Putting Innovation into Practice

Connections 2015
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Purpose and Outline

Purpose: Provide an overview for how agencies successfully move ideas into practice: accomplishing innovation.

Outline
• Introduction and Innovation Basics.
• Examples: Ideas → Innovations.
  • Arsenal Ship.
  • C3 Driver.
  • Irregular Warfare Tactical Wargame.
  • Synthetic Staff Ride: Mindanao.
• Lessons Identified/Lessons Learned.
• Buzzword: Innovation.
  – Widely used and referenced in media, literature, academia, commercial businesses, and governments.

• Innovation as a concept can be powerful.
  – Overuse dilutes its meaning.
  – Its application to conceal lack of substance can be disingenuous.

• When used to structure an organizational mindset it can enable a flexible workforce and a corporate capability to respond to current and future challenges.
  – Continually introduces new ideas or ways of thinking, then translates them into action to solve specific problems or seize new opportunities.

• Innovation can be loosely categorized into three levels.
  – Incremental. Small changes to processes or products.
  – Breakthrough. Change giving customers something new.
  – Transformational. Transforms the way work is done. Rare.

• There are nearly always risk-aversion inhibitions.
  – Why change what works?
  – Perceived impacts on credibility and reputation.
Example 1: Arsenal Ship

  - USN and DARPA Joint Program Office.
  - Non-ACAT, acquisition reform, demonstration project.

- Description.
  - Low observable, carrier-sized platform, manned by approximately 50 personnel, that would carry up to 500 vertical launch tubes for power projection and air-defense operations.
  - Controlled via Cooperative Engagement Capability (CEC) (+) network.

- Wargaming Use.
  - Weapons and Tactics Analysis Center (WEPTAC), NAWC-WD, China Lake, CA.
  - Down-selected industry teams applied their system and CONOPS against operational requirements using the WEPTAC II wargame simulation. USN, USA, and USMC participants.

- Ideas.
  - Multiple solutions presented to meet operational requirements.
  - Sophisticated, multi-agent asset control (sensor-to-shooter); to any echelon, to any service.
  - Weapon control and launch authorization responsibilities, operator out-of-the-loop.
  - Maintenance handled via reach-back web connectivity.
  - Defense requirements vs. information warfare (now called cyber).

  - Operator out-of-loop, weapon control, SA requirements, reach-back: FCS, BCT technologies.
  - Network-centric enabling capabilities, and vulnerabilities: Patriot, CEC.
**Example 2: C3 Driver**

- **Command, Control, and Communications (C3) Driver.** 2000-2007 (to present).
  - PEO-STRI and ATEC.

- **Description.**
  - Objective: Consolidate the sim / stim / test environment that exists at the CTSF to support ABCS development, integration, test, and certification.

- **Wargaming Use.**
  - Joint and Combined Operations Directorate, TRAC-FLVN.
  - JANUS, OneSAF, and MAPEXes used to develop common test scenarios.

- **Ideas.**
  - Scenarios require structured [doctrinal] message traffic (mission/message threads) to define ABCS box stimulation and message traffic.
  - Establish single agency for consolidated ABCS functionality requirements.
  - Sophisticated GUI and technology can meet functionality requirements; 14 components, 1 box.

- **Ideas → Innovations.** Ideas revolutionized how ABCS/battle command system testing is accomplished and enabled system-of-system (SoS) improvements.
  - Doctrinal-based mission/message threads established a full SoS test process.
  - TPIO-BC (later AIMD) established as single-agency test requirements “definer.”
  - SoS test requirements forced common message formats across all ABCS systems.
  - The C3 Driver system enables a single test officer to plan, execute, monitor, and assess tests.
  - Visual and digital SA on messaging led to modified inter- and intra-TOC SoS network structures.
Irregular Warfare Tactical Wargame (IW TWG). 2008-2012(+)
- TRADOC Analysis Center + 12 key partners (CNA, OSD CAPE, HSCB).

Description.
- Objective: Create an analytic capability to inform decisions concerning operations in an IW operating environment - how to change, how to invest in change, how to conduct operations, and how to measure impacts.

Wargaming Use.
- TRADOC Analysis Center, SAC/OSD CAPE, CNA, ANL, TRISA, UC Davis, CRA, Texas A&M, NPS, and others developed the IW TWG.
- Applied IW TWG to support studies, and inform development.

Ideas.
- We can build a tactical wargame (initially, analog) that can show impacts across a range of measures when applying changes systems, organizations, and TTP.
- We can identify many of the best experts in the field and can leverage their products.

Ideas → Innovations. Successfully developed the IW TWG, informed other efforts.
- Directly informed two studies: Civil Affairs at the tactical level. CoIST impacts.
- Informed two other model development efforts: Athena and COEM.
- Concepts led to IW LOE/PMESII states-vector and entity cognition research.
- Army V&V process developed for representing Social science (theory) representations.
- Operational Wrap-Around (OWA) leveraged for application as a leadership development tool.
Example 4: SSR Mindanao

• Synthetic Staff Ride (SSR): Mindanao.
  – TRAC.

• Description.
  – Boardgame representing a current-day, complex operating environment (OE) in the Philippines.

• Wargaming Use.
  – TRAC, CNA, CGSC, and the MCBL designed and developed the SSR: Mindanao.
  – Development support provided by ARI, NPS, TRISA, and UFMCS.
  – Leveraged knowledge of extant wargame/boardgame components and mechanics.

• Ideas.
  – Provide operational unit staffs (in garrison) and Army students with a wargaming tool that:
    A. Introduces the participants to a complex Phase 0/1 OE.
    B. Challenges the participants to understand and navigate the environment.
    C. Provides leaders, instructors, and participants with insights into ADP 6-22 leadership competencies and attributes.
  – Wargame should enable experiential applications similar to previous “Fulda Gap” sand tables.

• Ideas → Innovations. Used the SSR at CGSC.
  ➢ March 2015, SSR: Mindanao was used as an end-of-course, practical exercise for the CGSC SOF Advanced Studies course (SOF Element, Department of Joint, Interagency and Multinational Operations, CGSC).
  – Intend to use again in March 2016.
  – Provided copies to multiple operational units and agencies.
Lessons Identified/Lessons Learned
What all Attempts to Turn Ideas into Innovations Require

• Ownership, passion.
  – Persistence, proactive energy by lead.
  – Active management of assets and actions.

• A vision/concept that can be explained, supporters and support established.
  – Understand concept(s) and how it can be used in new ways, with other products.
  – Identify and explain patterns and synergies.
  – Think win-win.

• Taking action.
  – Conceptualize, then start doing things.
  – Avoid the “not developed here” wall.
  – Be willing to admit when someone has an improvement over the base concept.

• An ability to take risks, make mistakes.
  – Willingness to step outside the box, outside comfort zone.
  – Challenge the status quo.

• Escaping to think.
  – “Secluded” brainstorming sessions and workshops; spend time together.
  – Capture thoughts and white board content, write things down.

• A product/system of more utility than what has been used before.
  – Underlying aspects may be complex, sophisticated, nuanced.
  – Near-term utility must be relatively easy to understand and be tangible.
  – It must be compatible with the way people currently do things.

• Intermittent, visual successes and products that can be used.
  – Timing and receptiveness.

Superior results emerge when all aspects fire in unison.

Provide intent and focus for innovation; link to mission.

The “proof’s in the pudding:” assess results, measure what’s meaningful.
Discussion

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