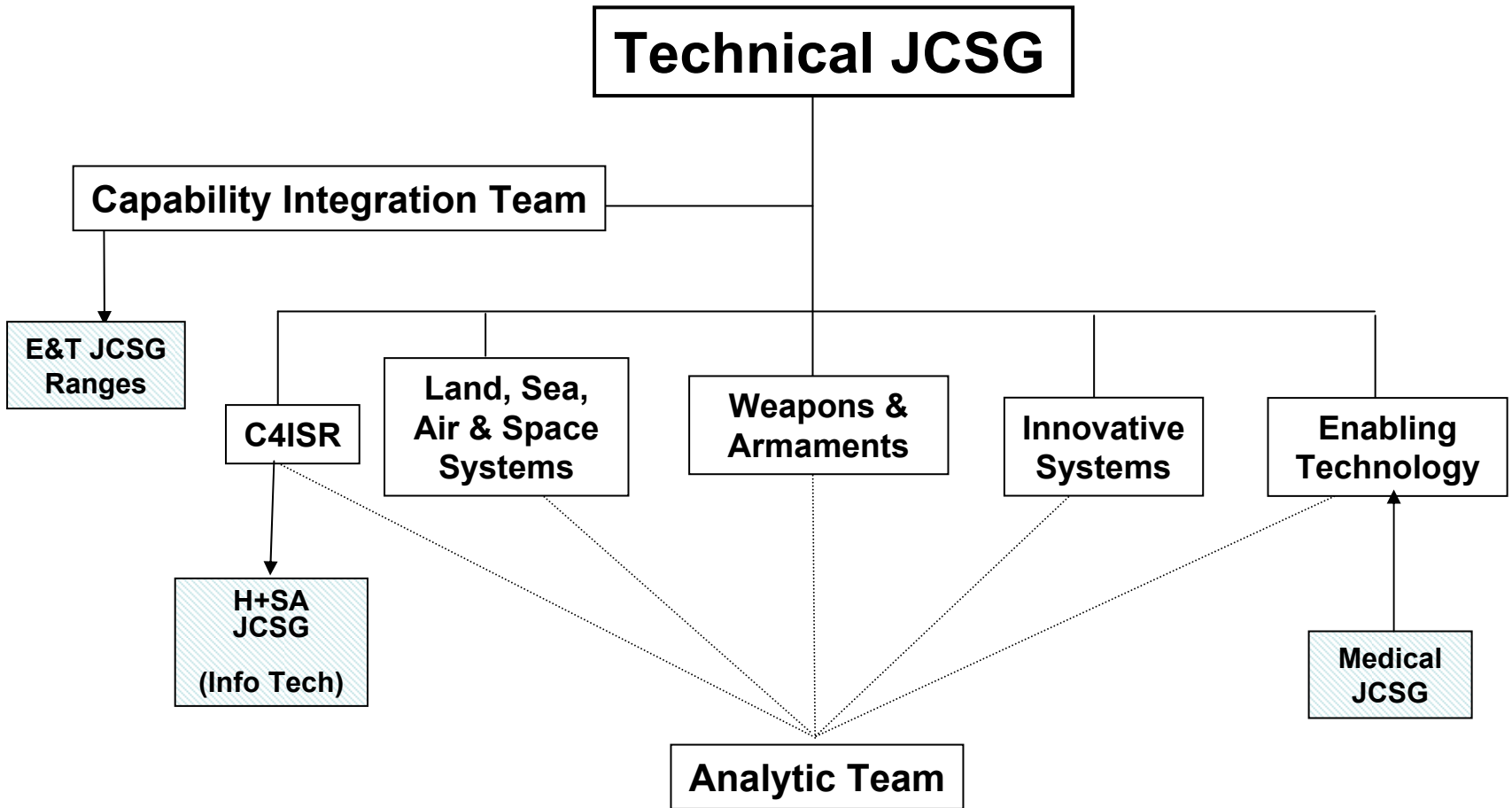
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Overview

- **Organization**
- **Functions**
- **Capacity Analysis Methodology**
- **Issues Impacting Analysis**

TJCSG Organization

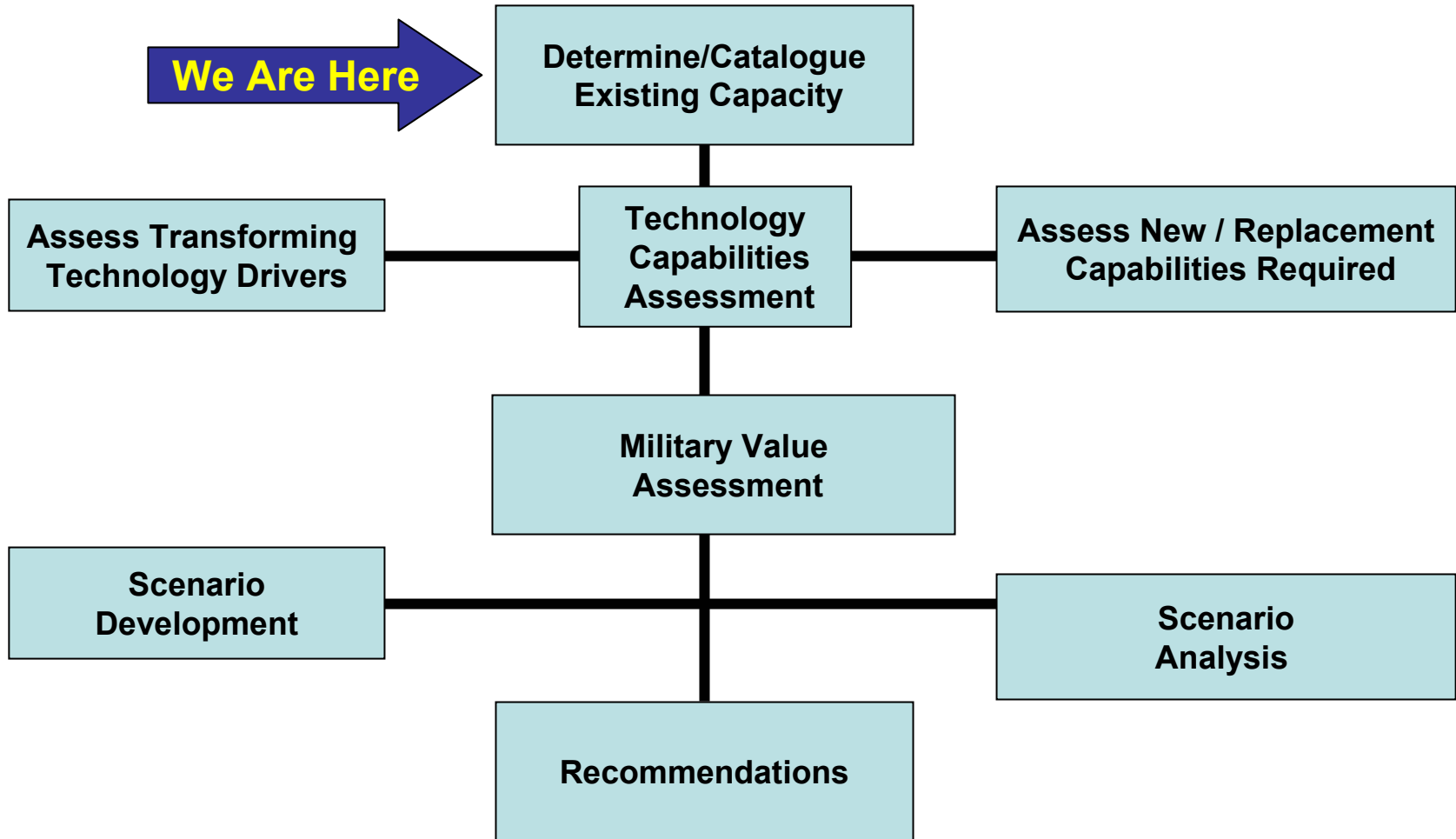


| Military | Civilian | Contractor |
|-----------------|-----------------|-------------------|
| 15 (5 FTE) | 70 (3 FTE) | 10 (1 FTE) |

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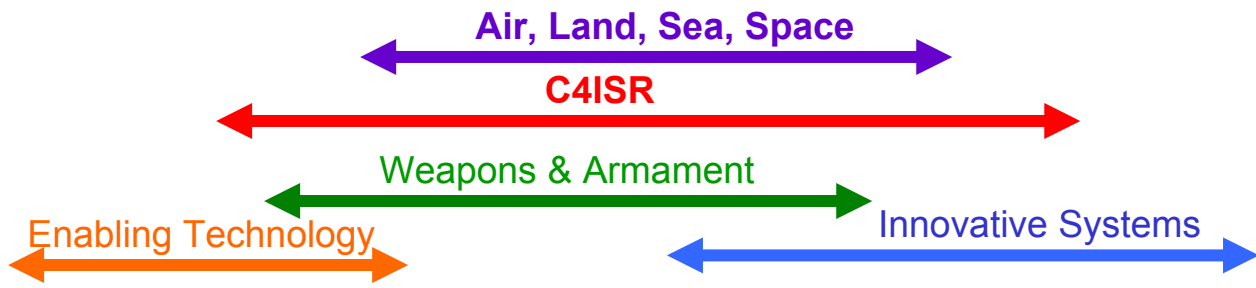
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Battle Plan

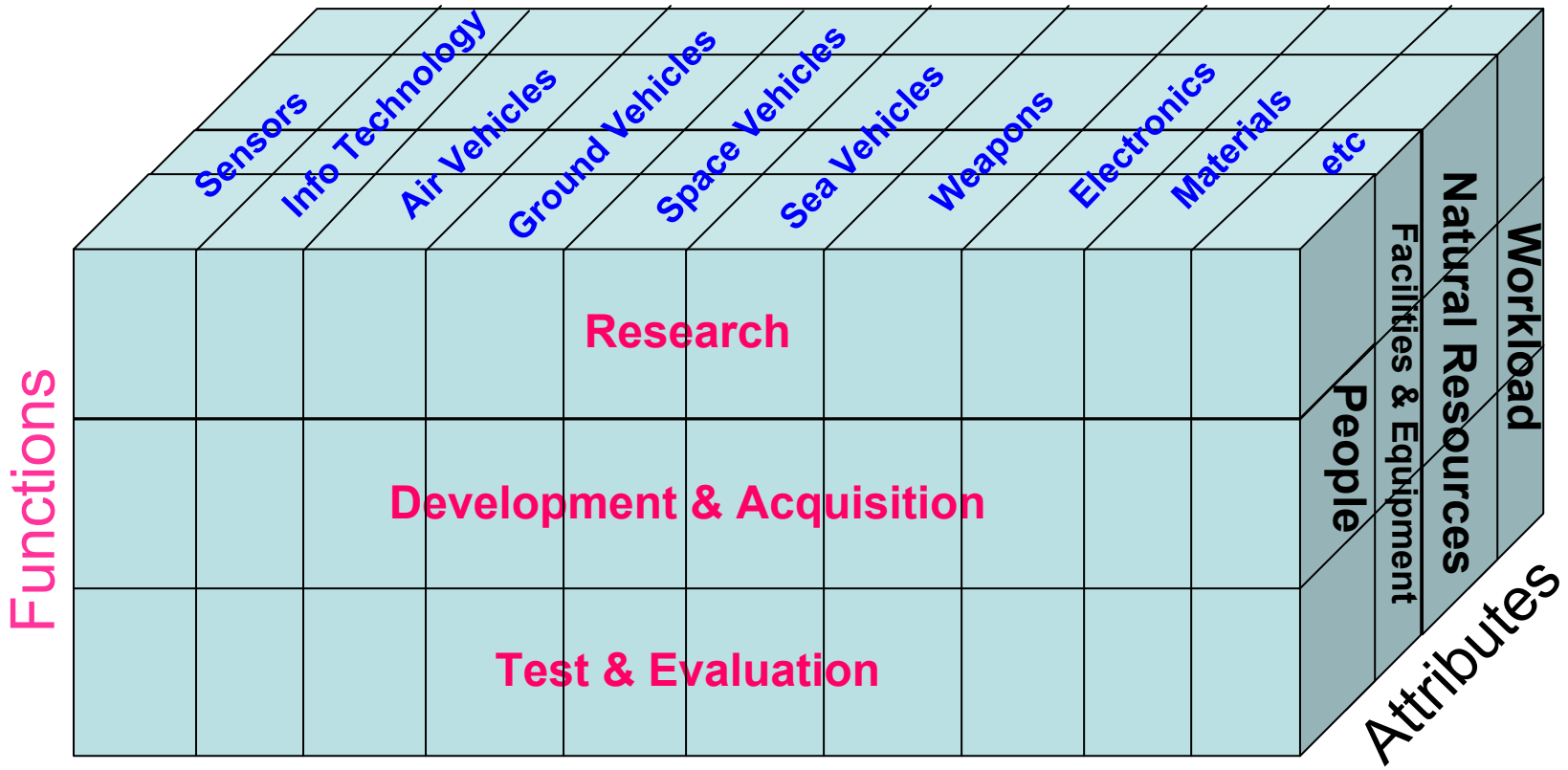


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Technical Capability Areas



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Technical Functions to be Analyzed

--Slide 1 of 3--

- **Research**
 - **Basic Research**
 - *New Science Knowledge of Interest to Military*
 - *High University Content*
 - **Exploratory Development**
 - *Applied Research into New Technologies*
 - *Development of Existing Technology for Military Application*
 - **Advanced Development**
 - *Hardware Development, Integration & Experiments*
 - *Does Not Necessarily Lead to Procurement*

Technical Functions to be Analyzed

--Slide 2 of 3--

- **Development and Acquisition**
 - **Systems Development & Demonstration**
 - *Efforts to Expedite Technology Transition to Military Use*
 - **System Modifications**
 - *Improve Product Affordability, Reliability, Maintainability*
 - **Experimentation and Concept Demonstration**
 - *Exploit Mature Technologies to Solve Military Problems*
 - **Product/In-service Life-Cycle Support**
 - *Check-out of System after modification or upgrade*

Technical Functions to be Analyzed

--Slide 3 of 3--

- **Test and Evaluation (supporting RD&A)**
 - **Developmental Test and Evaluation (DT&E)**
 - *Technical Performance & Safety*
 - **Operational Test and Evaluation (OT&E)**
 - *Effectiveness & Suitability Under Realistic Operating Conditions Including Combat*
 - *Determine if Critical Operational Issue Have Been Satisfied to Improve Combat Operations*

Assumptions for Developing Attributes

- **Technical functions (research, development and acquisition, and test and evaluation) support technical capability areas (each has a technical working group)**
 - Air, Land, Sea & Space
 - Weapons & Armaments
 - C4ISR
 - Enabling Technology
 - Innovative Systems
- **The Technical Working Groups identified four attributes common to all three functions**
 - **People:** *Describe workforce & what they do*
 - **Facilities & equipment:** *What the facility has*
 - **Natural Resources:** *Notable Geography, Climate features & Environmental operating constraints*
 - **Workload:** *Current use of people, facilities & equipment, natural resources, funding*

Notional Formulation

$$\text{Technical Capability} = \int \text{F (Attributes)}$$

Functions

Where:

**Technical Capability = F (C4ISR; Land Sea Air & Space Systems;
Weapons & Armaments; Innovative Systems; Enabling Technology)**

$$\int \text{Functions} = \int \text{Test \& Evaluation} \int \text{Development \& Acquisition} \int \text{Research}$$

Attributes = people, facilities & equipment, natural resources, workload

Notes:

- **Capacity Data Call = Capture “Current” Variables**
- **Military Value Call = Extend to “Future” Variables and Initial Weighting**
- **Scenarios = Adjust weighting and Optimize Technical Capability**

Capacity Analysis Methodology

Attribute—People

- **People:** Human/Intellectual Resources, Describe Workforce & What They Do
 - Metrics / Measuring Units
 - Number of DoD Technical & Contractors / Total Number of People by Specialty Code; Military, Civilian, Experience
 - Education & Experience / Academic Credentials, Technical Credentials & Acquisition Credentials; Professional Certificates
 - Training / Training budget; number of people enrolled in academic institutions (high school, junior college, undergraduate, graduate, professional certification)

Capacity Analysis Methodology

Attribute—Facilities & Equipment

- **Facilities & equipment:** sum of what is available to the workforce
 - **Metrics / Measuring Units**
 - Facilities Space (Buildings, Laboratories, Offices, etc) / square Feet, % occupancy, operating hours/year
 - Commercial equipment inventory / type, number of units
 - Specialized & custom equipment inventory (e. g. anechoic chamber) / quantify special & custom features; size, weight & value
 - Utilities / kilowatt hours, cubic feet per hour, gallons per day, etc.
 - Internet & information technology / type of connectivity

Capacity Analysis Methodology

Attribute—Natural Resources

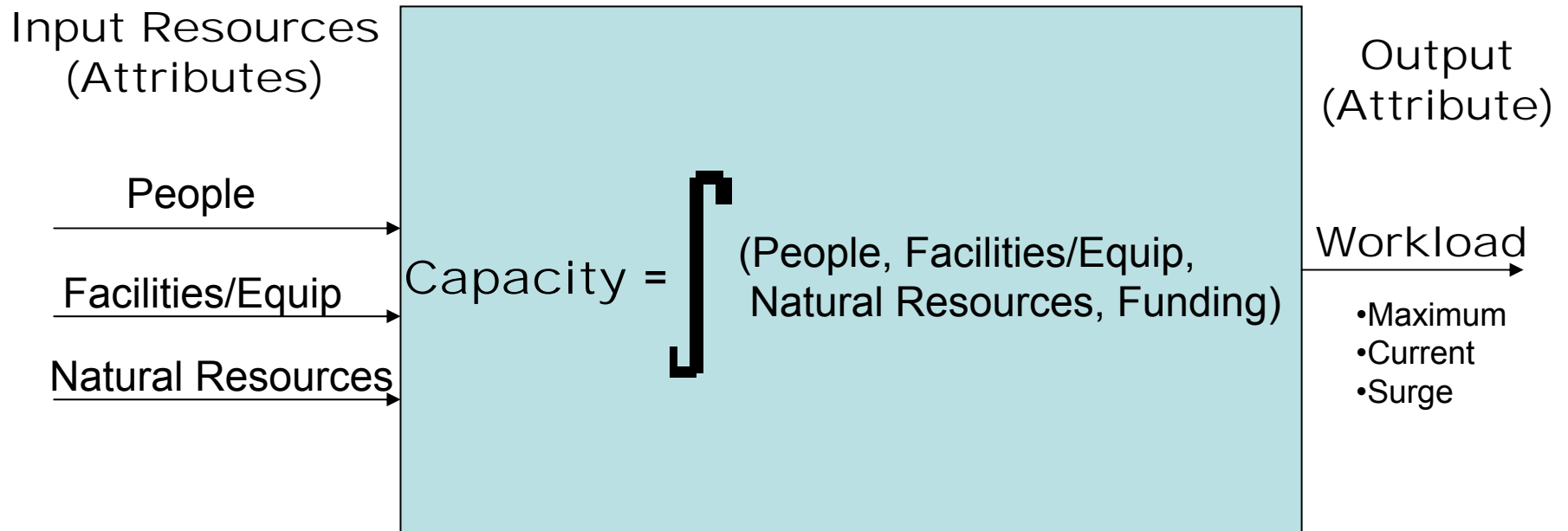
- **Natural Resources:** Notable Geography & Climate Features & Environmental Operating Constraints
 - Metrics / Measuring Units
 - Air/Land/Sea/Space / volume & DoD access
 - Geography / sq miles; Unencumbered space & population within 25, 50, 100 mile radius, further
 - Climate (hot, cold, wet, dry) / days above & below a temperature, days with/without precipitation, number of days that operations are not curtailed by weather
 - Environmental / operating permits, endangered species impacting operations, EPA waivers

Capacity Analysis Methodology

Attribute—Workload

- **Workload:** Current use of people, facilities & equipment
 - **Metrics / Measuring Capacity**
 - **Funding /** actual funding & actual work years; distribution by acquisition category; distribution by acquisition program; distribution by budget activity; funding from external customers
 - **Tests conducted /** total tests & test hours of major facilities; quantify complexity & scope of tests
 - **Transitions & milestones & fielded items /** total number of demonstrations moving from the laboratory to a more mature customer in the past ten years
 - **International & interagency agreements /** number of agreements, average project duration, number of products transitioned by either partner under any agreement

Capacity / Workload Measurement



Capacity / Workload Measurement

Functions

Drivers

Metrics

- S&T → Intellectually intensive → Man-years & number of technology transitions
- Acq/Dev → Program intensive → Programs, classes/types of systems, & funding
- T&E → Facility intensive → Facility hours, number of tests & funding

Future Work Accomplished Depends on:

- Demand
- How resources Integrated/Utilized/Enhanced/etc.
- Feeds Military Value and Scenario Analysis

Capacity / Workload Measurement

Maximum
Workload

-

Current
Workload

-

Surge

=

Available Capacity
for Workload

Surge Requirements

- **Technical Surge Capacity is not well defined**
- **TJSCG envisions at least two elements**
 - **Capacity to do more of what we currently do**
 - a. Capacity needed for current workload
 - b. Maximum demonstrated (& theoretical) capacity
 - ✓ **Surge capacity = b - a**
 - **Capacity to do something technical which will revolutionize warfighting**
 - **Difficult to plan capacity for an unknown technology emerging at an unknown moment in the future**
 - **Reallocation of attributes (people; facilities & equipment; natural resources; workload)**

Surge Requirements

- **Other sources of Surge Capacity**
 - Academic sites
 - Industrial & commercial sites
 - Agencies other than DoD
 - Foreign Governments

Related JCSG Issues

- **Overlaps with other JCSG Groups**
 - No specific issues at this time
 - Ranges (Education & Training JCSG)
 - Communications & Information Tech (Headquarters and Support Agencies JCSG)
 - MJCSG has empowered their members to coordinate directly with the TJCSG Working Group
 - Coordination in Product Development is critical