

# Pacific Operational Science and Technology Conference



*The Art and Science  
of the  
Joint Warfight*

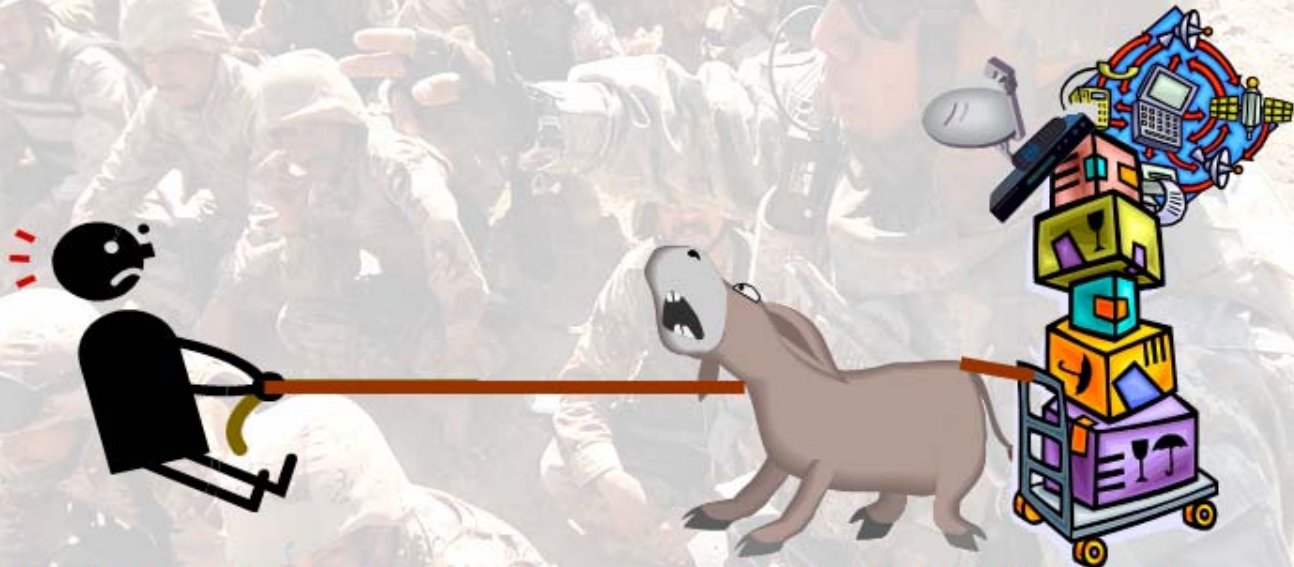
Lieutenant General Bob Wood  
USJFCOM  
16 July 2008

# *Joint Warfighting*

- Jointness is not a natural state – Deserves our best effort
- Our enemy means every word it says
- We will fight future wars with partners
- Our military must improve capability in the irregular fight
- Maintain our conventional dominance
- Design integrated, properly structured joint command and control

*Joint Warfighting is Human Endeavor;  
Technology is a Key Enabler but Not a Silver Bullet*

*“Command and Control (C2) is first and foremost a human endeavor... While materiel solutions, processes, and engineering can enable decision making, command and control is not synonymous with network operations or the employment of advanced technology, rather it maintains the flexibility to exploit both.” --- Gen Mattis’ C2 Vision*



**Leader Requirements**

**Technology Solutions**

**Who’s Serving Who ?**

**Key to Success...  
Achieving the Balance between  
Leader Requirements & Technology**



# The Art and Science of War ... Analyzing the Operating Space

**Targets  
at the  
"Edge"**

**Tactical**

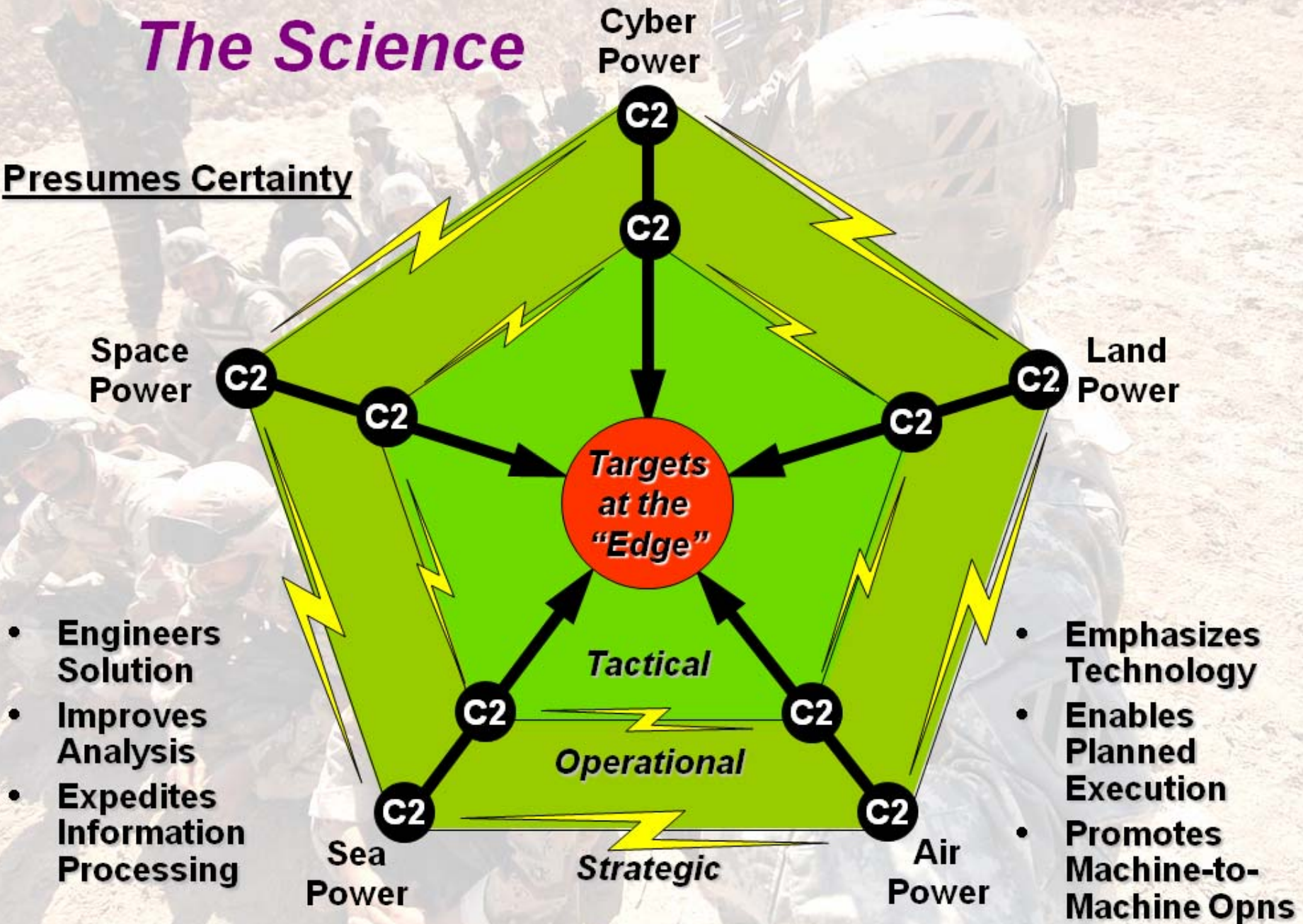
**Operational**

**Strategic**



# The Science

Presumes Certainty



- Engineers Solution
- Improves Analysis
- Expedites Information Processing

- Emphasizes Technology
- Enables Planned Execution
- Promotes Machine-to-Machine Opns



# The Science

Presumes Certainty

## TARGETS

Military Capabilities

Causes of Instability

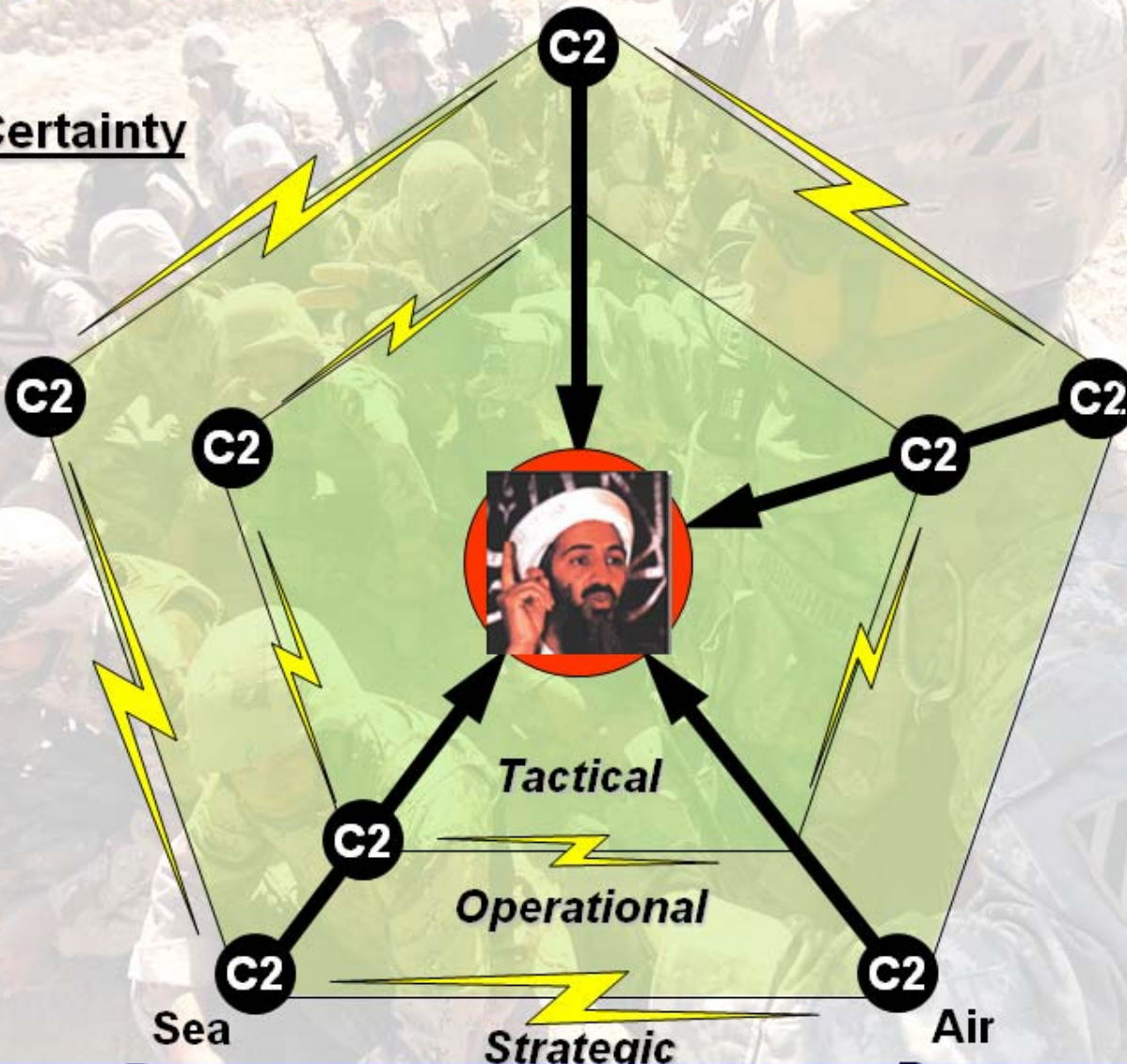
Enabling Networks

Bad Actors

Space Power

Cyber Power

Land Power



Tactical

Operational

Strategic

Sea

Air

Life at the "Edge"



# The Science

Cyber Power

# The Art

Presumes Certainty

Accounts for Uncertainty

Space Power

C2

C2

C2

Land Power

C2

C2



Tactical

Operational

Strategic

Sea Power

C2

C2

C2

Air Power

- Emphasizes Human Factors
- Decentralizes Execution
- Promotes Collaborative Partnerships

- Leverages Strengths
- Exploits Opportunities
- Advantages Initiative



# The Science

Cyber Power

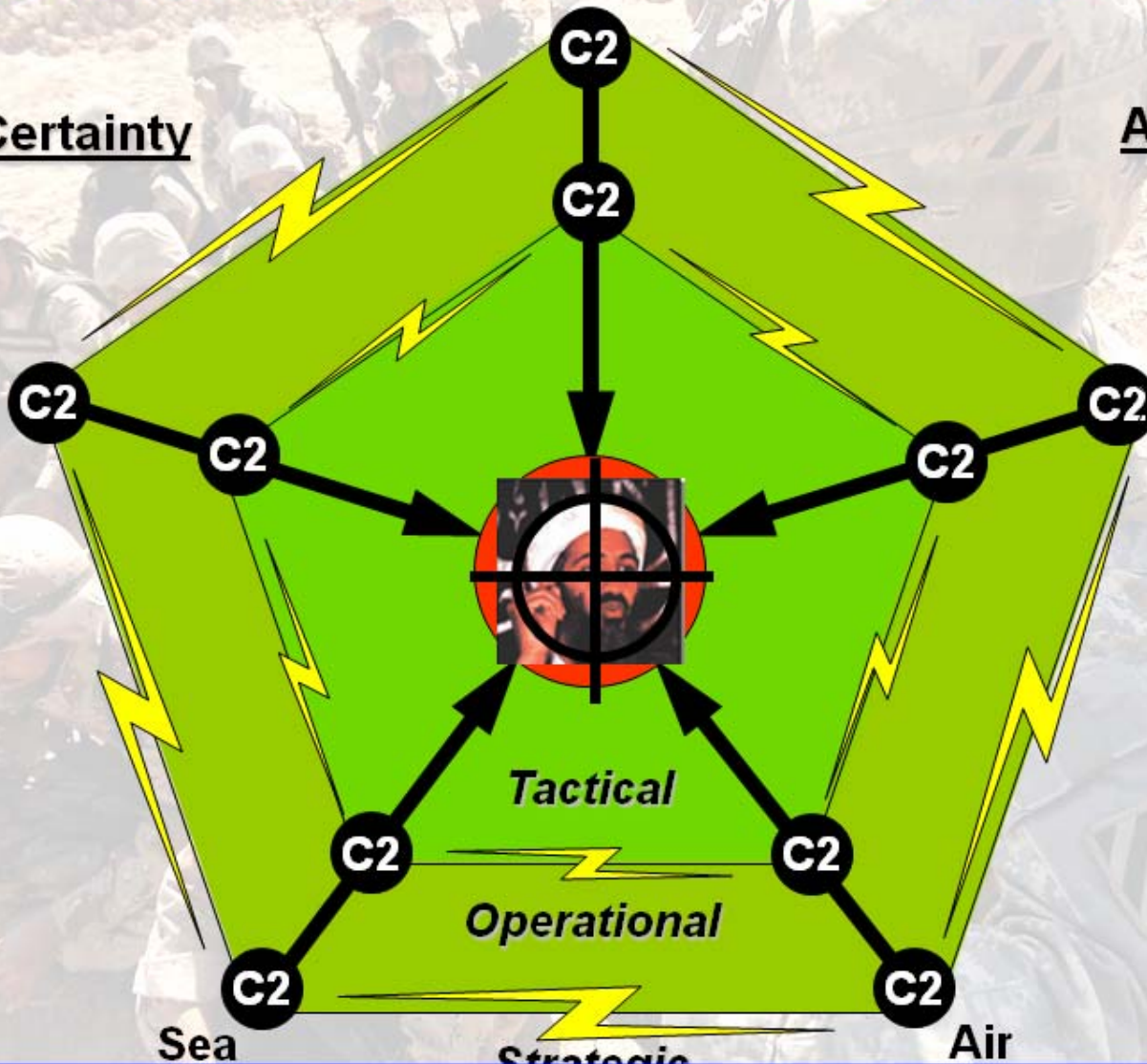
# The Art

Presumes Certainty

Accounts for Uncertainty

Space Power

Land Power



*Find  
... Fix  
.....Finish*

**Dominance Across All Domains  
with Correct Mix of Science and Technology**

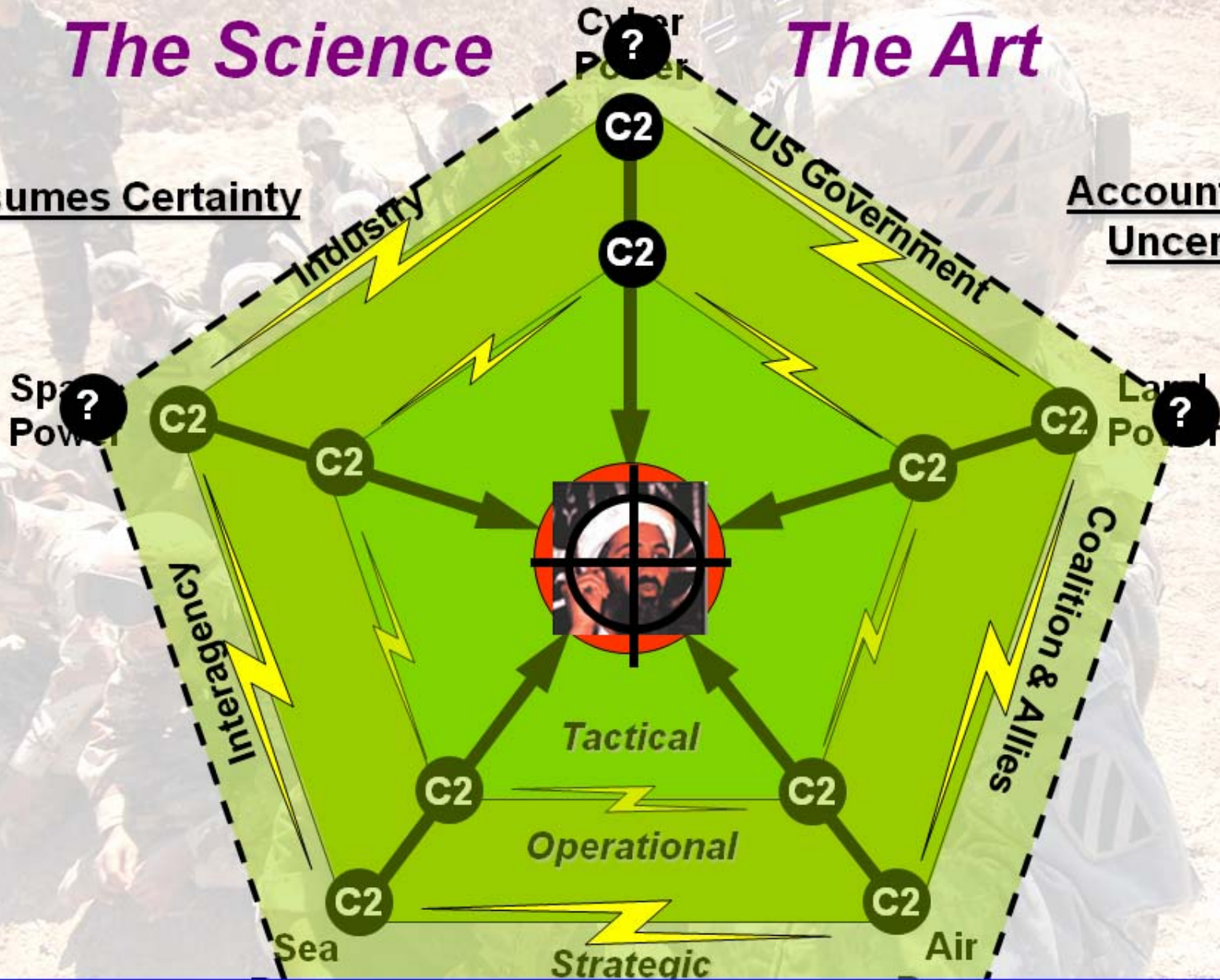


*The Science*

*The Art*

Presumes Certainty

Accounts for Uncertainty



**Leveraging All Elements of National Power**

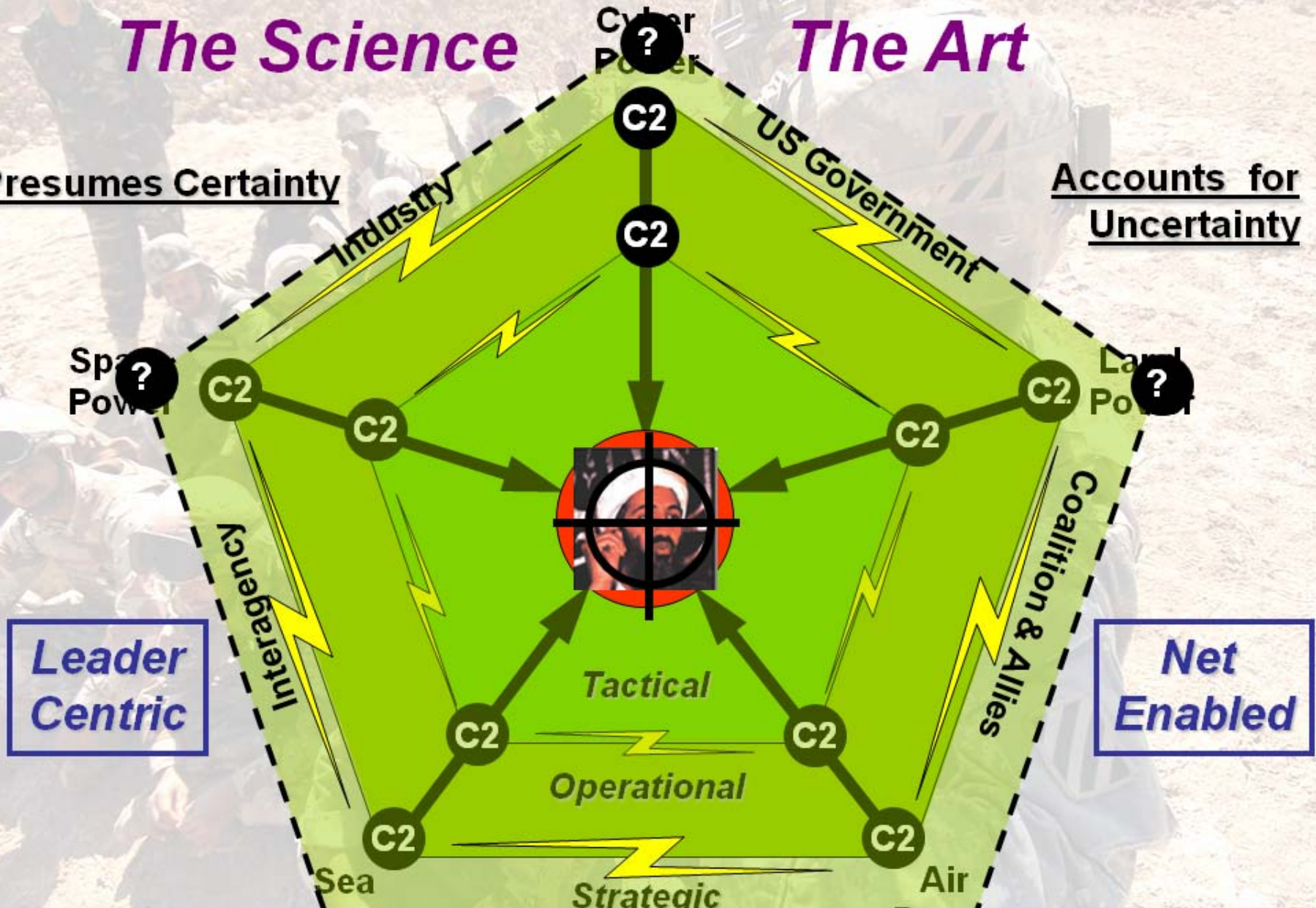


# The Science

# The Art

Presumes Certainty

Accounts for Uncertainty



**Warfighting is fundamentally a Human Endeavour ...  
Don't get lost in the Science when we must execute the Art**



# **CENTCOM C2 Best of Breed Project**

**Over 4000 Systems/Applications in AOR  
– over 1000 considered “C2”**

- Continued delays in development/fielding joint programs of record result in continued proliferation of ‘niche’ applications, and there’s no limit to vendors willing to help.**
- Each operational rotation of forces results in technical integration challenges as they bring their own unique applications.**

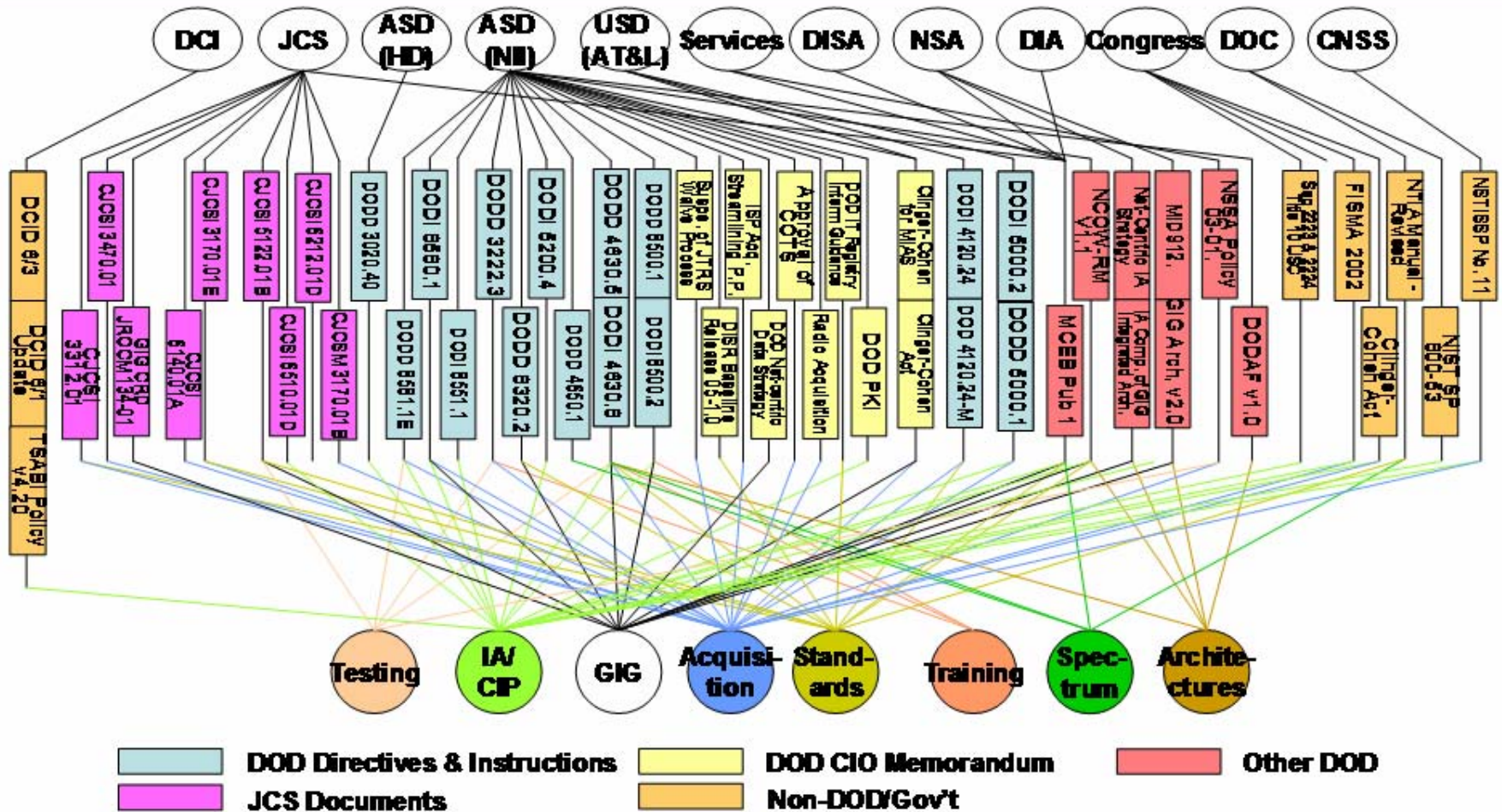


**System/Application proliferation leads to:**

- Poor network situational awareness**
- Lack of interoperability**
- Network inefficiencies**
- Supportability issues**
- Network vulnerabilities**

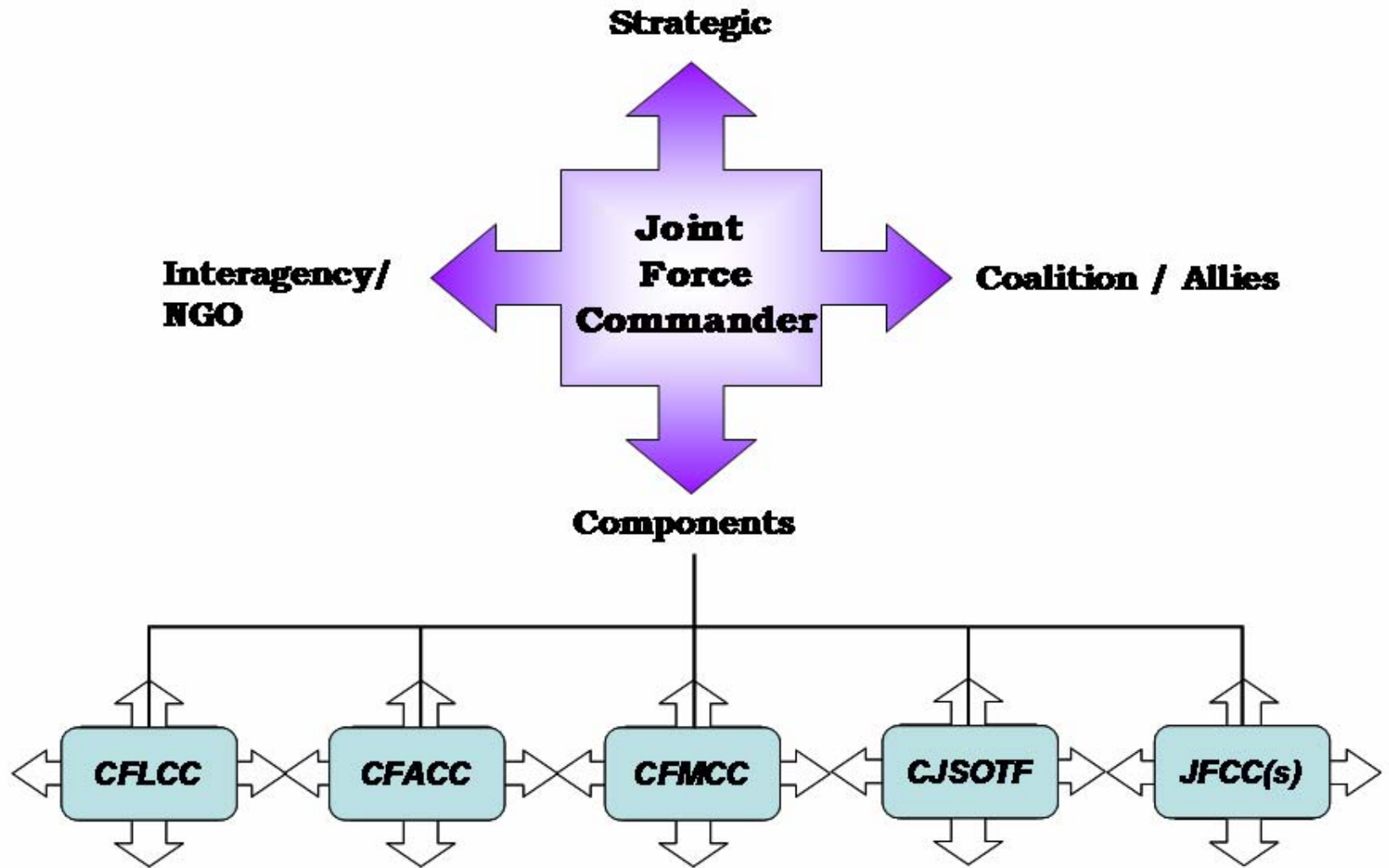
# Global Map of DOD Interoperability-Related Policy Documents

*Current Assessment: Excessive Complexity Among Policy Inhibits Effective Interoperability*

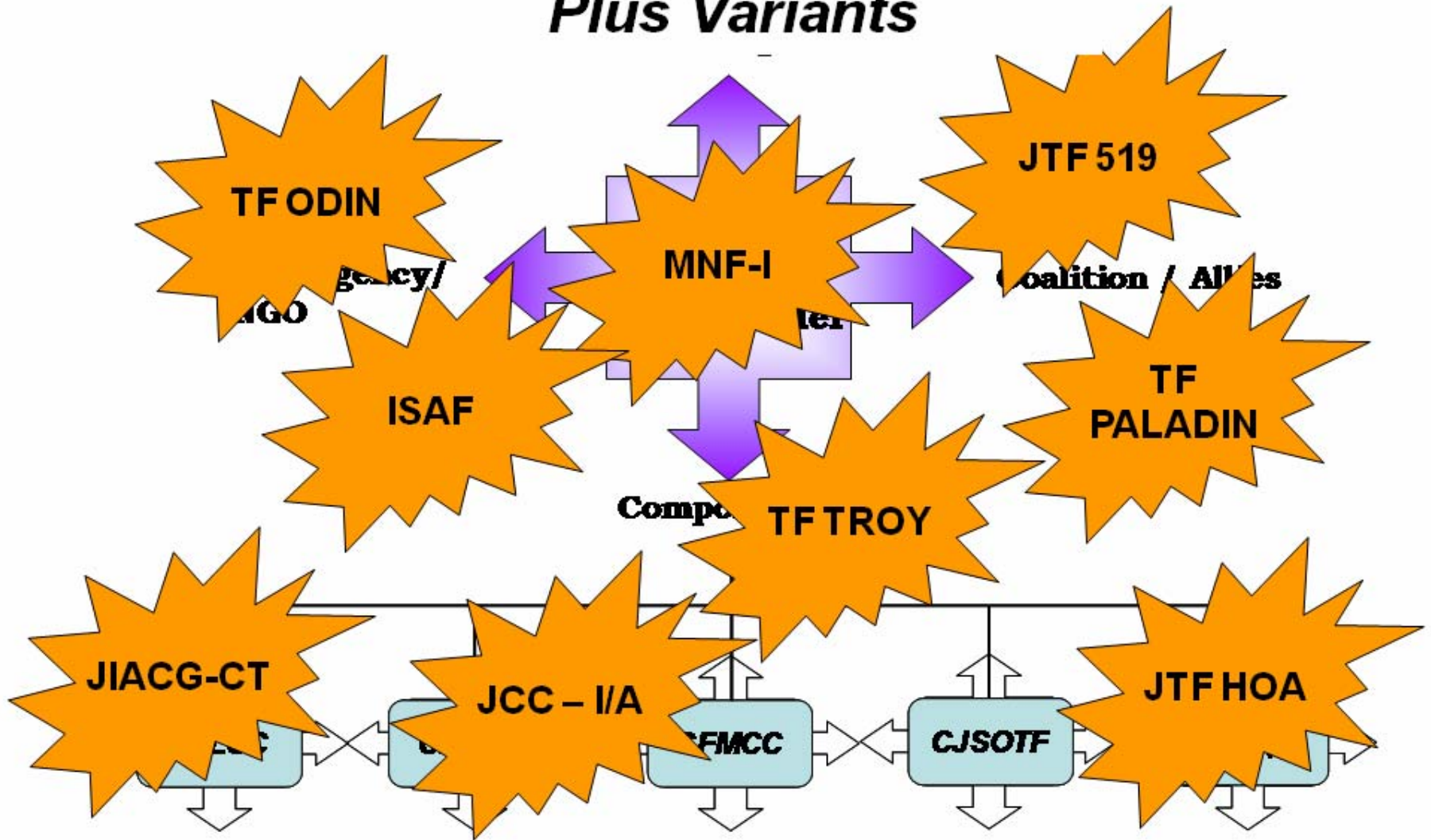




# *The JC2 Domain*



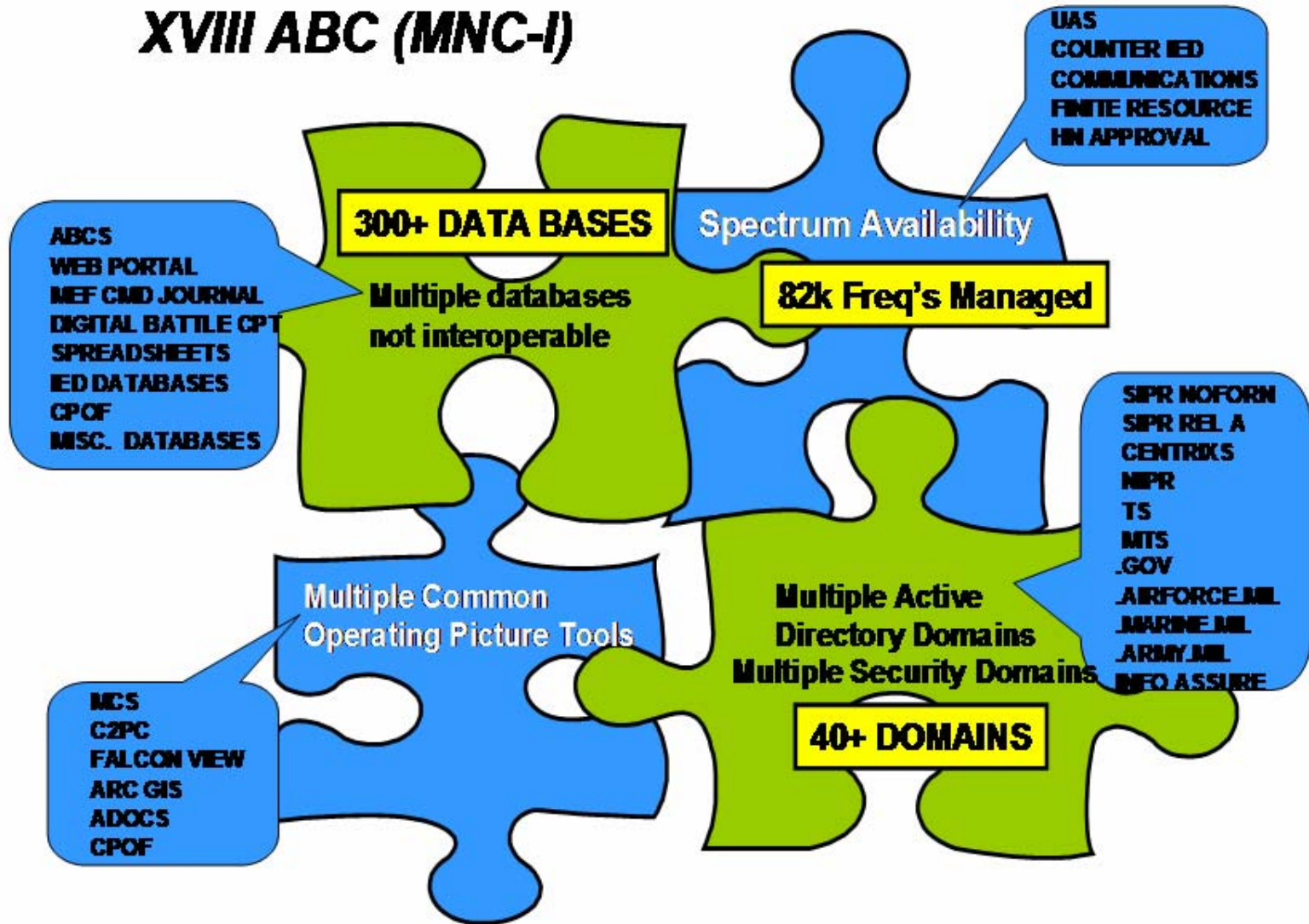
# 24 JTFs and Counting... Plus Variants





# Battle Command Information Challenges

## XVIII ABC (MNC-I)



# COCOM Science and Technology Challenge

## CENTCOM C2 Best of Breed Project

Over 4000 Systems/Applications in AOR  
 — over 1000 considered "C2"

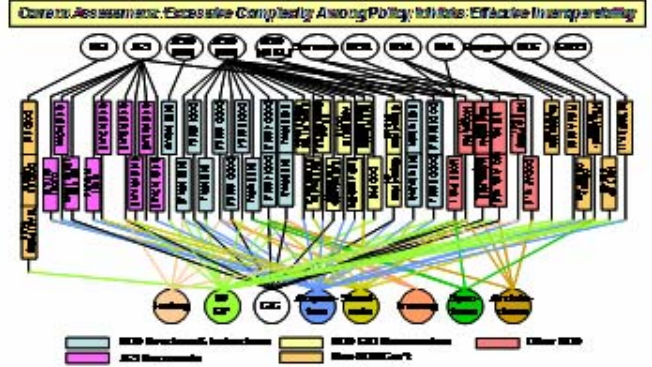
- Continued delays in development of the fully joint programs of record result in continued proliferation of "stitch" applications, and there's no bank to vendors willing to help.
- Each operational rotation of forces results in technical integration challenges as they bring their own unique applications.



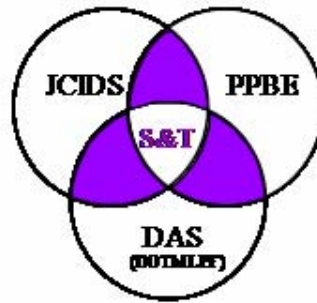
System/Application proliferation leads to:

- Poor network situational awareness
- Lack of interoperability
- Network bottlenecks
- Supportability issues
- Network vulnerabilities

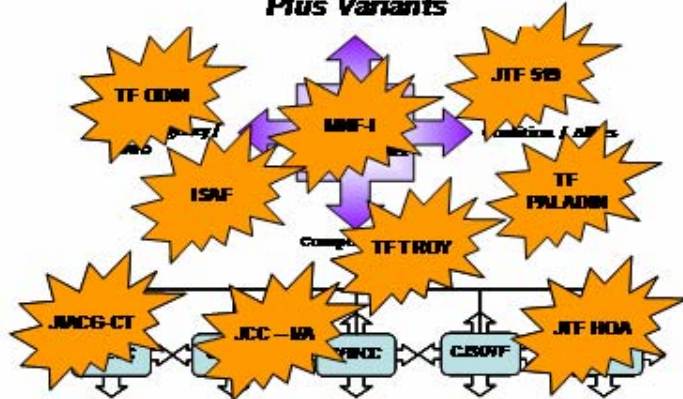
## Global Map of DOD Interoperability-Related Policy Documents



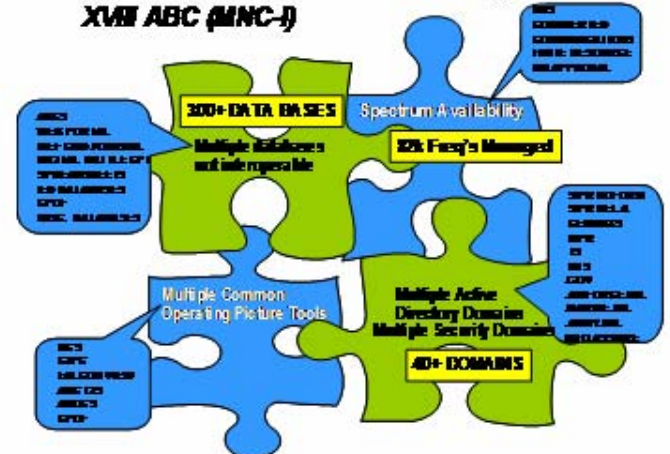
## COCOM Management Challenge *Assess, Coordinate, Manage, & Integrate*



### 24 JTFs and Counting... Plus Variants



### Battle Command Information Challenges XVII ABC (MNC-1)

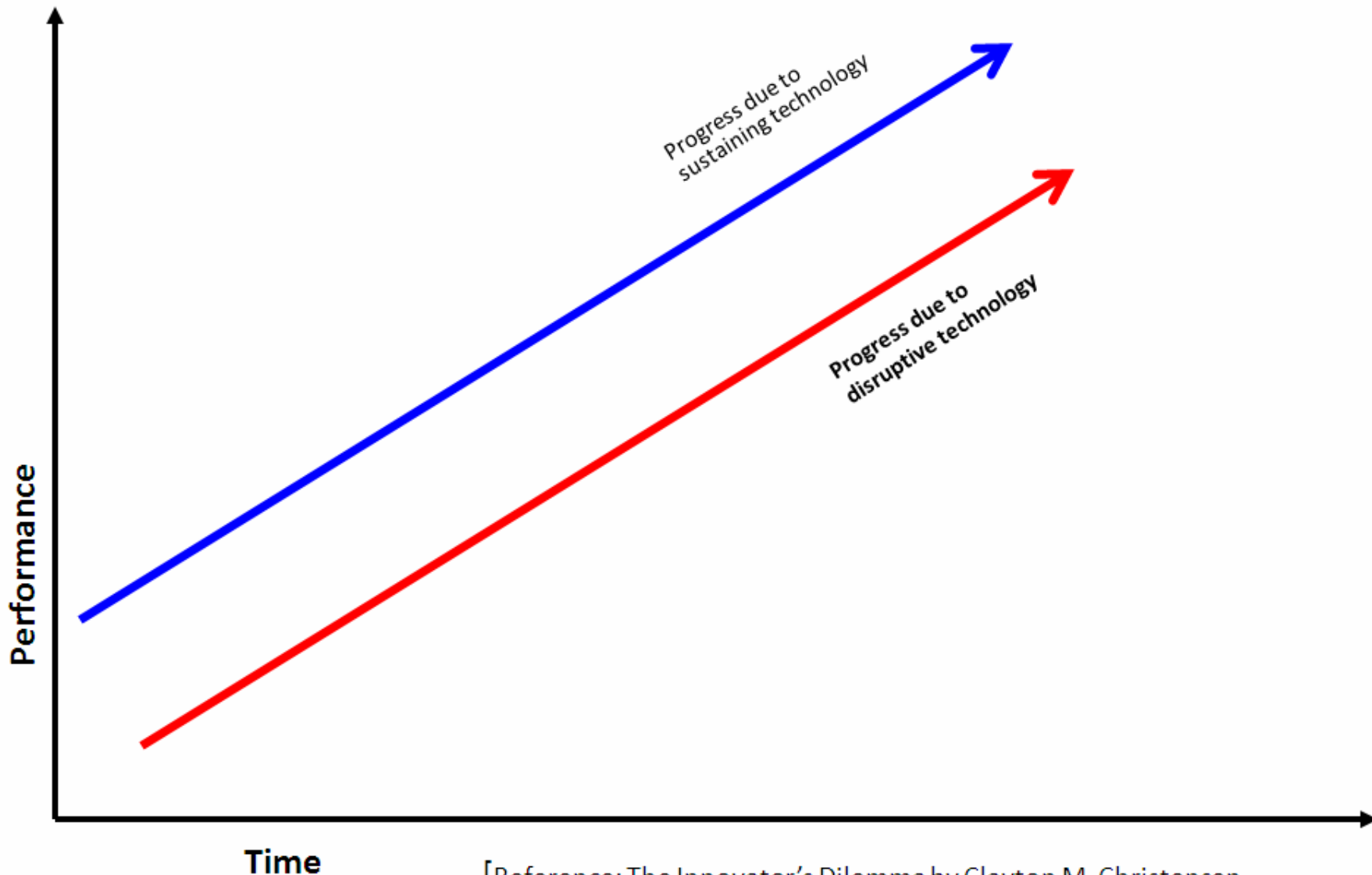






UNCLASSIFIED

# Alternative Business Models



[Reference: [The Innovator's Dilemma](#) by Clayton M. Christensen

UNCLASSIFIED

# Alternative Business Models

Examples

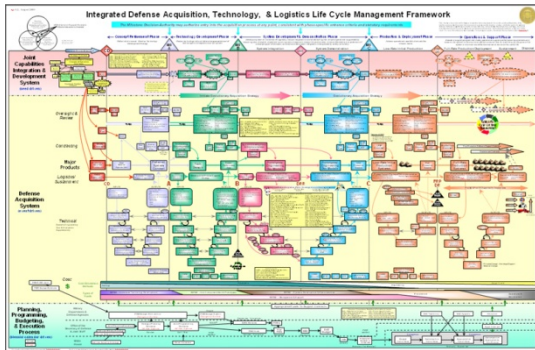


[Reference: The Innovator's Dilemma by Clayton M. Christensen]



# Alternative Business Models

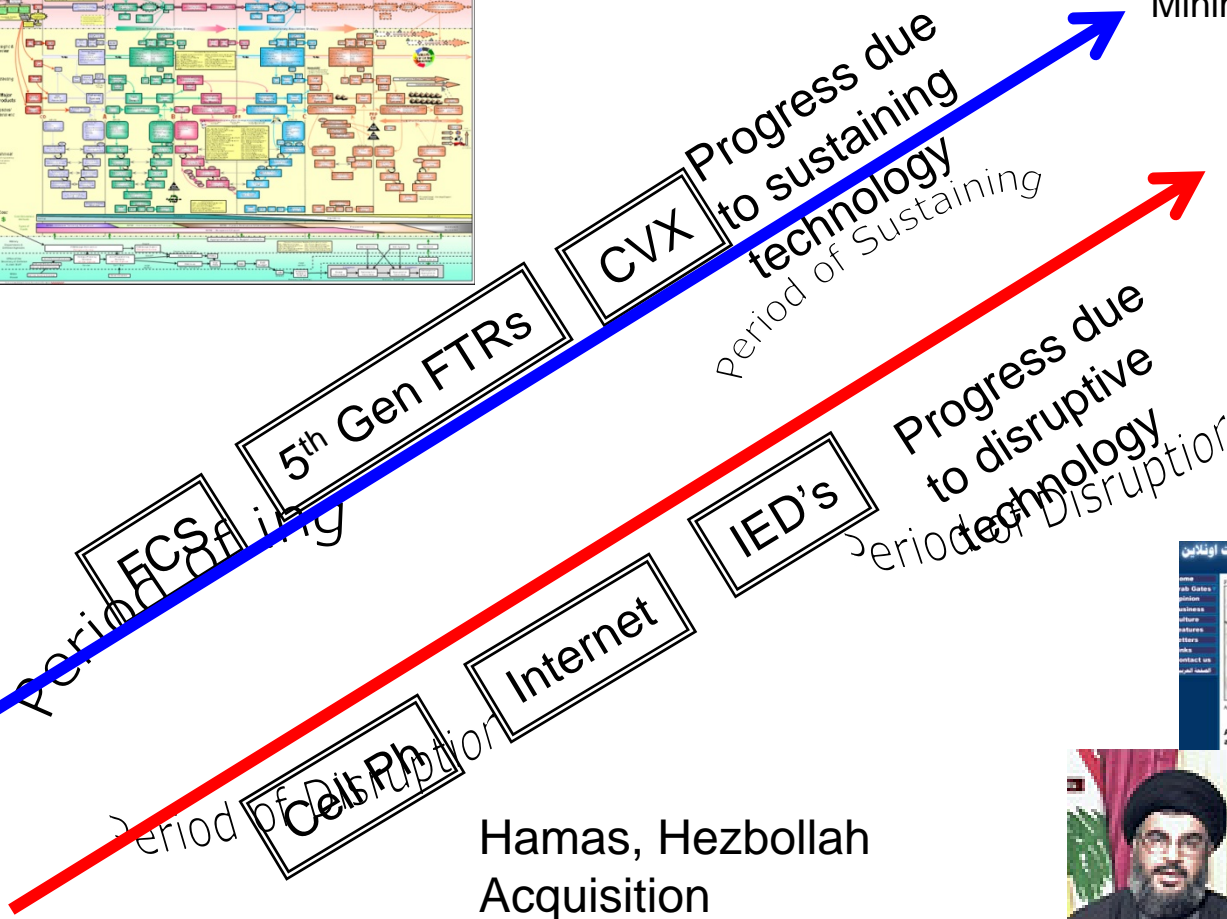
Defense AT&L Life Cycle Management Framework Chart



DoD Acquisition

ROI: Precision Effect  
Minimize Casualties

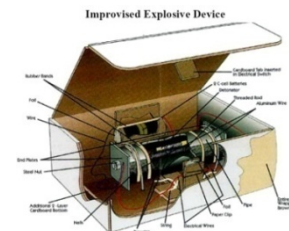
Performance



Progress due to sustaining technology

Progress due to disruptive technology

ROI: Mass Effects  
Indifferent to Casualties



Time

[Reference: The Innovator's Dilemma by Clayton M. Christensen

# *Final Thoughts*

- Must build to the Joint capability requirements of both irregular war and the conventional fight
- One aspect of our future we can't overlook or underemphasize is our own human capital situation and solutions
- Time Dilemma
  - COCOMs are in the here and now; S&T is predominately in the future
  - Must recognize/exploit S&T opportunities early vice reliance on long term research
  - Future may be now, more than we care to admit it
- An Art and Science imbalance exists by the lack of COCOMs authorities and resources to direct S&T
- S&T and Warfighters need Rosetta Stone
  - Adopt the right lexicon -- a capabilities-based language
- Need better exposure of S&T to exploit the realm of technology
- Technologies don't emerge; they're made to emerge

**Technology Dominance is not a Privileged U.S. Domain ... A Clever and Adaptive Enemy Can Prevail**