DETERMINING OPERATIONS & SUPPORT COSTS

The Vredenburg Approach

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Before We Begin…..

- *We Present a Common Definition of Operations and Support (O&S) Costs to Focus on Establishing an O&S Cost Baseline, Major Cost Drivers and Identifying Relevant Stakeholders*

  - *Operations and Support Costs typically include all costs of owning, operating, maintaining and supporting a fielded DoD system and/or platform. This includes costs for: personnel, consumable and repairable items; organizational, intermediate, and depot maintenance requirements; facilities; and sustaining investment.*

Determine the Program Phase

- *Development Programs - O&S Effort*
  - *Emphasizes Supportable Designs*
    - *Educate Design Team to Consider Design Impacts*

- *Production Programs - O&S Effort*
  - *Emphasizes Supportability/Maintainability Requirements*
    - *ID Organic-vs-Contractor Comparative Advantages*

- *In-Service Programs - O&S Effort*
  - *Emphasizes Remaining System/Platform Life*
    - *Use of Actual Data & Determining Sustaining Support*

Key O&S Considerations

- *System/Platform Life Cycle*
- *Operational Readiness and Parameters*
- *Maintenance Concepts incl. Software*
- *COTS Repairs/Replacements*
- *Obsolescence/Parts Availability*
- *Technology Refresh*
- *Vendor Identification*
- *Supply Chain Management*
- *Contractor -vs- Organic*
- *Funding (Requirements) & Appropriations*

Identify & Engage The Stakeholder Team

- *Fleet Reps*
- *Headquarters Reps*
- *In-Service Engineering Activities Reps*
- *Technical Design Agents Reps*
- *Supply System Reps*
- *Contractor Reps*
- *Vendor Reps*

O&S Inputs Template I
(To Stakeholders for Inputs)

General Assumptions						
Identify the System/Platform In-Service Life Cycle (Number of Years):						
Identify the Number of Systems/Platforms (Projected) In-Service for FYXX to FYZZ:						
Identify the Hours of System Operation per Year:						
Identify the Mean Time Between Failures Data for System Equipment:						
Identify the Manpower / Personnel Requirements						
Maintenance					**$8,840**	**System Cost/Year**
Grade	**Specialties**		**Hours**	**Rate**	**Amount**	
E6	AO		60	$18.42	$1,105	
E6	AM		60	$18.42	$1,105	
E6	AB		0	$18.42	$0	
E6	AE		0	$18.42	$0	
E6	AW		120	$18.42	$2,210	
E6	AS		120	$18.42	$2,210	
E6	AT		120	$18.42	$2,210	
Operators					**$9,945**	**System Cost/Year**
E6	AW	3@180Hrs	540	$18.42	$9,945	
ISEA					**$1,034,999**	**Per Year**
		Work Years		**W/Yr Rate**		
Project Leader - GS14/13		1.00		$165,000	$165,000	
Project Engineer - GS13/12		1.00		$150,000	$150,000	
Sustaining Engineering		3.00		$144,000	$431,999	
ILS - GS13/12		2.00		$144,000	$288,000	
Identify the Software Maintenance Activity (SSA) Requirements						
Software Maintenance (SSA)		2.50		$144,000	**$360,000**	Per Year
Identify the Unit Level Consumption Requirements					**$50,000**	**System Cost/Year**
Repair Parts					$45,000	
Expendables					$5,000	
Identify the Maintenance Requirements						
Organizational Maintenance					$3,600	System Cost/Year
Intermediate Maintenance					$10,000	System Cost/Year
Depot Maintenance					$144,000	System Cost/Year
Identify Sustaining Support Requirements						
Engineering Services		(3 M-Yrs @ $150K/M-Yr)			$450,000	Per Year
Provisioned Material						
Support Equipment Replacements						

O&S Inputs Template II
(To Stakeholders for Inputs)

Identify Additional Support Requirements						
Training Support						
Maintenance Training					**$19,963**	**Per Year**
Grade	**Specialties**		**Hours**	**Rate**		
E6	AO		12	$18.42	$221	
E6	AM		16	$18.42	$295	
E6	AB		0	$18.42	$0	
E6	AE		0	$18.42	$0	
E6	AW		800	$18.42	$14,733	
E6	AS		160	$18.42	$2,947	
E6	AT		96	$18.42	$1,768	
Operators Training					**$994**	**Per Year**
O3	LT		0	$30.64	$0	
E6	AW		54	$18.42	$994	
			Work Years	**W/Yr Rate**		
Facility Manpower			3	$150,000	**$449,999**	**Per Year**
Facilities					**$75,000**	**Annual Lease**
Identify Planned Overhauls & Upgrades						
Overhauls						
Sub system refurb: $9.3K/major subsystem+5% of production unit cost					$95,923	5th year/Sys
Tool & Test Equip Refurb: $27K/system					$27,000	5th year/Sys
ECPs (MOD/PROD)						
Field changes: 3 minor @$22K/sys/yr+1 Major @$137K/sys/yr					$203,000	System Cost/Year
		Production Unit Cost				
Identify Disposal Requirements		$802,469		0.05	**$40,123**	**System Cost/Year**

Utilize the Following Data Sources

- *Visibility and Management of O&S Costs (VAMOSC)*
- *Ship's 3-M, Weapon System File (WSF)*
- *Interactive Computer Aided Provisioning (ICAPS)*
- *Cost of Manpower Estimating Tool (COMET)*
- *Analogous Programs/Lessons Learned*
- *Historical Data/Actuals*

Estimating O&S Costs

- *Present a System Model*

- *Focus on the O&S Phase of the Model*
  - *O&S Inputs Templates I and II*
  - *O&S Output Screen*

- *Highlight O&S Phase Cost Estimating Relationships (CERs), Ease of Use and Ability to Readily Tailor to Specific Program Supportability Requirements.*

O&S Phase Output
Life Cycle Cost Model Subset

	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	TOTAL
OPN (Production) Qty	3	3	6	7	7	7	6	5	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
Total Quantity Procured	3	3	6	7	7	7	6	5	0	0	0	0	0	0	1	0	0	0	0	0	0	1	
Total Quantity Deployed	3	6	9	15	22	29	35	40	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
MPN																							
Manpower / Personnel	$62,802	$125,964	$188,946	$314,910	$440,868	$600,826	$755,784	$880,749	$986,719	$986,719	$986,719	$986,719	$986,719	$986,719	$986,719	$986,719	$986,719	$986,719	$986,719	$986,719	$986,719	$986,719	$17,215,000
Maintenance	$221,41	$66,267	$99,401	$165,741	$240,059	$308,455	$387,701	$464,970	$519,226	$519,226	$519,226	$519,226	$519,326	$519,326	$519,326	$519,326	$519,326	$519,326	$519,326	$519,326	$519,326	$519,326	$9,060,574
Operations	$29,034	$59,667	$89,501	$149,168	$216,780	$288,391	$338,038	$417,673	$467,393	$467,393	$467,393	$467,393	$467,393	$467,393	$467,393	$467,393	$467,393	$467,393	$467,393	$467,393	$467,393	$467,393	$8,154,516
MPN SUBTOTAL	$62,802	$125,964	$188,946	$314,910	$441,868	$600,826	$755,784	$880,749	$986,719	$986,719	$986,719	$986,719	$986,719	$986,719	$986,719	$986,719	$986,719	$986,719	$986,719	$986,719	$986,719	$986,719	$17,215,000
O&MN																							
Unit Level Consumption Requirements	$193,000	$300,000	$490,000	$790,000	$1,100,000	$1,490,000	$1,800,000	$2,100,000	$2,290,000	$2,290,000	$2,290,000	$2,290,000	$2,290,000	$2,290,000	$2,290,000	$2,290,000	$2,290,000	$2,290,000	$2,290,000	$2,290,000	$2,290,000	$2,290,000	$41,000,000
Maintenance Activity Requirements	$137,900	$294,000	$512,200	$749,800	$1,024,400	$1,300,200	$1,576,000	$1,812,400	$2,009,400	$2,009,400	$2,009,400	$2,009,400	$2,009,400	$2,009,400	$2,009,400	$2,009,400	$2,009,400	$2,009,400	$2,009,400	$2,009,400	$2,009,400	$2,009,400	$35,637,200
Organizational Maintenance	$11,31	$9,000	$11,700	$17,100	$23,400	$29,700	$36,000	$41,400	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900	$45,900	$814,050
Intermediate Maintenance	$8,730	$25,000	$32,500	$47,500	$65,000	$82,500	$100,000	$115,000	$127,500	$127,500	$127,500	$127,500	$127,500	$127,500	$127,500	$127,500	$127,500	$127,500	$127,500	$127,500	$127,500	$127,500	$2,261,250
Depot Maintenance	$126,000	$260,000	$468,000	$684,000	$936,000	$1,188,000	$1,440,000	$1,656,000	$1,836,000	$1,836,000	$1,836,000	$1,836,000	$1,836,000	$1,836,000	$1,836,000	$1,836,000	$1,836,000	$1,836,000	$1,836,000	$1,836,000	$1,836,000	$1,836,000	$32,562,000
Sustaining Support Requirements	$880,000	$910,000	$1,010,000	$1,220,000	$1,470,000	$1,710,000	$1,960,000	$2,170,000	$2,340,000	$2,340,000	$2,340,000	$2,340,000	$2,340,000	$2,340,000	$2,340,000	$2,340,000	$2,340,000	$2,340,000	$2,340,000	$2,340,000	$2,340,000	$2,340,000	$46,100,000
Engineering Services	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$9,900,000
Provisioned Materials	$325,000	$330,000	$315,000	$525,000	$770,000	$1,015,000	$1,260,000	$1,470,000	$1,645,000	$1,645,000	$1,645,000	$1,645,000	$1,645,000	$1,645,000	$1,645,000	$1,645,000	$1,645,000	$1,645,000	$1,645,000	$1,645,000	$1,645,000	$1,645,000	$29,700,000
Support Equipment Replacements	$270,000	$370,000	$220,000	$270,000	$220,000	$230,000	$270,000	$370,000	$170,000	$220,000	$270,000	$220,000	$220,000	$220,000	$170,000	$170,000	$220,000	$270,000	$220,000	$220,000	$270,000	$170,000	$5,500,000
ISEA	$441,000	$499,000	$488,000	$488,000	$488,000	$488,000	$488,000	$488,000	$488,000	$488,000	$488,000	$488,000	$588,000	$588,000	$588,000	$588,000	$588,000	$588,000	$588,000	$588,000	$588,000	$588,000	$12,994,791
Software Maintenance Activity (SSA)	$292,000	$382,000	$490,000	$490,000	$490,000	$490,000	$490,000	$490,000	$490,000	$490,000	$490,000	$490,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$450,000	$9,719,214
Indirect Support	$183,215	$465,830	$465,830	$465,830	$465,830	$465,830	$465,830	$465,830	$465,830	$465,830	$465,830	$465,830	$465,830	$465,830	$465,830	$465,830	$465,830	$465,830	$465,830	$465,830	$465,830	$465,830	$9,085,745
Maintenance Training	$13,902	$21,804	$21,804	$21,804	$21,804	$21,804	$21,804	$21,804	$21,804	$21,804	$21,804	$21,804	$21,804	$21,804	$21,804	$21,804	$21,804	$21,804	$21,804	$21,804	$21,804	$21,804	$468,795
Operations Training	$6,013	$12,026	$12,026	$12,026	$12,026	$12,026	$12,026	$12,026	$12,026	$12,026	$12,026	$12,026	$12,026	$12,026	$12,026	$12,026	$12,026	$12,026	$12,026	$12,026	$12,026	$12,026	$258,552
Facility Manpower	$26,400	$452,000	$452,000	$452,000	$452,000	$452,000	$452,000	$452,000	$452,000	$452,000	$452,000	$452,000	$432,000	$432,000	$432,000	$432,000	$432,000	$432,000	$432,000	$432,000	$432,000	$432,000	$9,155,400
Program Management Support	$127,621	$402,626	$498,830	$480,476	$445,111	$377,923	$377,923	$377,923	$377,923	$377,923	$377,923	$377,923	$377,923	$377,923	$377,923	$377,923	$377,923	$377,923	$377,923	$377,923	$377,923	$377,923	$8,318,466
Disposal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Overhauls	$0	$0	$0	$482,795	$482,795	$482,795	$965,590	$1,326,522	$1,326,522	$1,326,522	$965,590	$804,658	$804,658	$804,658	$804,658	$804,658	$804,658	$804,658	$804,658	$804,658	$804,658	$804,658	$15,610,371
O&MN SUBTOTAL	$2,067,336	$3,354,665	$3,939,059	$5,163,708	$6,026,336	$6,829,768	$8,383,343	$9,098,674	$9,771,674	$9,771,674	$9,591,743	$9,290,811	$9,390,811	$9,390,811	$9,390,811	$9,390,811	$9,390,811	$9,390,811	$9,390,811	$9,390,811	$9,390,811	$9,390,811	$197,205,000
OPN																							
ECPs (NOD/PROD)	$689,000	$1,210,000	$1,827,000	$3,045,000	$4,666,000	$5,807,000	$7,308,000	$8,526,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$166,460,000
OPN SUBTOTAL	$689,000	$1,210,000	$1,827,000	$3,045,000	$4,666,000	$5,807,000	$7,308,000	$8,526,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$9,541,000	$166,460,000
TOTAL O&S SUPPORT	$2,759,138	$4,690,629	$5,955,005	$8,553,618	$10,954,204	$13,229,574	$16,247,127	$18,498,423	$20,240,393	$20,240,393	$20,079,461	$19,918,530	$19,918,530	$19,918,530	$19,918,530	$19,918,530	$19,918,530	$19,918,530	$19,918,530	$19,918,530	$19,918,530	$19,918,530	$380,540,507

Review Model Output

- *Identify and Assess High Cost Driver Elements*
- *Develop & Implement Cost Reduction Initiatives*
- *Track and Document Initiative Impacts via Accessible Metrics*
- *Emphasize Continuous Refinement via Actuals and User Feedback*

VREDENBURG

CORPORATE CAPABILITIES

SUMMARY

Presented to:

ASN(RD&A)-ARO

VREDENBURG

PURPOSE

- Provide Corporate Overview
- Review Core Competencies

CORPORATE OVERVIEW

- Founded in 1968
- Revenues: $42M in 2000
- Employees: Over 325
- Headquarters: Reston, Virginia
- Branch Offices: New WNY Office in May 01
  - Crystal City, VA - Lanham, MD - Norfolk, VA
  - San Diego, CA - Newport, RI - Phoenix, AZ
- Subsidiary:
  - Karcher Group, Inc.: GSA Specialty Hardware Supplier

CORPORATE ORGANIZATION

President/CEO

Baboyian

Subsidiary

Karcher Group, Inc.

- **Director Publications**
- **Director Human Resources**
- **Director Administration**
- **CFO VP/Finance**
- **VP Contracts**
- **VP Information Technology**

Information Technology

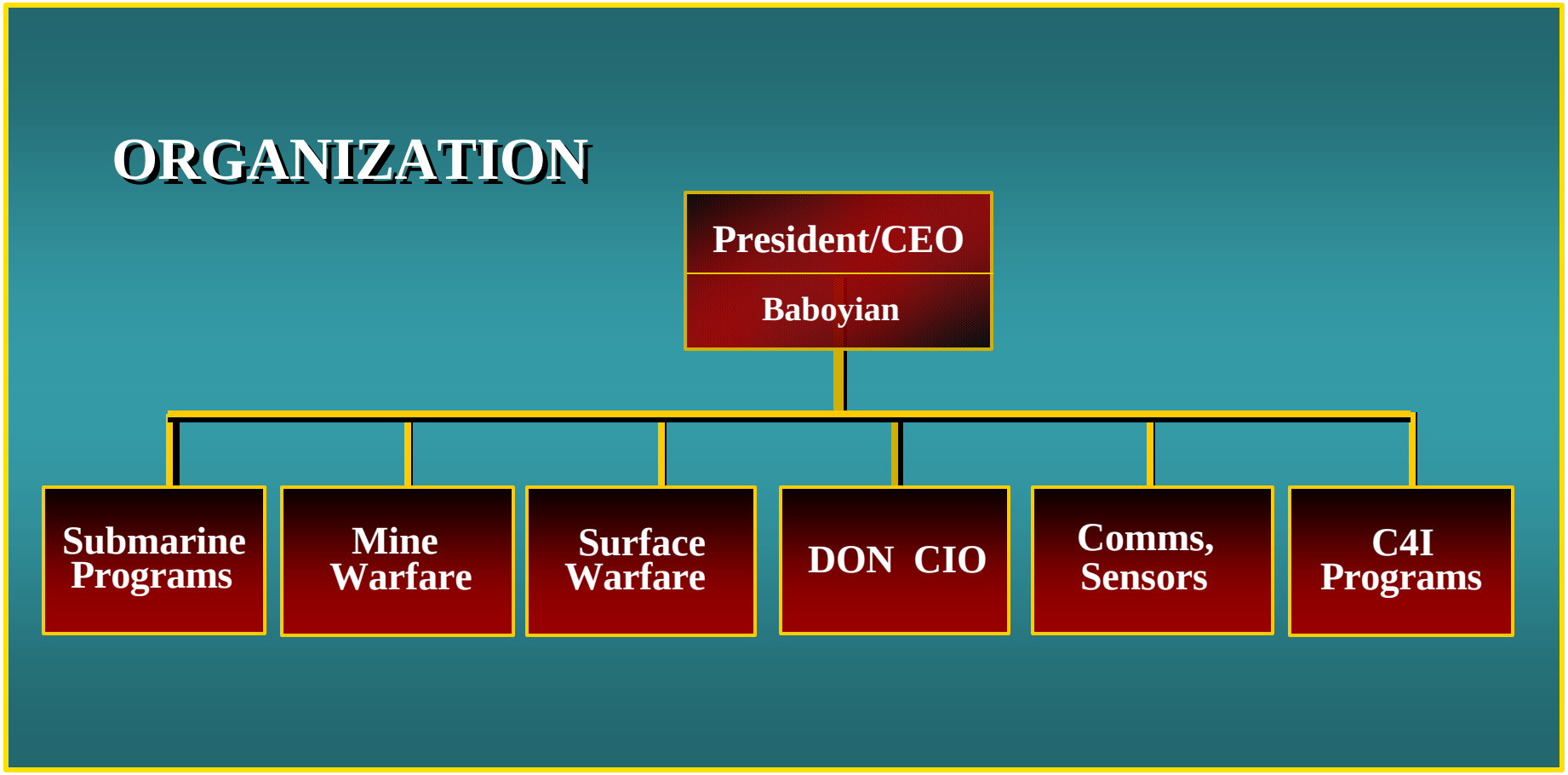
Department of Defense

International

Business Units

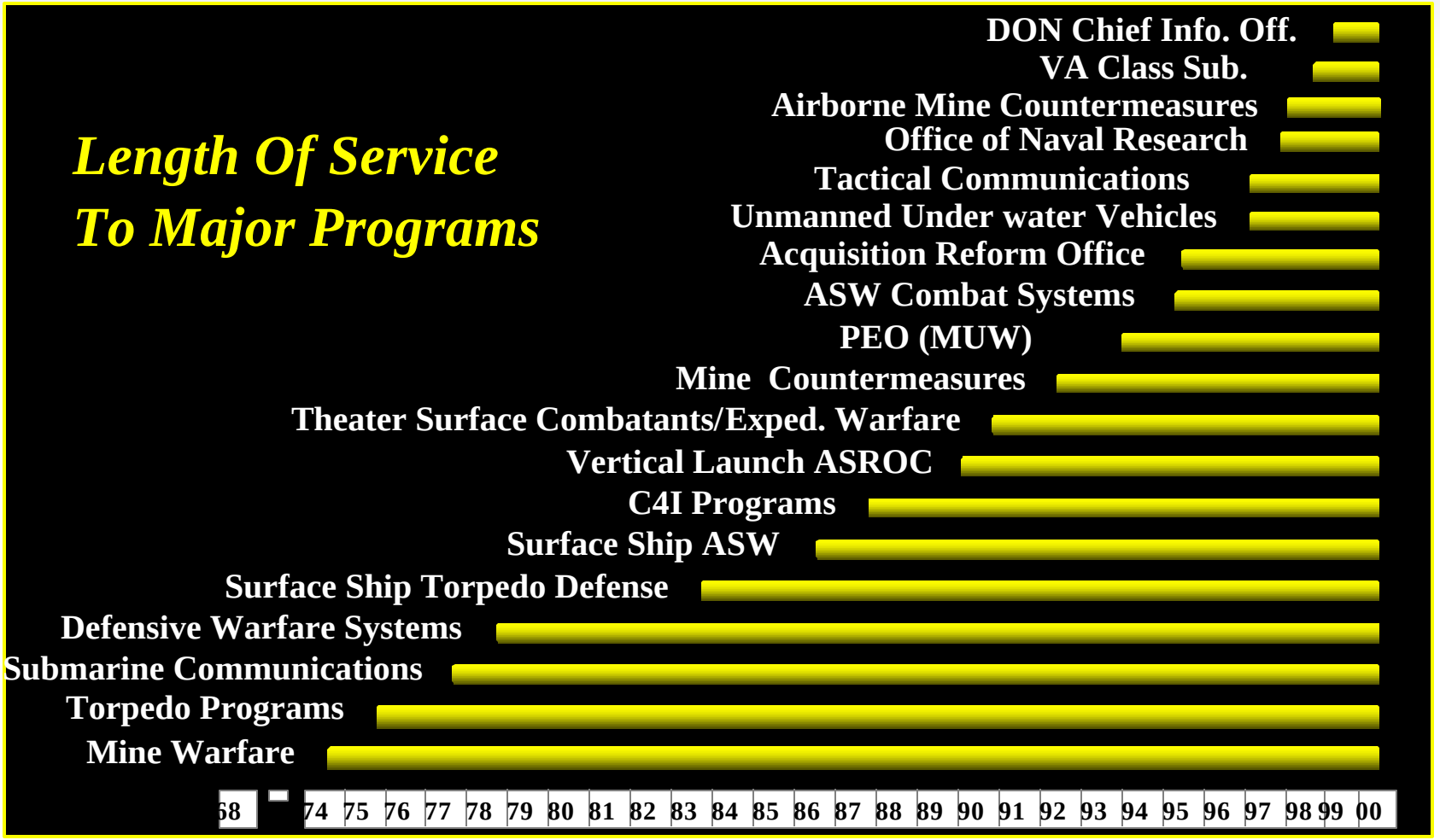
DOD BUSINESS UNIT

ORGANIZATION



DOD CLIENTS

Length Of Service To Major Programs



DOD CORE COMPETENCIES

- **Program/Acquisition Management**
  - Management Plans
  - Acquisition Documentation
  - Life Cycle Cost & Total Ownership Costs
  - Briefing Support
- **Financial Management**
  - Budget Development/Documentation
  - Execution Plans
  - Execution Documentation
  - Financial Management Information System

DOD CORE COMPETENCIES

- **Contract Administration**
  - New Procurement Requests
  - Contact Modifications
  - Earned Value Management
  - CDRL Review

- **Integrated Logistics Support**
  - Logistics Planning
  - Supply Support
  - Technical Data
  - Life Cycle Support

DOD Core Competencies

- Engineering Management
  - Test and Evaluation Support
  - Design Reviews
  - Technical Documentation Development/Review
  - Configuration Management
- Foreign Military Sales
- Information Technology Services
  - Applications Design/Development
  - Network Services Support
  - Web Page Design/Maintenance
  - Records Management

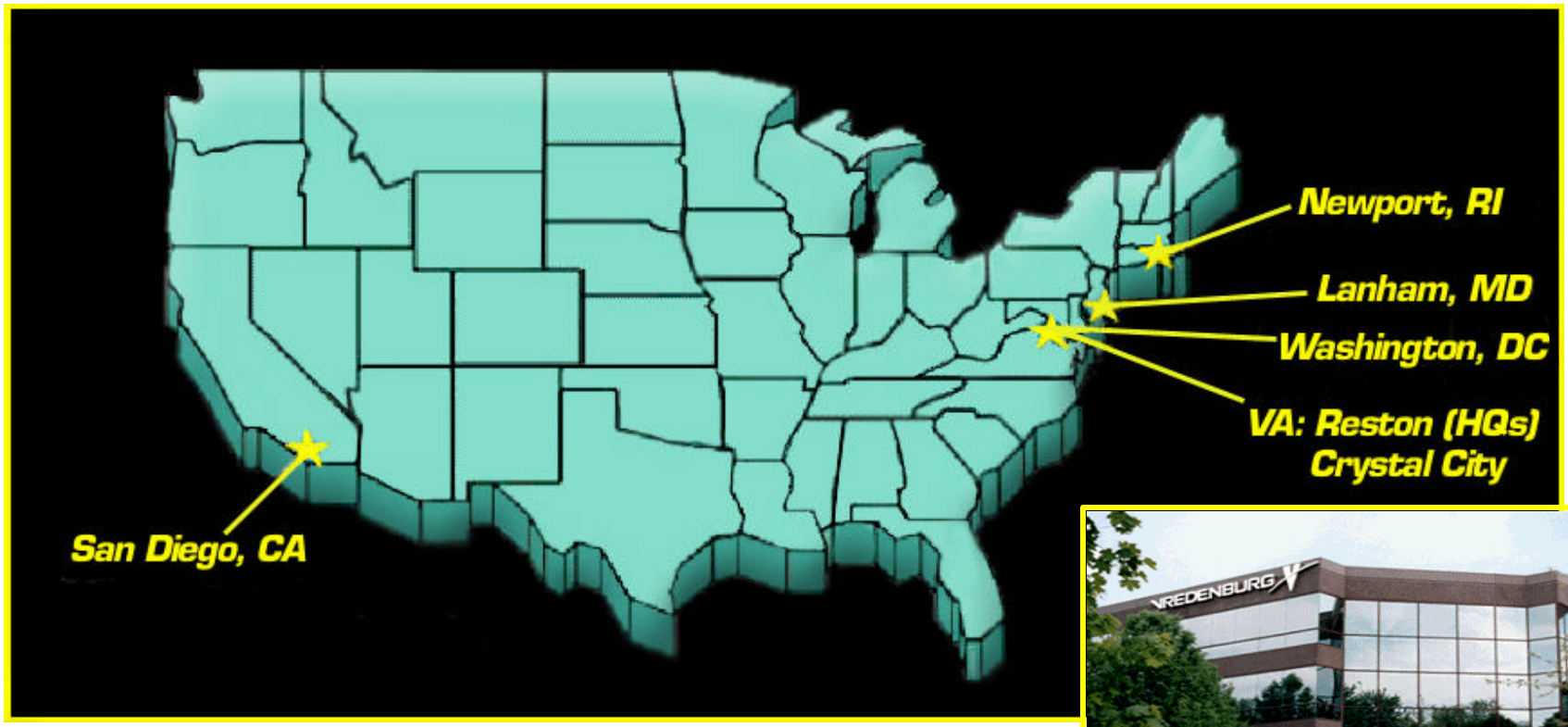
PURPOSE

To Bring Clients Up to Date On:

- **Current Company Resources**
- **DOD Capabilities**
- **IT Capabilities**
- **Vredenburg Today**

OVERVIEW

OFFICE LOCATIONS



Headquarters
Reston, VA

OD SERVICES/EXPERIENCE

SERVICES PROVIDED: / PROGRAMS	Mine Warfare	Submarine Comms	Defensive Warfare	Torpedo Defense	Surface Ship ASW	C4I Programs	Vertical Launch ASROC	Theater SC/EXW	Mine Countermeasures	PEO (USW)	ASW Combat Sys.	Acquisition Reform	PEO-SCS/ MIDS	VA Class Sub.	DON Chief Infor Officer
Program Management	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Financial Management	■	■	■	■	■		■	■	■	■	■	■	■	■	■
Cost / Schedule Assessment	■	■	■	■	■	■	■	■	■	■		■		■	
Cost Estimating	■	■	■	■	■			■	■	■		■	■		
Foreign Military Sales	■		■	■	■			■				■			
Integrated Logistic Support	■	■	■	■	■	■	■	■	■			■		■	■
Config. / Data Management	■	■	■	■	■	■	■	■	■			■	■		
Engineering Management	■	■	■	■	■	■	■	■	■			■	■		
Computer Support	■	■		■	■	■		■	■	■	■		■	■	
Electronic Document Mgmt					■					■	■			■	
YEARS SUPPORTED	27	24	23	18	15	14	12	11	9	8	7	6	4	3	2

INTERNATIONAL BUSINESS UNIT

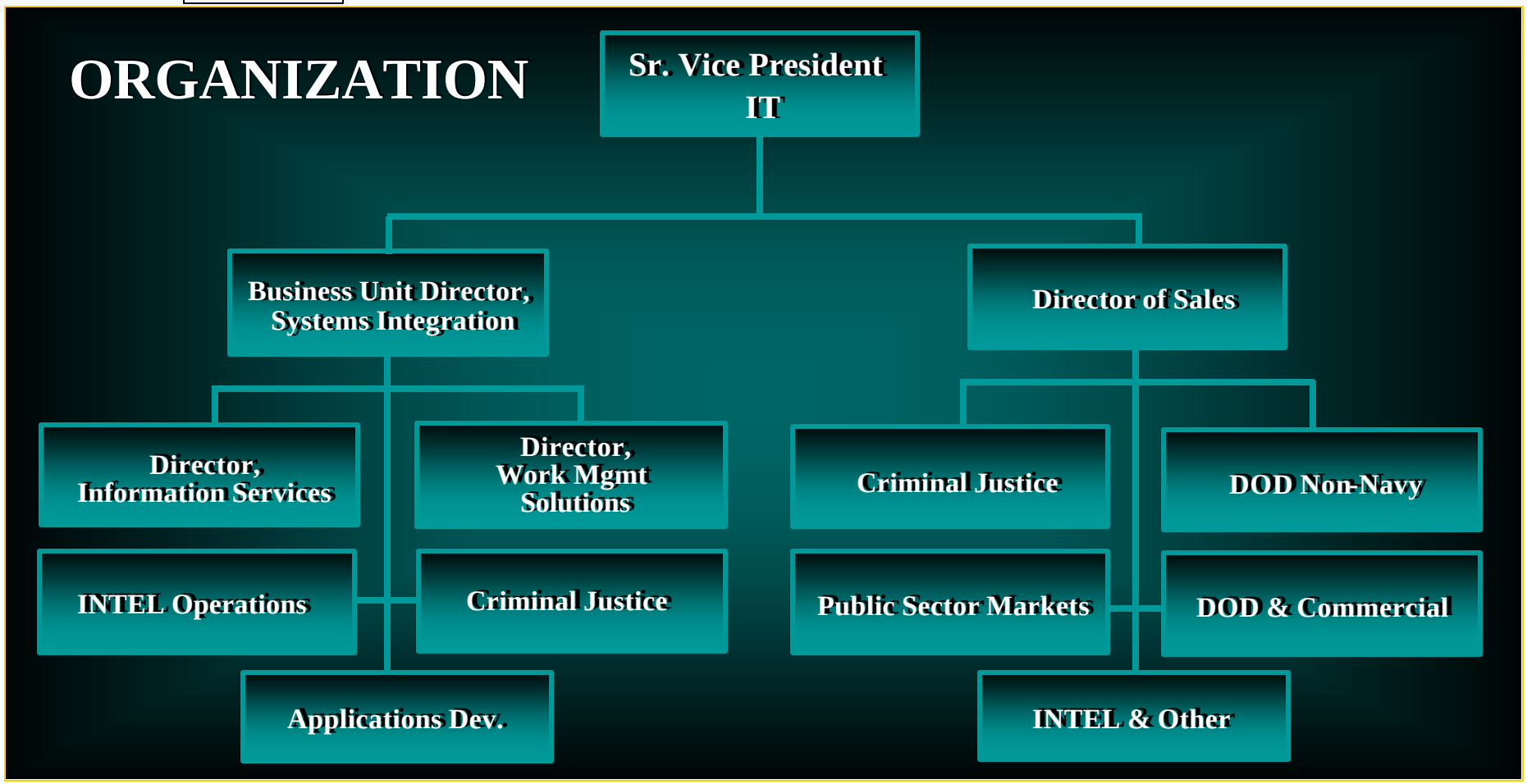
SERVICES PROVIDED

For International Ministries of Defense:

- Acquisition Support . . . FMS or DCS
  - Evaluation/Negotiation of Proposals
  - Project Management
  - Financial and Material Accounting
- Engineering Change Analysis

IT Business Unit

ORGANIZATION

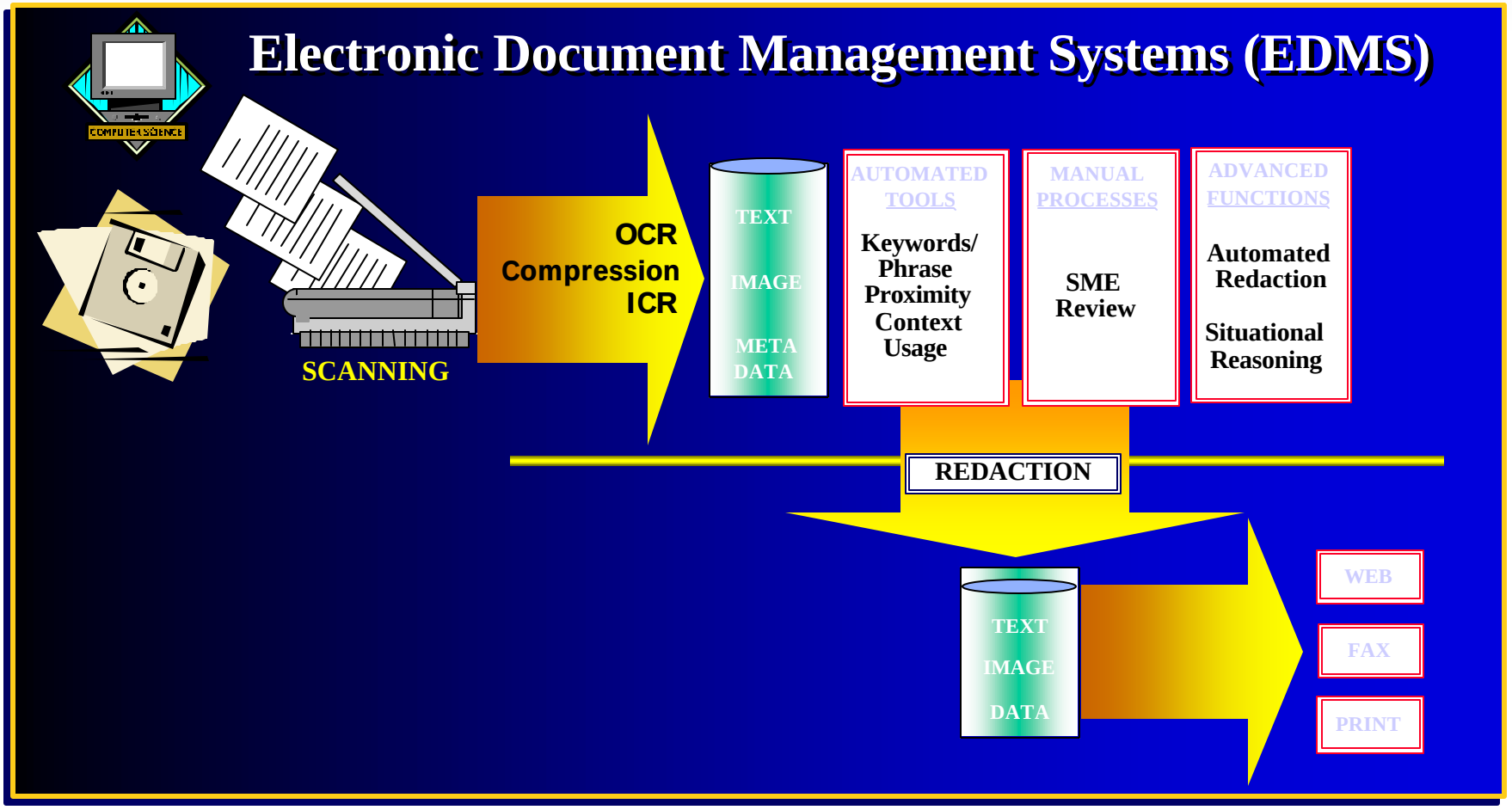


IT CORE COMPETENCIES

SPECIFIC CORE COMPETENCIES

- Document Life-Cycle Management
  - Document Management
  - Records Management (5015.2 Compliance)
- System Life-Cycle Management
  - Network Management
  - Seat Management
- User Driven System Development
  - Web-Based Solutions
  - Exchange-Based Solutions
  - Rapid Prototype Development
- Business Process Reengineering

IT CORE COMPETENCIES



SUCCESS STORIES

- FBI
- National Security Agency (E.O. 12958)
- State of Maryland - Registers of Wills

SUCCESS STORIES

- Social Security Administration
- Patent and Trademark Office

SUMMARY

- **Vredenburg Brings Acquisition/Financial Management Support *And* IT Expertise to Our Clients**

- **Vredenburg is Uniquely Positioned to Provide *Both* Business Management and IT Services**