





NAVAL WARFARE DEVELOPMENT COMMAND

JUNIOR LEADER INNOVATION



VADM John M. Richardson, USN
Commander, Submarine Forces





Complexity Is Increasing

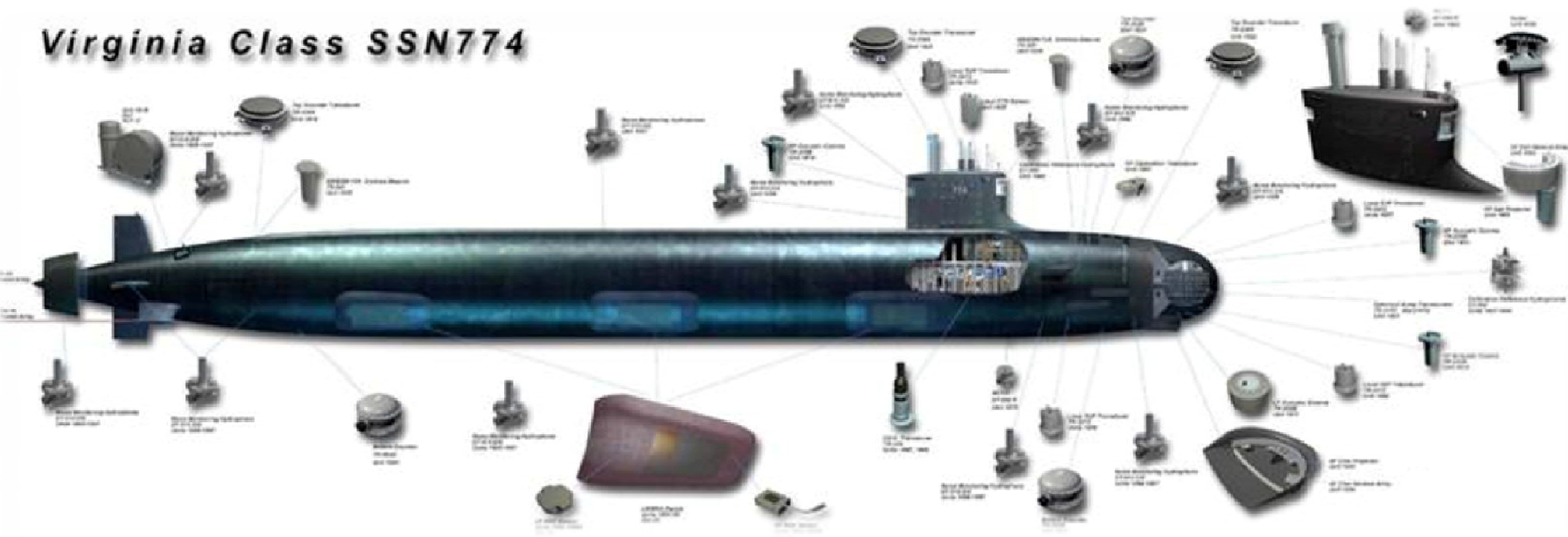
Form Factor is not...



more missions...



Virginia Class SSN774



more sensors...



more information..

high stakes...



Information Technology



Partnerships



CORNING
Microsoft

Leverage the \$B in investments and risk reduction that go into making commercial interfaces intuitive.

DISPLAY GLASS
Full-Size Coverage, Touch Sensitive

FLEXIBLE DISPLAY GLASS
Ultra Thin, Rollable, Electronics Enabling

Turn left in 500 feet

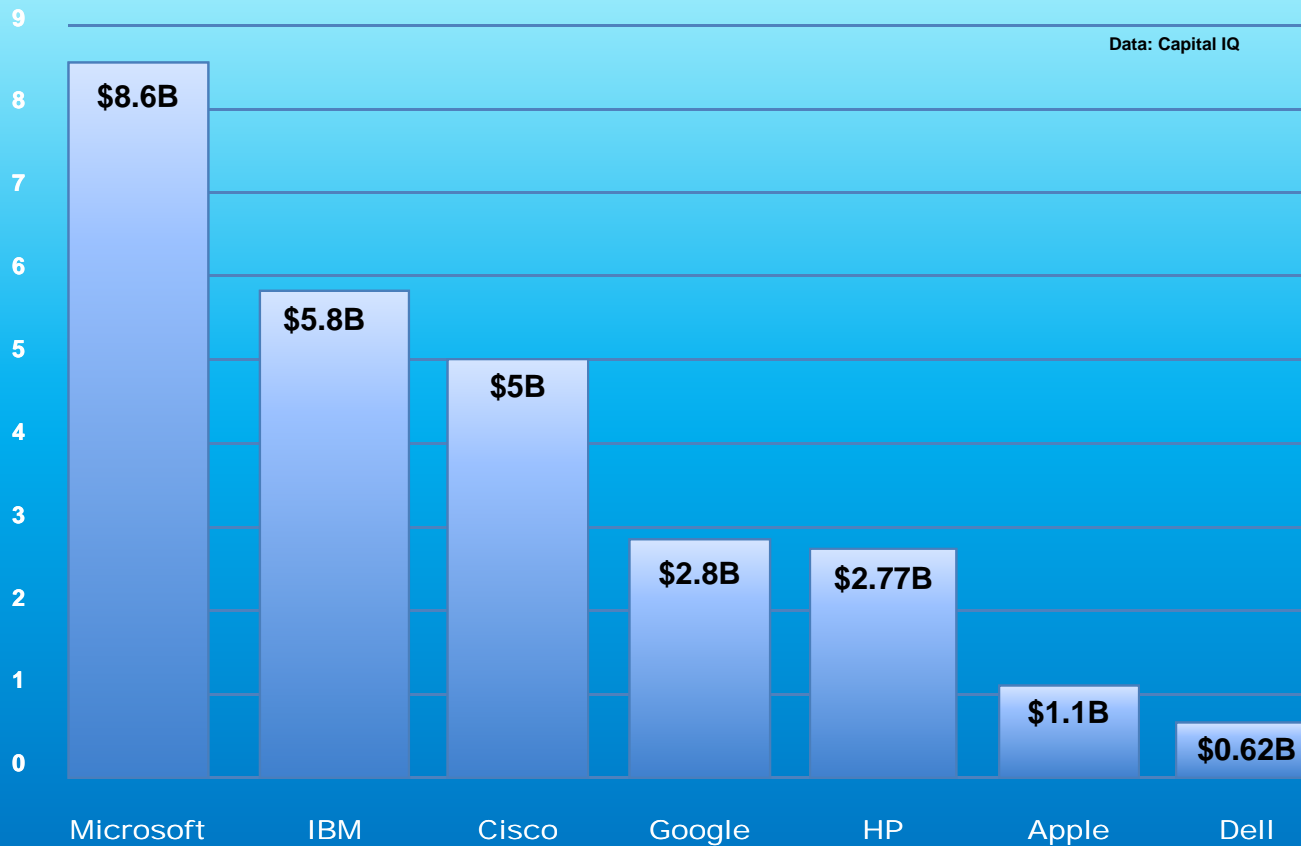


R&D Expenditures



CORNING
Microsoft

R&D Expenditures For Tech Companies
(2009, \$ Billions)



 Adobe®

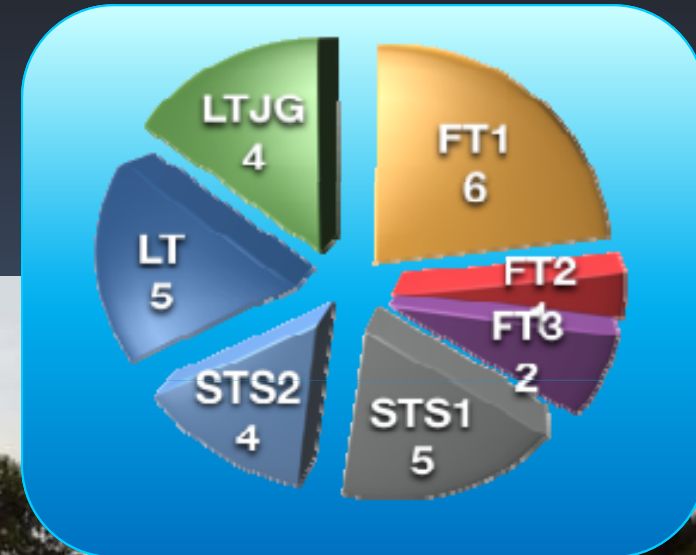
CORNING

Google

Microsoft®



TANG Forum 2011



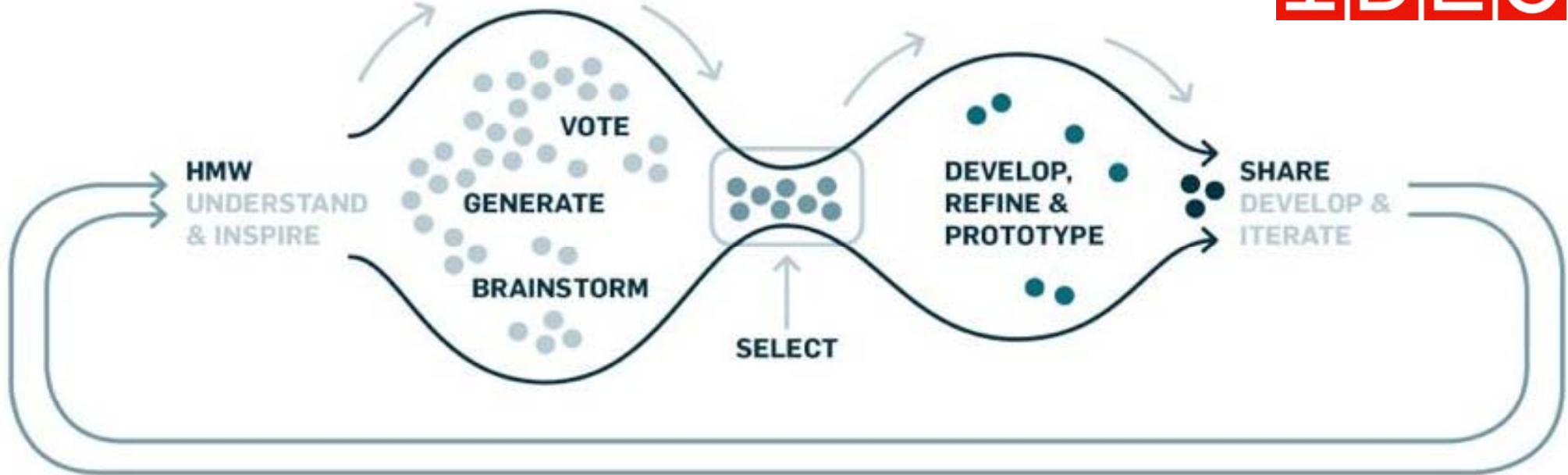
Three day Design Thinking Workshop
Submarine Learning Center Det. San Diego, CA 8-10 November 2011



Design Thinking

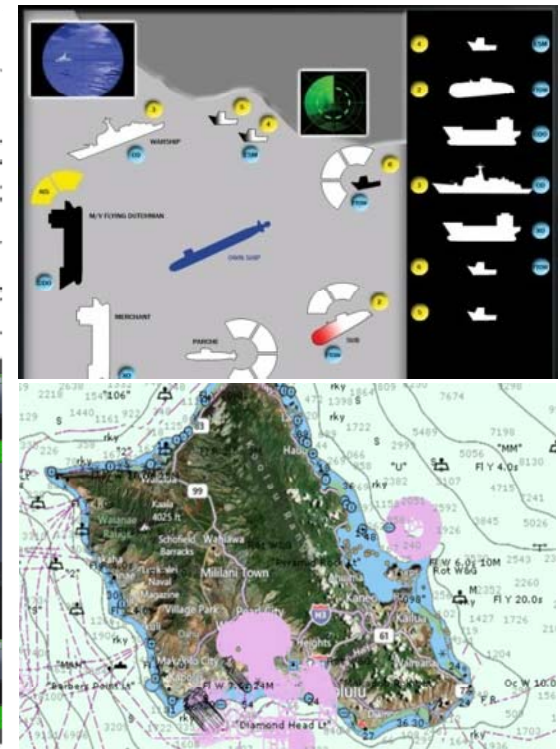
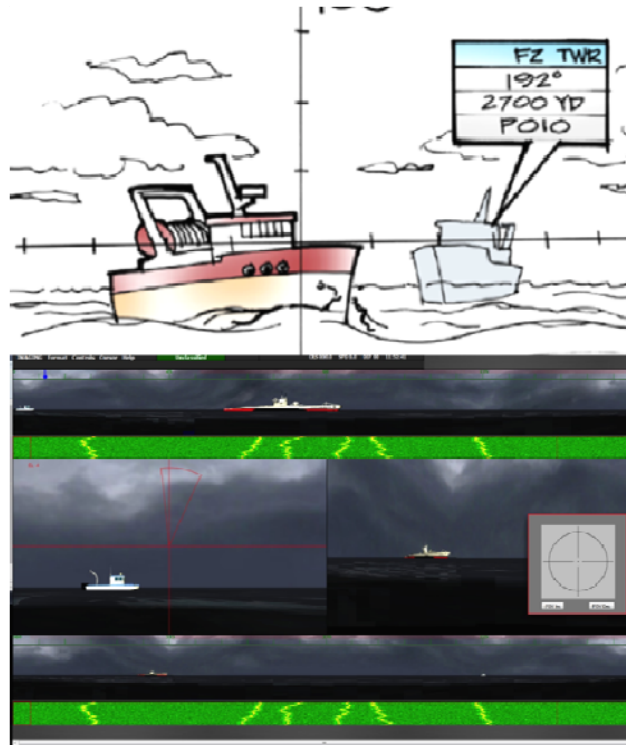
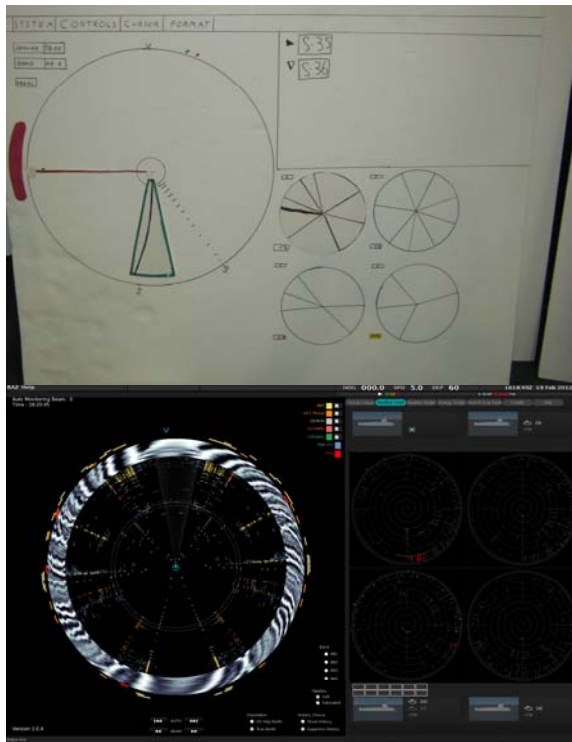


DIVERGENT CONVERGENT



TANG Concepts

REFINING FOR APB13

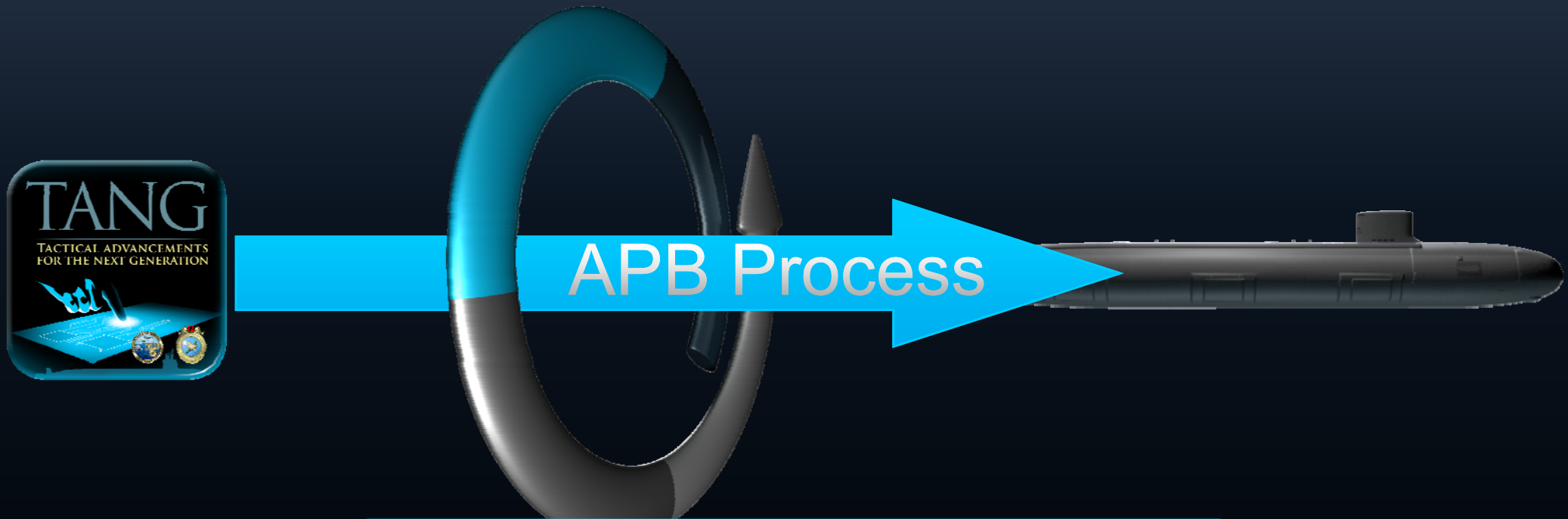


USS VIRGINIA Control Room



Designed for team decision-making

Innovation and APB



Navy's model for rapid transition



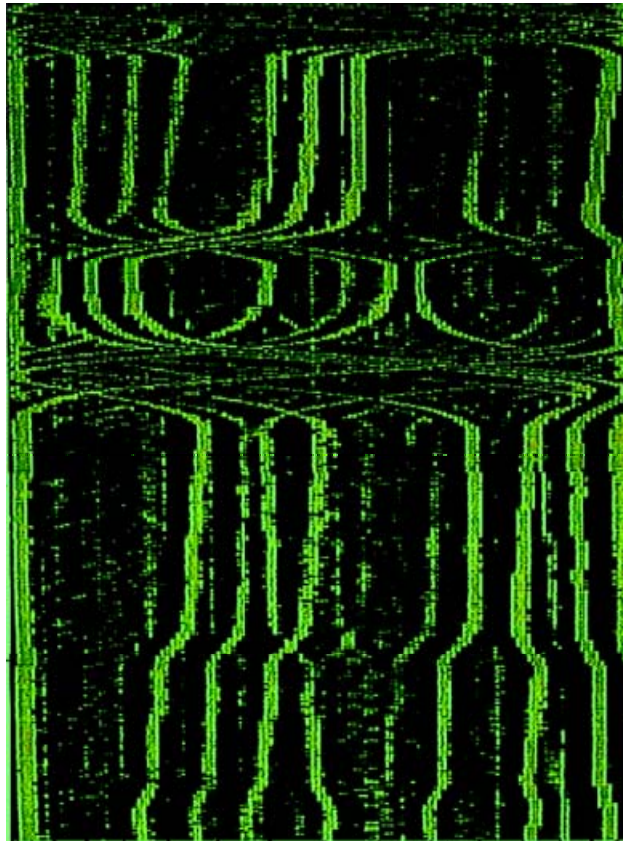


Submarine Business Model

fast follower in science and technology...

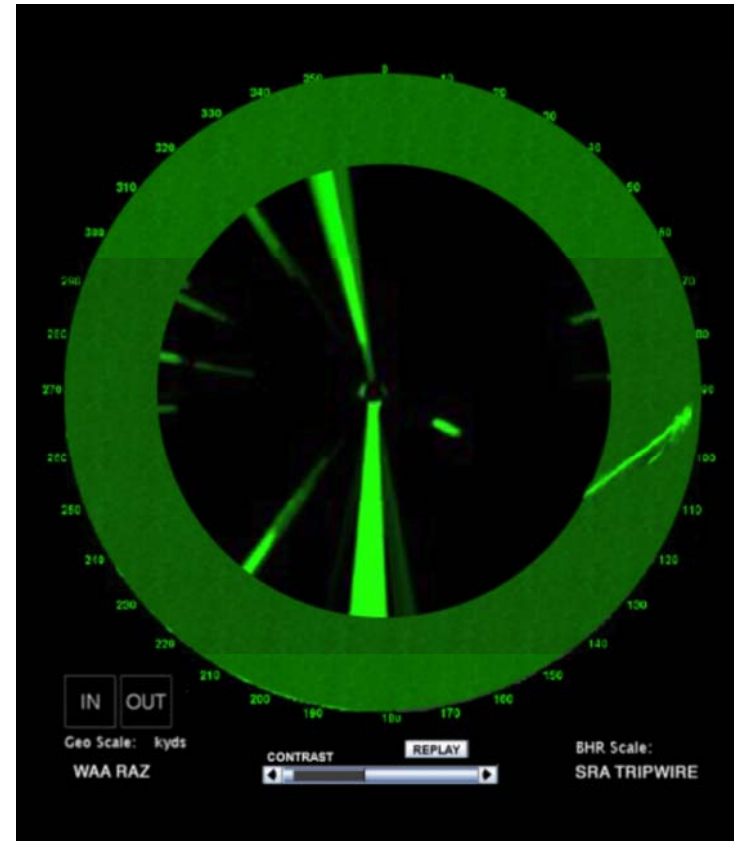
Before:

Mil-spec hardware,
Outdated algorithms



Now:

New Hardware Every 2 Years
State of the Art algorithms



...but we must *follow faster in Design*

May '11

Summer '11

Nov '11

Jan '12

Mar '12

May '12

Area 51



IDEO



INDUSTRY IS ALREADY IMPLEMENTING THE TANG VISION



VIEWS-11-596 v1_01



May '11

Summer '11

Nov '11

Jan '12

Mar '12

May '12

Area 51



IDEO



INDUSTRY IS ALREADY IMPLEMENTING THE TANG VISION

CORNING

Google

PERCEPTIVE PIXEL

Adobe

Microsoft Surface



Video – TANG process...



The Future

Leveraging commercial investments in information management technologies for improved intuition and decision making on the submarine.

Junior leader innovation is a key success in making this a reality.





BACKUP



TANG Forum Impact

Naval Post Graduate School

Change Management Thesis Project

- Dr. Frank Barrett

Undersea Warfare Department

- RADM Jerry Ellis (ret.)

The MOVES Institute

- Don Brutzman



Admiral Course: “Leading Innovation”

13 Admirals briefed at IDEO in Palo Alto, CA

- Dr. Neal Thornberry (NPGS)
- Dave Blakely and David Haygood (IDEO)



Naval Warfare Development Center

Junior Leader Innovation Symposium

“Engaging and Empowering Junior Leaders”





Complexity Increasing

