

***Control Channel Toolkit
A Product Line Initiative
in the NRO***

***GSAW 98
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The CCT vision

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- **Reduced maintenance costs through use of common code across multiple programs**
- **CCT specifically designed to support a family of systems**
 - **Open standards-based architecture**
 - **Easy integration of contractor specific and COTS products**
 - **Flexible implementation options**
 - **Increased interoperability across programs**
- **CCT a focal point for enhancement and evolution**
 - **Stable and robust due to use across multiple programs**
 - **Available for future use on command and control systems**

A Product Line Approach

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- **Domain Analysis**
 - Concerned with classes of real world problem.
 - An Attempt to identify the objects, operations, and relationships between what domain experts perceive to be important about the domain - Neighbors.
 - Domain Evolution
 - » Evolve the domain to attain a desired level of performance.
- **Domain analysis artifacts**
 - Generalized specification
 - Domain definition
 - Domain specification

A Product Line Approach

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- **CCT**
 - **Based on DCCS.**
 - **Problem domain defined by consensus**
 - » Shared paradigm
 - **A product line based on a domain analysis.**
 - » DCCS, SSCS, MALTA
 - **Architecture driven**
 - » architecture needed to define the system context
 - » system architecture key to component analysis.
 - » Infrastructure services specified
 - **Infrastructure based on CORBA services and facilities**
 - » CORBA based
 - **Government use rights**
 - » architecture/components available to contractors for government use

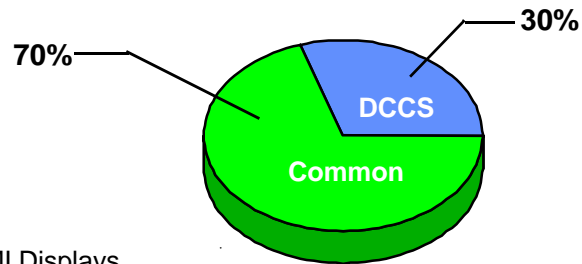
CCT Issues

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- **Baseline management**
 - a single baseline across multiple programs
- **Performance**
 - How do we specify system performance based on components.

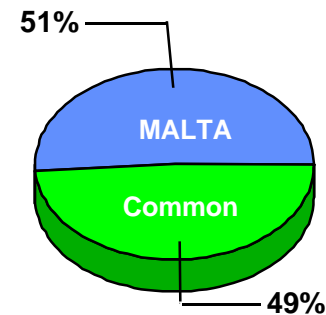
Commonality Among Systems

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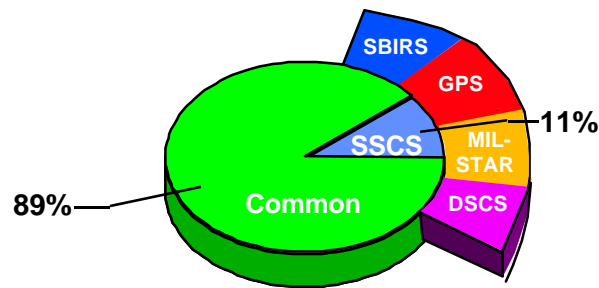
DCCS-specific:

- Mission-specific HMI Displays
- Mission-specific Payload Management
- Mission-specific Scheduling Capabilities
- External Messaging Interfaces
- Mission-specific Ground Hardware
- Unique Maneuvers and Attitude Determination



Malta-specific:

- Mission-specific Interfaces to Additional Hardware
- Mission-specific Scheduling Capabilities
- Mission-specific Payload Management
- Unique Maneuvers and Attitude Determination

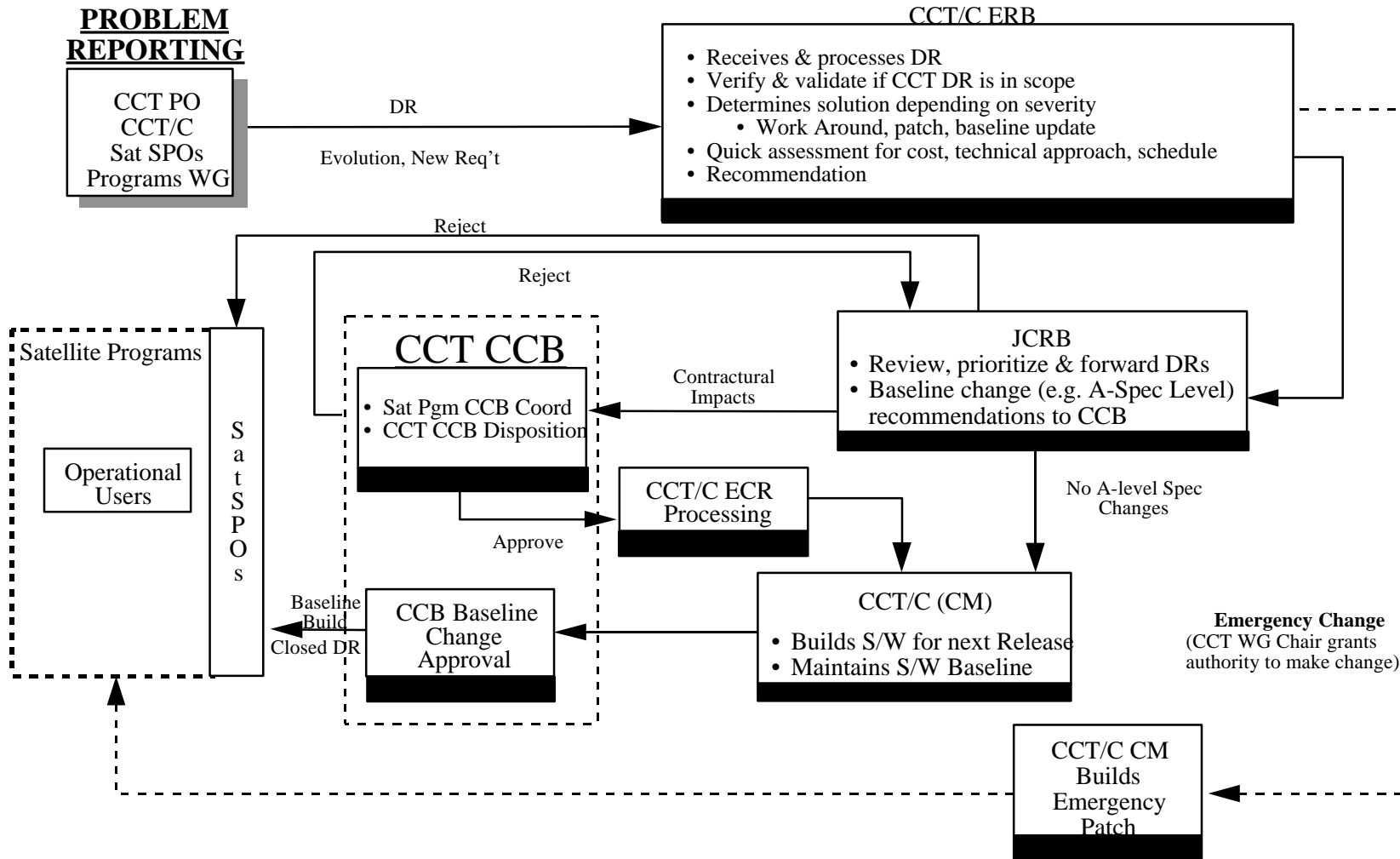


SSCS-specific:

- Ops Concept-driven Timeline and Scheduling
- Ops Concept-driven HMI Components
- External Messaging Interfaces
- Simulate SV Contact Environment
- Unique Maneuvers and Attitude Determination
- Ops Concept-driven Data Security

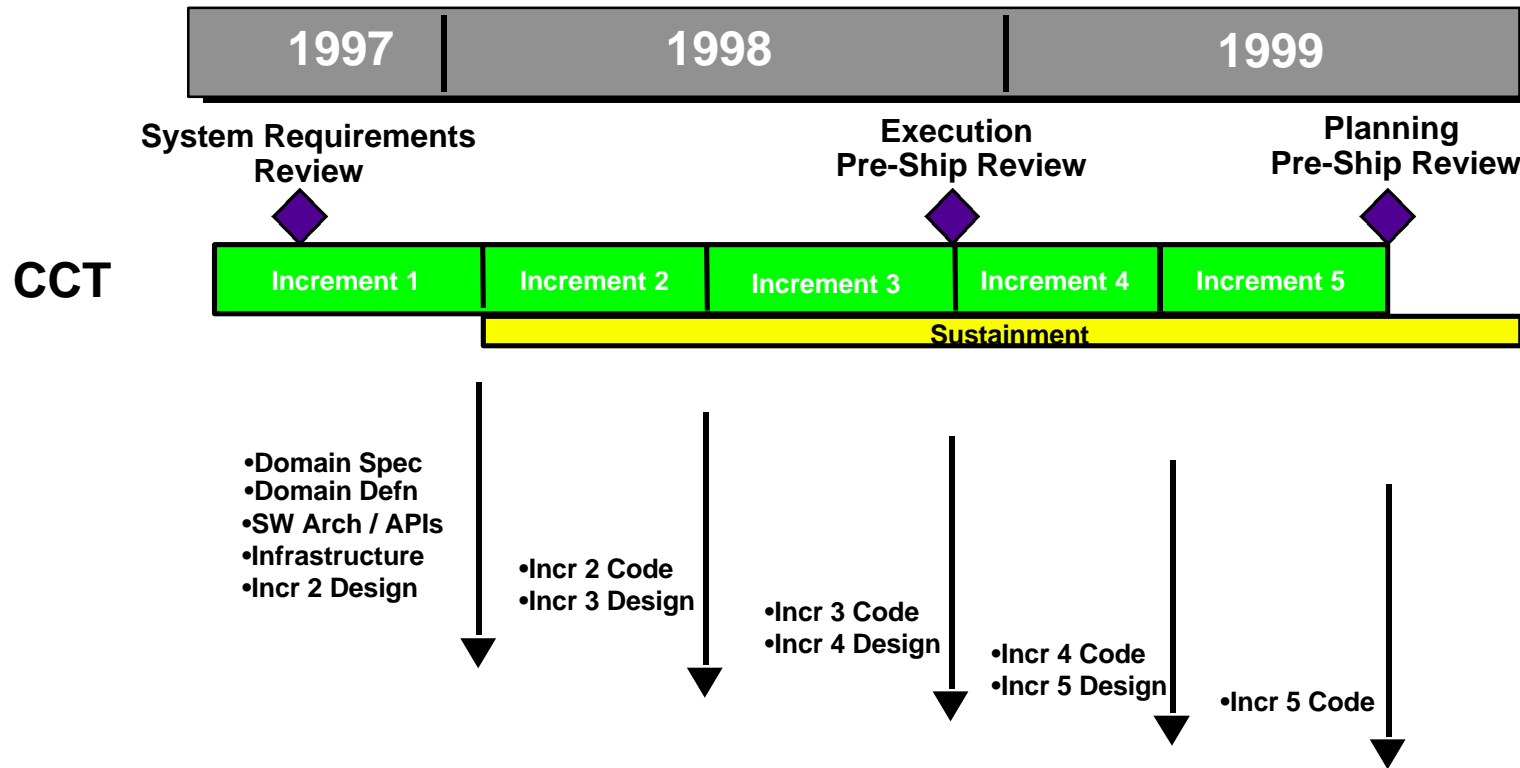
Sustainment Process

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CCT Development Schedule

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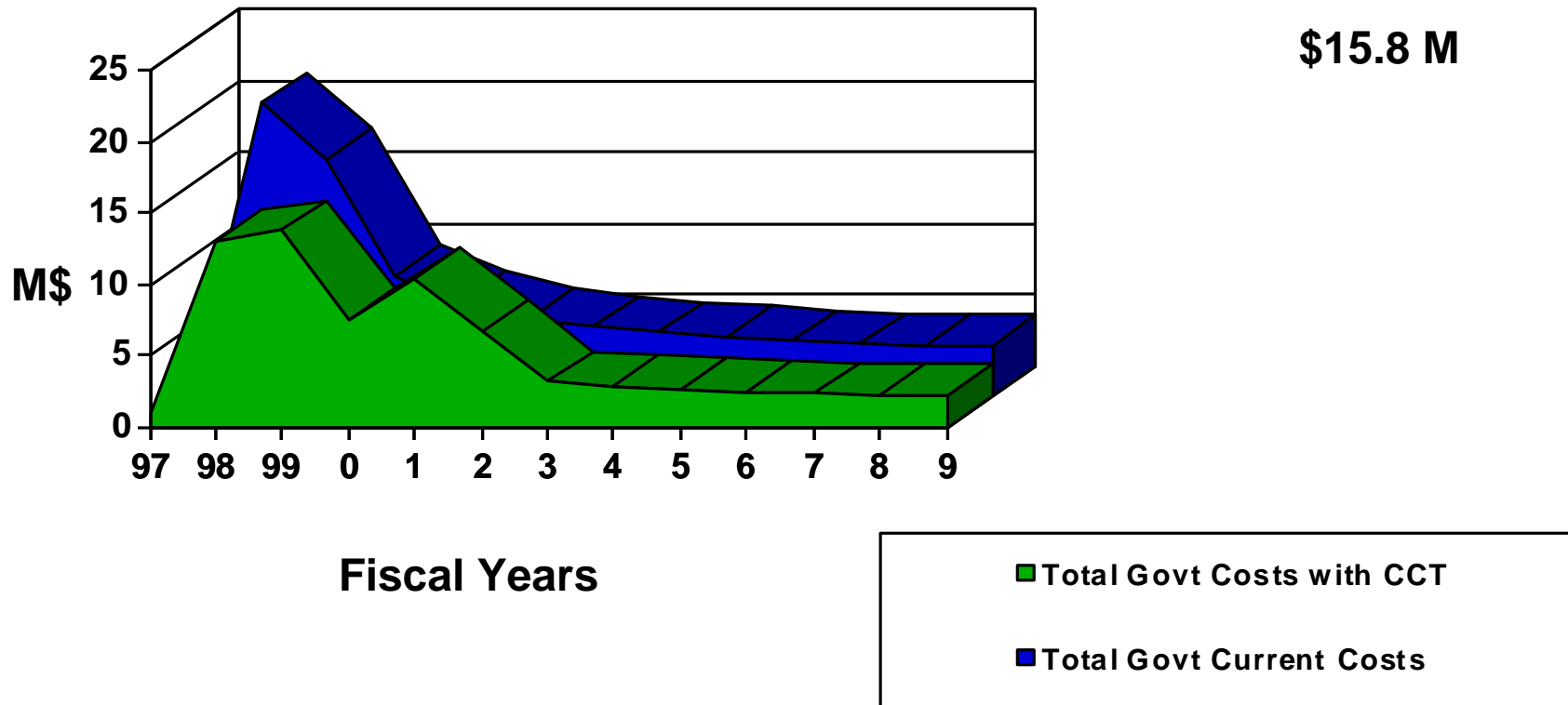
Anticipated Total Government Related Expenditures

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Anticipated Cost Savings With CCT:

18.2%

\$15.8 M



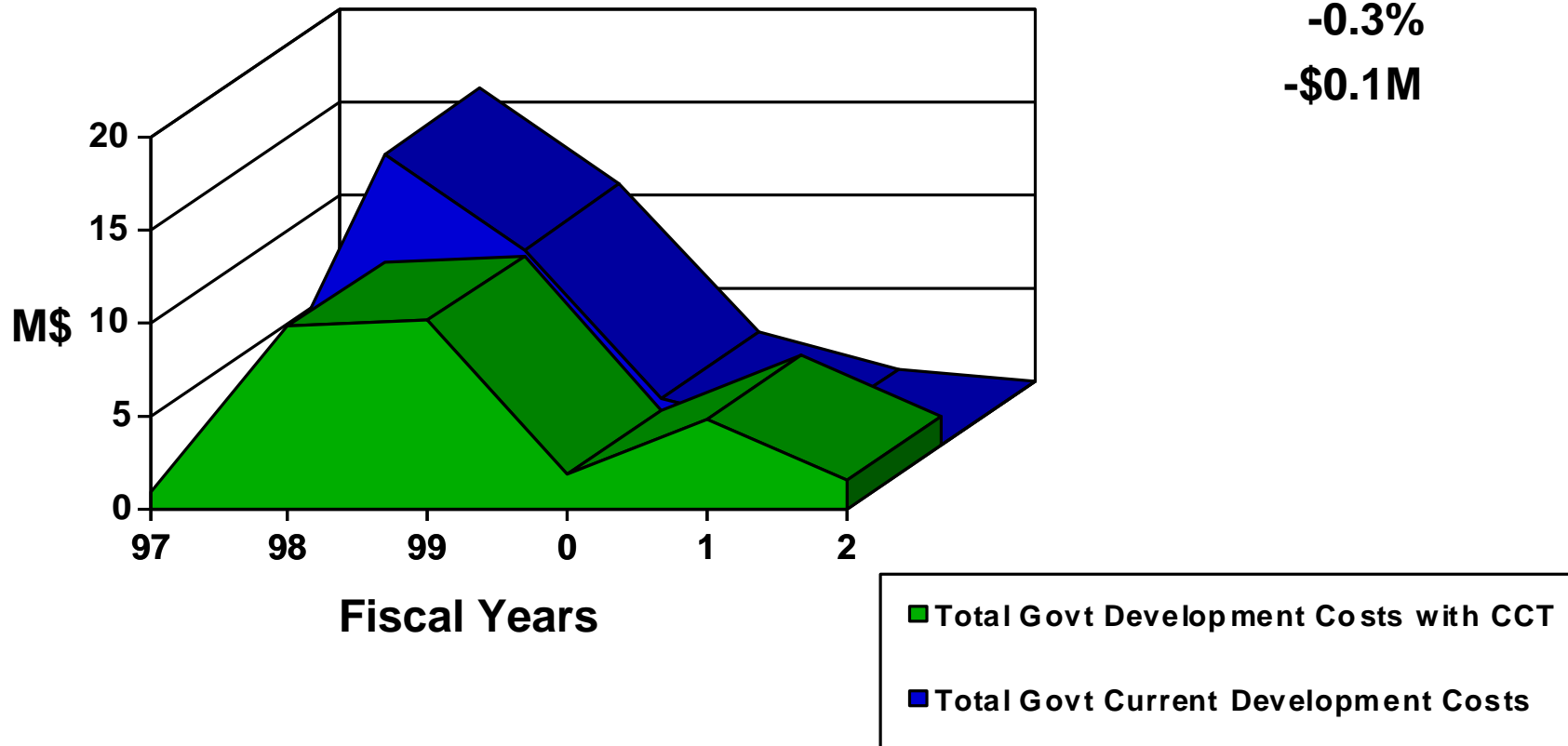
Anticipated Total Government Development Related Expenditures

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Anticipated Cost Savings
With CCT:

-0.3%

-\$0.1M



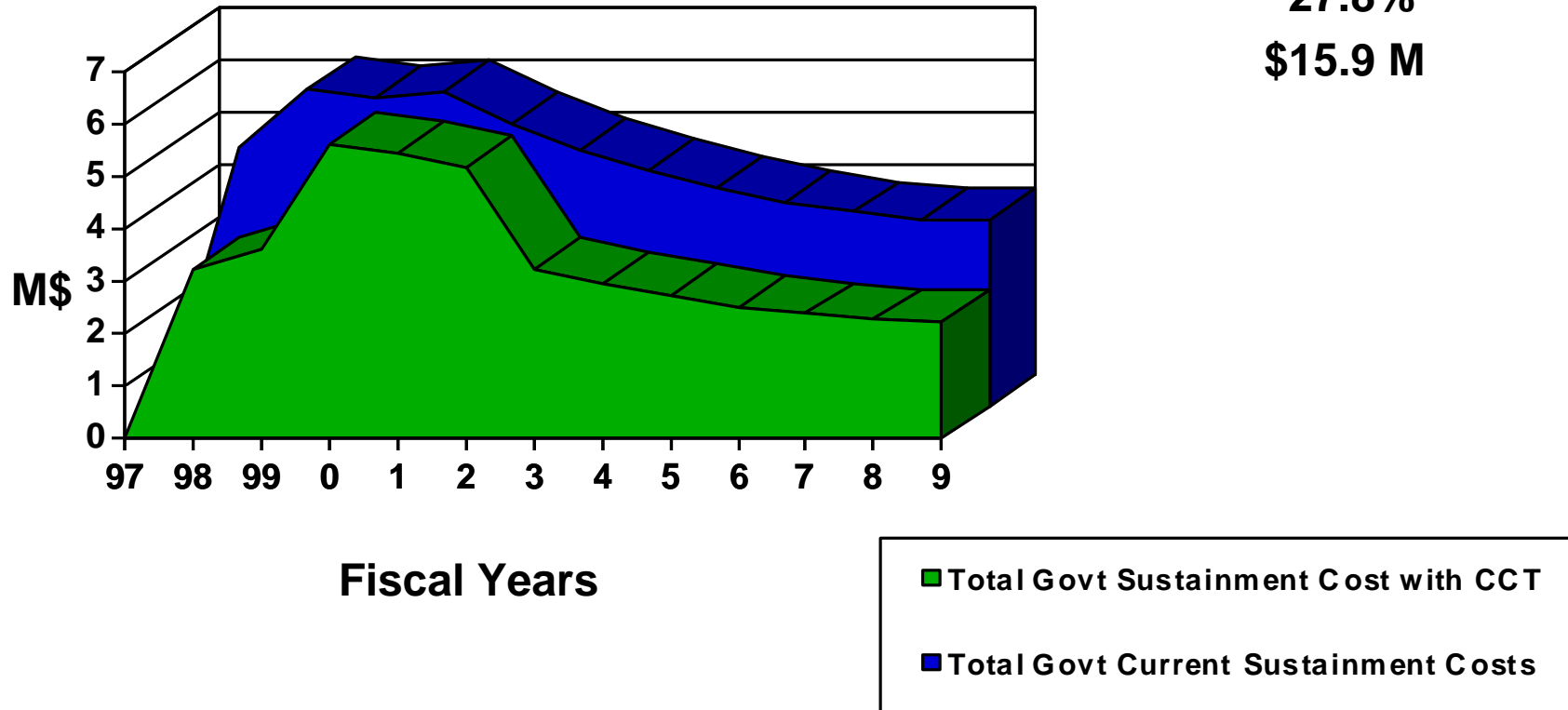
Anticipated Total Government Sustainment Related Expenditures

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Anticipated Cost Savings With CCT:

27.8%

\$15.9 M



Contact

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 - secure **850-3070**

OMG Taxonomy of Services

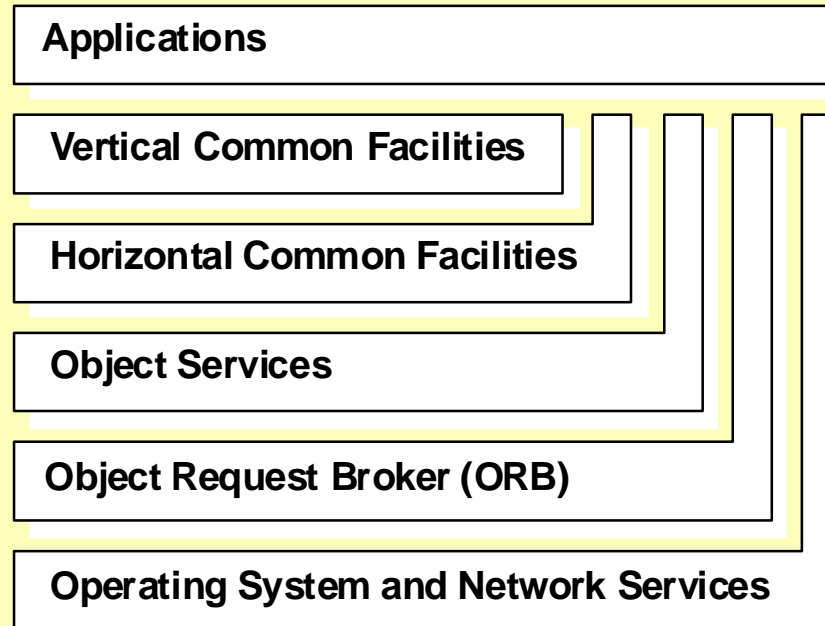
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Vertical Common Facilities

- Accounting
- Application Development
- Computer Integrated Manufacturing
- Currency
- Distributed Simulation
- Imagery
- Information Superhighways
- Internationalization
- Mapping
- Oil & Gas Exploration & Production
- Security
- Telecommunications

Object Services

- Concurrency Control
- Events
- Externalization
- Life Cycle
- Naming
- Persistence
- Relationships
- Transactions
- Licensing
- Properties
- Queries
- Security
- Time Synchronization
- Change Management
- Collections
- Data Interchange
- Replication
- Trading



(Specified — *In-Progress* — *To-Be-Done*)

Horizontal Common Facilities

User Interface

- Compound Presentation
- Desktop Management
- Rendering Management
- Scripting
- User Support

Information Management

- Compound Interchange
- Data Encoding/Representation
- Data Interchange
- Information Exchange
- Information Modeling
- Information Storage/Retrieval
- Time Operations

System Management

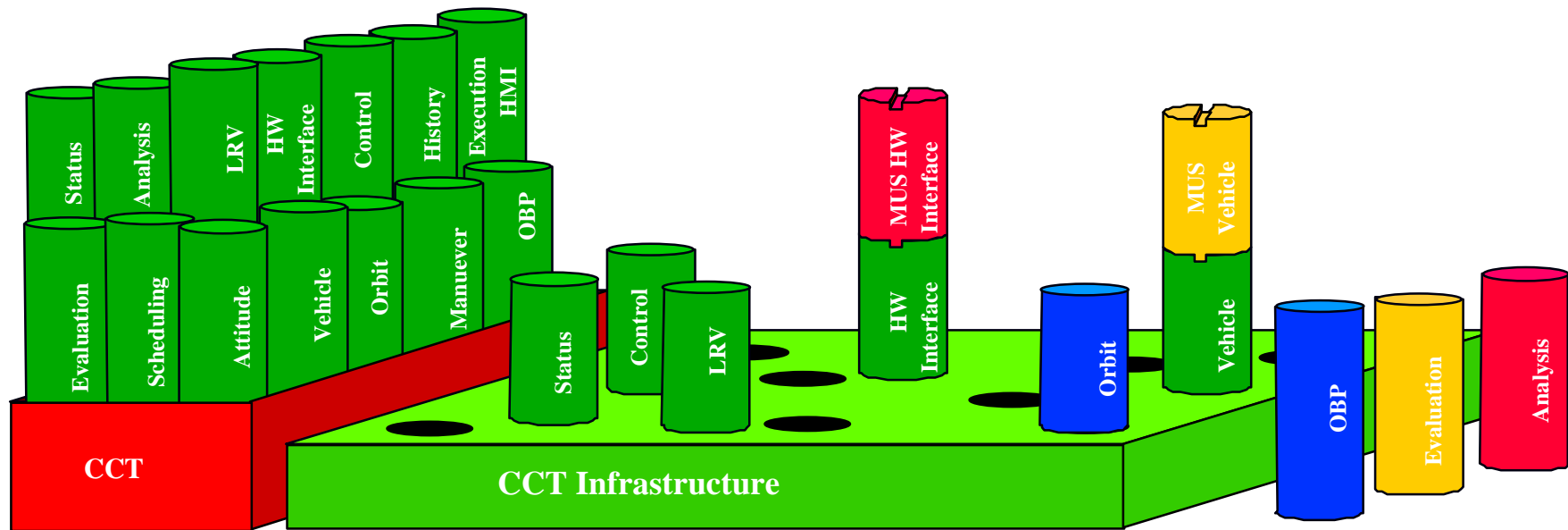
- Collection Management
- Consistency
- Customization
- Data Collection
- Event Management
- Instance Management
- Instrumentation
- Policy Management
- Process Launch
- Quality of Service Mgmt
- Scheduling Management
- Security

Task Management

- Agents
- Automation
- Rule Management
- Workflow

Inside CCT

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Open Reference Architecture Allows:

- Multiple Contractors
- Varying COTS Products
- Differing Concepts of Operation & System Architecture
- Technology Evolution