The Changing Landscape of Federal Innovation: Implications for the Navy

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Chris Fall
Innovation Fellow
chris.fall@navy.mil
www.onr.navy.mil

ONR

Revolutionary Research . . . Relevant Results

OFFICE OF NAVAL RESEARCH

What am I going to say?

- **Innovation as a strategic advantage**

- **Make you proud of ONR as an S&T Innovation Engine**

- **The rapidly changing landscape of *open* innovation across the Federal Government**

- **What might this mean for the Navy beyond S&T?**

- **Thoughts on a (window of) opportunity to lead**

Invention vs Innovation

Invention = working to create ideas
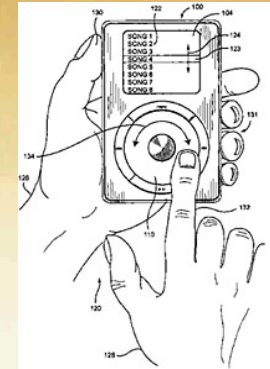
Innovation = putting ideas to work
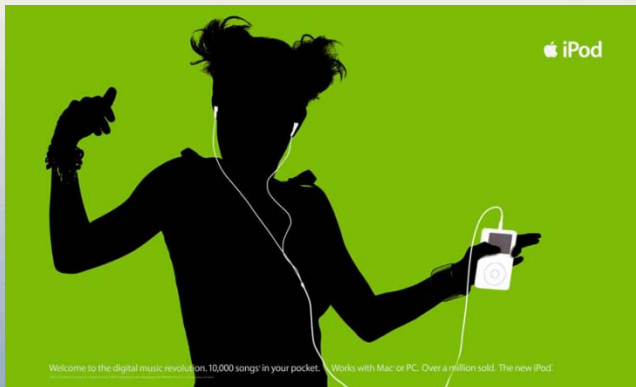
Classic Innovation

Apple

Aspects of Apple Innovation

Industrial Design

Intellectual Property

Marketing

Product Integration

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Who Invented the iPod?

A 23 year old englishman named Kane Kramer invented essential iPod along with DRM in 1979. He let his patent lapse.

The iPod internal design came from a company called PortaPlayer

The iPod interface and operating system came from a company called Pixo

OFFICE OF NAVAL RESEARCH

The Office of Naval Research

The **Office of Naval Research** invests in innovative operational concepts to develop the science and technology (S&T) that ensures our warfighters always have the **technological edge**.

ONR Mission — "to plan, foster, and encourage scientific research in recognition of its paramount importance to future Naval power and national security."
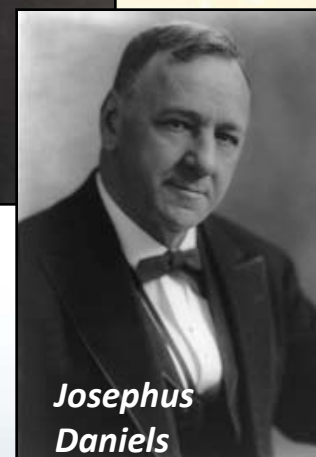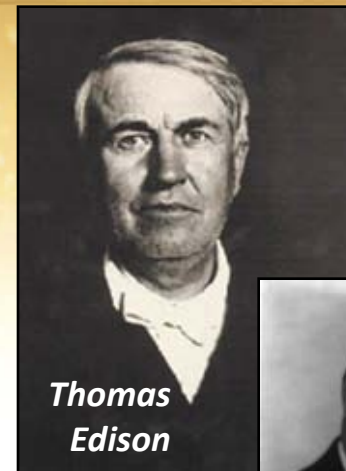
- Public Law 588 of 1946

OFFICE OF NAVAL RESEARCH

A Rich History

Naval Research Laboratory *(Appropriations Act, 1916)*

"[Conduct] exploratory and research work…necessary… for the benefit of Government service, including the construction, equipment, and operation of a laboratory…."

Thomas Edison

Vannevar Bush

Office of Naval Research *(Public Law 588, 1946)*

"… plan, foster, and encourage scientific research in recognition of its paramount importance as related to the maintenance of future naval power, and the preservation of national security.… "
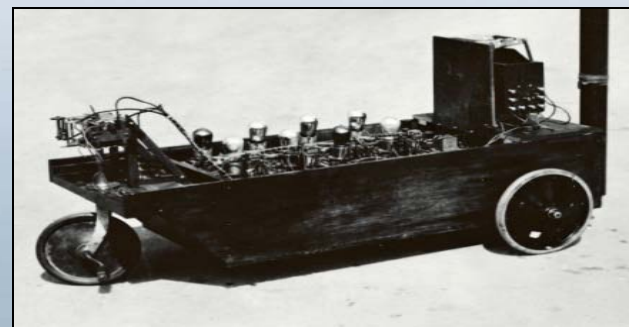
Josephus Daniels

Transitioning S&T *(Defense Authorization Act, 2001)*

"…manage the Navy's basic, applied, and advanced research to foster transition from science and technology to higher levels of research, development, test, and evaluation."

Harry S. Truman

The First Unmanned Air Vehicle (UAV)

U.S Navy Curtis, 1924

Innovative Naval Prototype (INP) Programs

- **Determined by DoN guidance, INPs are funded at ~12% of ONR Total Obligation Authority**

- **Purpose:**
  - Explore high-risk, game-changing technologies and advance the capabilities of the warfighter
  - Reduce the acquisition risk of disruptive technologies and capabilities
  - Deliver "The Next Big Thing"

- **Approved by VCNO, ASN (RDA) and ACMC**

- **FY10 Innovative Naval Prototypes:**
  - Tactical Satellite (TACSAT) launched Sept. 27

- **Current Innovative Naval Prototypes:**
  - Persistent Littoral Undersea Surveillance (PLUS)
  - Sea Base Enablers (SBE)
  - Electromagentic Railgun (EMRG)
  - Free Electron Laser (FEL)
  - Integrated Topside (INTOP)

- **FY12 Innovative Naval Prototypes:**
  - Autonomous Aerial Cargo Utility System (AACUS)
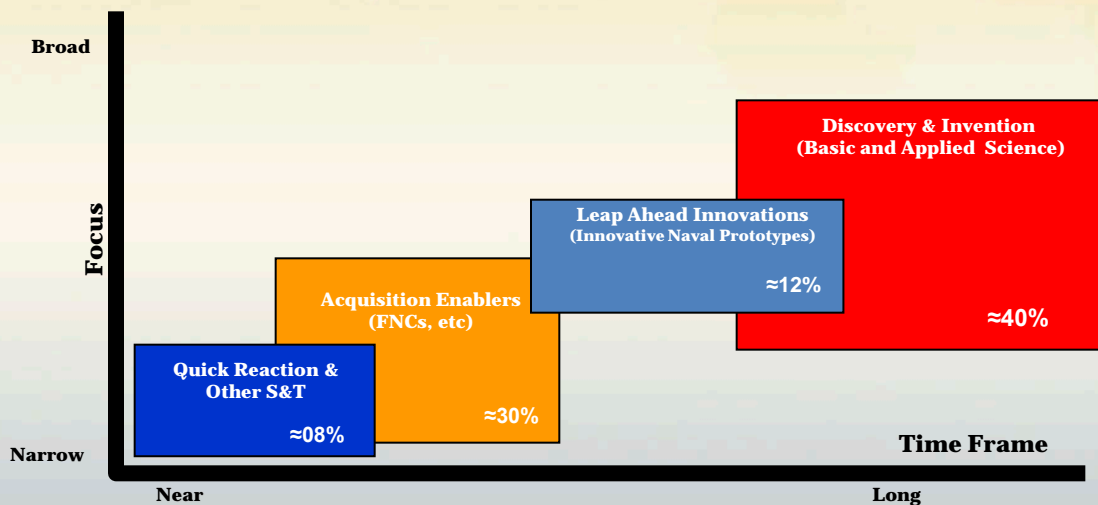 - Large Displacement Underwater Unmanned Vehicle (LDUUV)

Free Electron Laser

Electromagnetic Railgun

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Naval S&T Investments

Focus Areas:

- **Power and Energy**
- **Operational Environments**
- **Maritime Domain Awareness**
- **Asymmetric & Irregular Warfare**
- **Information Superiority and Communication**
- **Power Projection**
- **Assure Access and Hold at Risk**
- **Distributed Operations**
- **Naval Warfighter Performance**
- **Survivability and Self-Defense**
- **Platform Mobility**
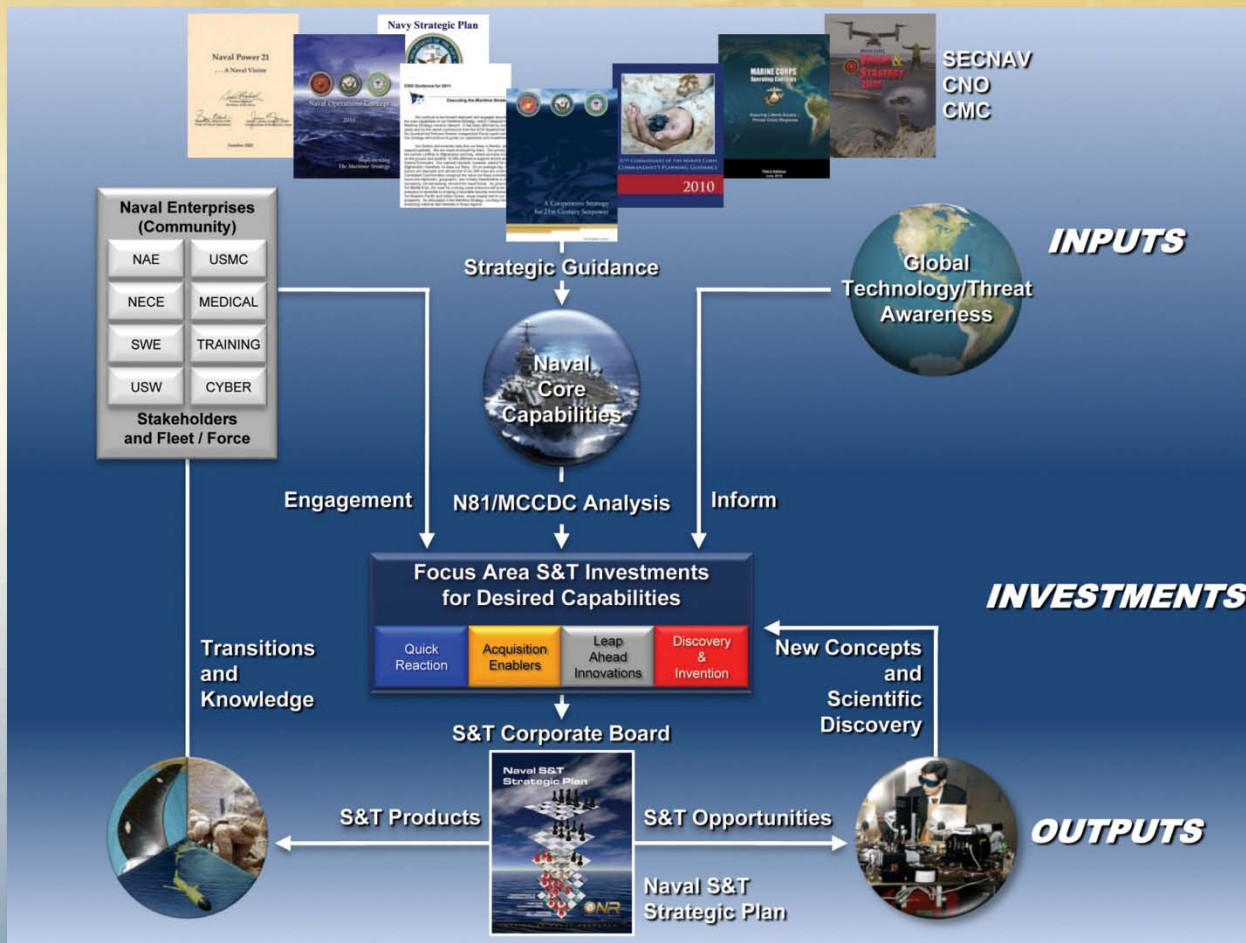- **Fleet/Force Sustainment**
- **Total Ownership Cost**

Broad / Narrow — Focus

Quick Reaction & Other S&T ≈08%

Acquisition Enablers (FNCs, etc) ≈30%

Leap Ahead Innovations (Innovative Naval Prototypes) ≈12%

Discovery & Invention (Basic and Applied Science) ≈40%

Near — Long — Time Frame

Tech Solutions   **FNCs**   **INPs**   **D&I**

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New Open Innovation Efforts Across the Federal Government

- Coordinated "Strategy for American Innovation" issued by White House in September 2009. America Competes Act 2011.

- Many of the innovation efforts are focused on expanding access to ideas and problem solvers:
  - **Challenges and Prizes**: Expansion of Challenge and Prize authority to all agencies of the federal government. Clearinghouse website Challenge.gov. Public private partnerships are explicitly encouraged.
  - **Outward Facing Ideation Crowdsourcing Programs**: Being used both for solicitation of ideas and for required public commentary periods for policy changes
  - **Inward Facing Ideation Crowdsourcing Programs**: Generate ideas from employees (DHS, HHS, State Department, Coast Guard)
  - **Open Government Data Sharing**: may not be appropriate for all
  - **Presidential Innovation Fellows** : Just announced

- Examples of initiatives at:
  - *http://www.whitehouse.gov/open/innovations*

Pay only for (best) results

Air Force Innovation Pavilion

NASA NHHPC and CoECI

Focus on Crowdsourcing Ideas

- **Periodic Topical Challenge from Leadership:**
  - Example: HHSinnovates
  - *http://www.hhs.gov/open/innovate/index.html*
- **Continuous Process** (suggestion box model):
  - Example: State Department Sounding Board
- **Mixed**: Ongoing plus Periodic Challenges
  - Example: TSA IdeaFactory
  - *http://IdeaFactory.dhs.gov*
  - **Key Innovations over the suggestion box**:
    - Online commentary from the community
    - Online voting to promote best/most popular ideas
    - Facilitated routing, SME vetting and action by leadership

What is **Idea** Factory?

- IdeaFactory is a Web-based tool that empowers all TSA employees to:

    - submit ideas,

    - provide comments on how to improve new concepts, and

    - rate ideas that should be recommended for implementation

- It uses social media concepts to harness the "wisdom of the crowds" and expand upon the traditional suggestion box

IdeaFactory Vision Statement:

Support TSA's mission by fostering a community that engages employees and encourages collaboration to initiate innovative change.

Idea Factory™
Innovate. Collaborate. Succeed.
http://**IdeaFactory**.dhs.gov

Lots of valuable experience…

- Users rate ideas on a scale of 1-5 light bulbs

- Toolbox functionality allows users to collaborate with peers and track ideas

- Reminiscent of open ideation…

- But Internal…

- Moderated…

- Vetted by SME's…

- And feedback

Pocket-sized Electronic Translator
At the Checkpoint, Customer Service, Communications, Location: MGM
Submitted By **Jinright, Jackie** on 3/6/2011 10:50:25 AM

My idea is…that we have a hand held electronic translator available to aid the TSOs with language issues that arise in the checkpoint and baggage areas. There are many different kinds and with many languages. Most the the new smart phones have apps for this. Learning a new language is great, but it is a long process. The translator are cheaper than the radios we carry. It would be a win win for both the flying public and the TSOs.

Jinright, Jackie

Rate This Idea

42 People Rated This Idea

2.7 Average Rating
Show Rating History »

5 Comments
Leave A Comment »
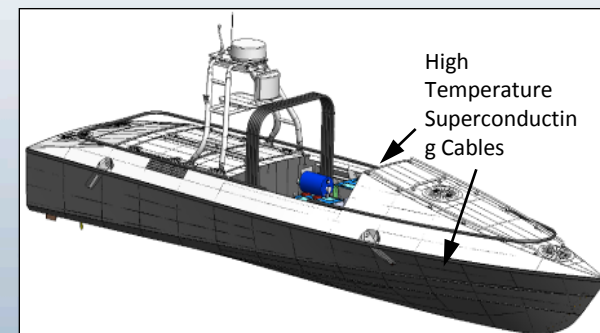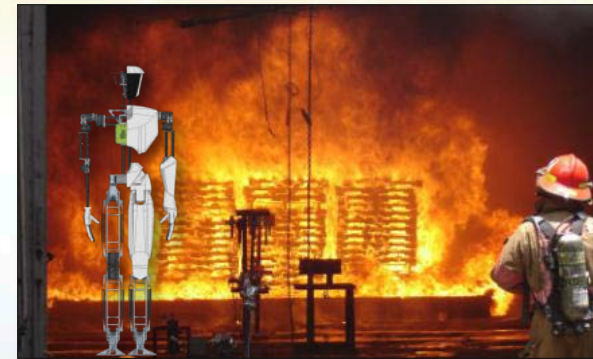
Sort Comments By: **Date Submitted ▼** | User Name ▲ | Most Helpful ▲ | Most Responses ▲

Respass, Leeann
3/11/2011 12:45:57 PM
Report Unmarked SSI
Report Abuse
Respond
Mark As Helpful
Mark As Unhelpful
0 user(s) marked helpful
0 user(s) marked unhelpful

First it will be up to your FSD..
we have them at my airport and don't use them because… well, they don't work. Maybe a better model would but these don't. I've also made cards in 3 languages to help my workforce out, and they do indeed help as would *working* electronic language translators.

Respass, Leeann

... and Key Lessons Learned

- ## TSA IdeaFactory Team:
  - Carefully indentify the business need and idea flow process
  - Ensure senior leadership champions effort and provides support
  - Ideation management group reports directly to senior management team
  - Understand the users and their needs and cultivate the community
  - Focus mission and avoid being all things to users; not a forum for ranting
  - Transparency is key – engage employees throughout the entire idea lifecycle
  - Facilitated Ideation is a *program not a website*
  - It's OK to start small and grow

- ## Gartner Research
  - Do not start an ideation innovation program without CEO level support
  - Senior executive must be accountable for process
  - Best practices are evolving – benchmark and adapt based on research
  - Put most effort towards strategy, focus, process and culture….
  - *Because the technology is the simplest part.*

ONR SwampWorks

- **Project Parameters**:
  - Project duration < 3 years
  - Must be S&T in nature
  - Develop highly innovative, game-changing technology

- Develop and demonstrate newly invented or recently discovered technologies that address emergent and enduring operational problems in an accelerated timeframe

- Develop prototypes of recent technology breakthroughs for experimentation to satisfy Warfighter requirements

- Pilot disruptive and Open Innovation process and tools with the objective of decreasing the time and cost of producing innovative solutions

XFC Fuel Cell Powered Long Endurance UAS for ISR

Damage Control Technologies for the 21st Century (DC-21)

High Temperature Superconducting Cables

High Temperature Superconducting Minesweeping System

Your Innovation Points: **00595**
Group Innovation Points: **00000**
Target: **04900** Innovation Points

OUR SCORE:
1190

mmo**w**gli

PLAY AN IDEA   **TAKE ACTION**

MOVE 1: TURN THE TIDE

CNN EXCLUSIVE

0:00 / 0:00   You Tube

The situation:

Three pirate ships are holding the world hostage.

Chinese-US relations are strained to the limit and both countries have naval ships in the arena. Humanitarian aid for rig workers and the East African coastline is blocked. The world is blaming the US for plundering African resources.

Merchant ship movement through the area is blocked. Big cities from Mozambique to Djibouti are already feeling the economic repercussions.

Two years ago, at a Navy-sponsored event, a select group of participants set in motion dozens of innovations that could be used in game changing ways in this situation. You were part of this group. Now we need you to put those ideas to work. Help us create a rapid fire brainstorm of the best strategies in this situation.

We need your help...
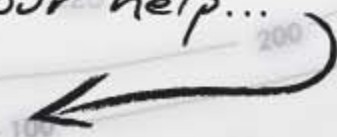
PLAY A CARD NOW:

Help us identify the worst. Start now, work fast, work together.

3 days of gamplay per chapter

2000 invites   **805** registered players   **4484** idea cards played

24 action plans developed **200** simultaneous players

1000.mils   **300**.edus   **250**.govs   **450**.coms

ONR Tech Solutions (HERE!)

- Develops applications of existing and emerging technologies to meet high-interest, near-term Fleet/Force needs

  - Demonstrate prototype solution within 14 months of request

  - 1 year turnaround time, off the shelf technologies

- Solutions with NRE partners and Fleet/Force feedback early and often

- Video: *www.youtube.com/usnavyresearch*

- Requests submitted online at:

  - *www.onr.navy.mil/techsolutions*

Notional ONR Ideation Program

S&T Challenges to or Ideas from Navy (Fleet, NRE, CTR)

Commentary and Voting

Ideas Selected by Program

Highly Rated Ideas

Program Office/SME Review

Hot Topics to Leadership for SA

Program Office Responds

Can't Implement — Yes

Cross-functional Refinement

Can't Implement — Yes

Transition to Implementation and Recognition of Submitter

Adapted from TSA
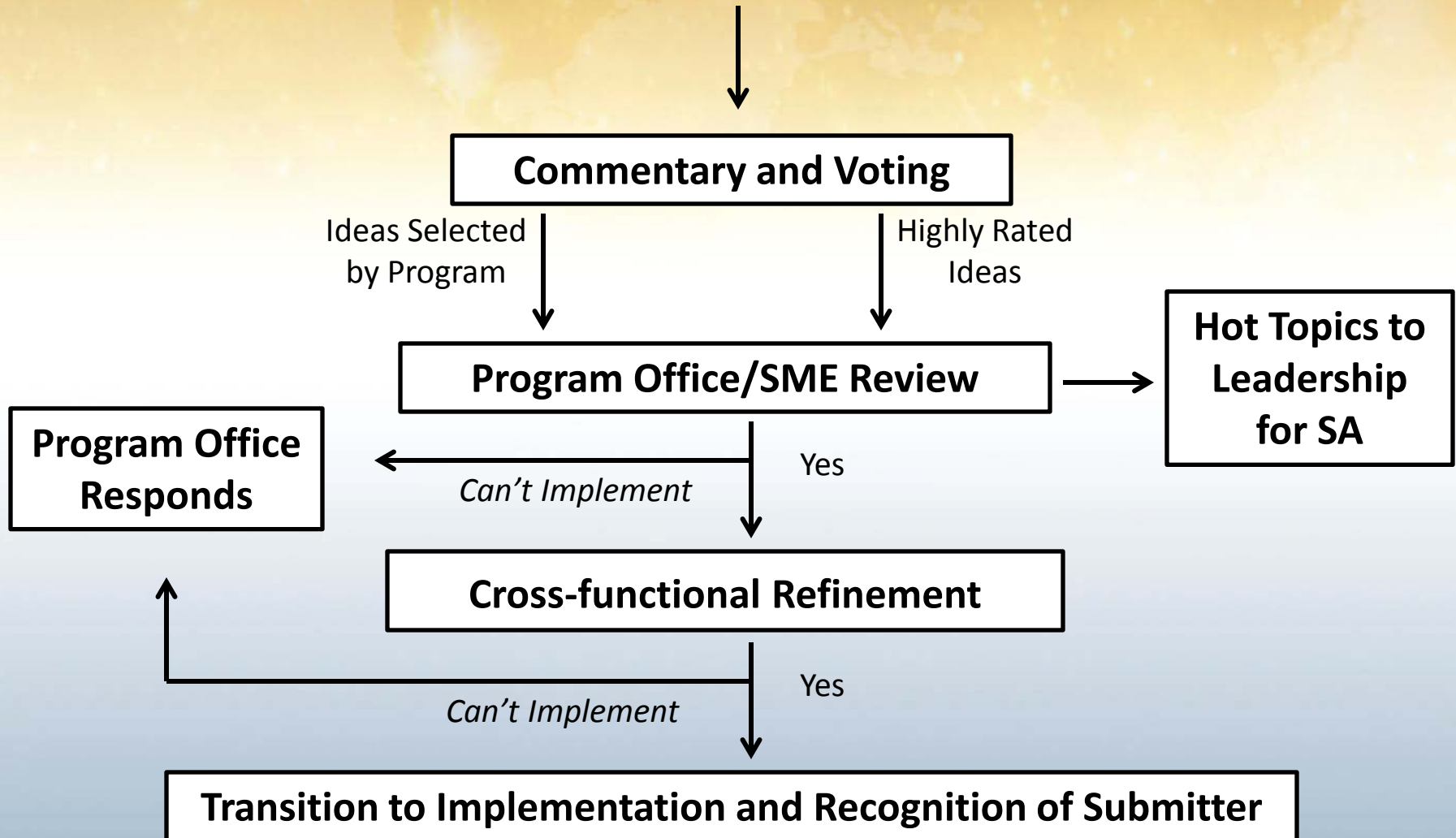
Notional Fleet S&T Challenge

ICoC defines a constrained multifaceted challenge topic

CNO issues the challenge to the fleet

Software: Solutions and ideas submitted via the web

ICoC sifts out silly or redundant replies and posts ideas

Software: Ideas receive comments from the fleet

Software: solutions are sieved down using iterative voting

Best idea(s) receive an award from the CNO

Software

Existing open source government or commercial ideation software hosted by Navy.

This is something Navy should be able to do in-house and often.

Hosts: Navy CIO
         Naval Postraduate School
         Naval War College
         NWDC

Examples: IDEO's open IDEO
            IBM's JAMs
            HHS ideation suite
            State Department Sounding Board

Or Not: email and people can work well

S&T is just one piece

Fleet and Friends

Crowdsource Broker NWDC?

Vetting Sorting Routing

ICoC?
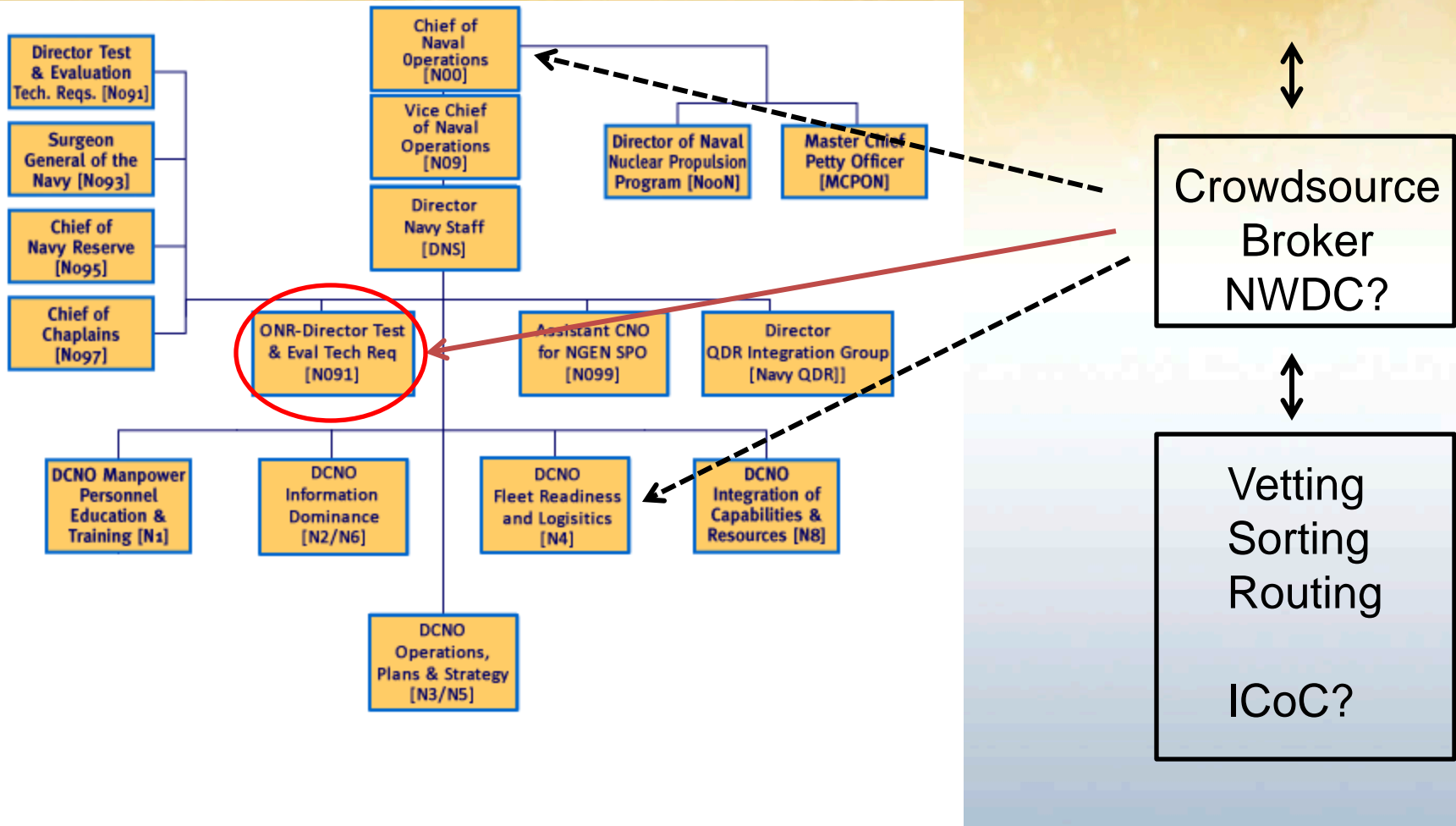
Do we want iTunes or confusion?

Lead or be Lead

Take Home Thoughts

Innovation is about follow-through and is a strategic advantage

You can be proud of ONR as an innovation engine for S&T

But innovation for the warfighter is bigger than things

Federal innovation is a fast moving target that has not gelled

My *opinion* is that you have a window of opportunity to influence and protect how innovation is defined and implemented in your organization….

Diversity in innovation practice is critical but government wants a one size fits all solution

So get out in front and define it on your terms

And who is going to broker the Navy's open innovation process?

Contact

CNR RADM Matt Klunder, Director of Innovation Dr. Larry Schuette, and the entire ONR team want to celebrate your innovation success. We are standing by to help.

Chris Fall
ONR/03I
chris.fall@navy.mil

ONR-Global

ONRG-DC
ONR Global Liaison Office
CNO Executive Panel
CNO(N2/N6)
FLTCYBERCOM/COMTENTHFLT
CNO(N81)

Mechanicsburg
NAVSUP

ONRG-London - ADs
Technical Director
Executive Officer

ONRG-Prague - ADs

Naples
COMUSNAVEUR
COMUSNAVAF
COMSIXITHFLT

Newport
CNO SSG

San Diego
COMTHIRDFLT
COMNAVSURFFOR
CG I MEF
NMAWC

Norfolk
COMUSFLTFORCOM
COMNAVAIRFOR
COMSUBFOR
COMMARFOR
COMSECFLT
COMNECC
COMNWDC

ONRG-Tokyo - ADs

Yokosuka
C7F

Okinawa
CG III MEF

Honolulu
USPACOM
COMPACFLT
COMMARFORPAC
COMSUBPAC

Camp LeJeune
CG II MEF

Bahrain
COMNAVCENT
COMFIFTHFLT

ONRG-Santiago - ADs

ONRG-Singapore - ADs
Commanding Officer

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It seems pretty easy at first

Prepare for the unintended