Innovation & Technology Adoption

Identifying & Implementing Great Ideas

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NPS
PRAESTANTIA PER SCIENTIAM

Naval Postgraduate School

Introduction

Sponsored by

Homeland Defense & Security, Naval Postgraduate School

- Wendy Walsh

Presenters

Organizational Innovation

- Dr. Neal Thornberry, Forum for Innovation Research & Teaching, NPS

Using practitioner input to increase adoption

- Anita Salem, Center for Defense Management Reform, NPS

A case study in innovation

- LCDR Andre Billeaudeaux, USCG

Organizational Innovation: Antidote or Oxymoron?
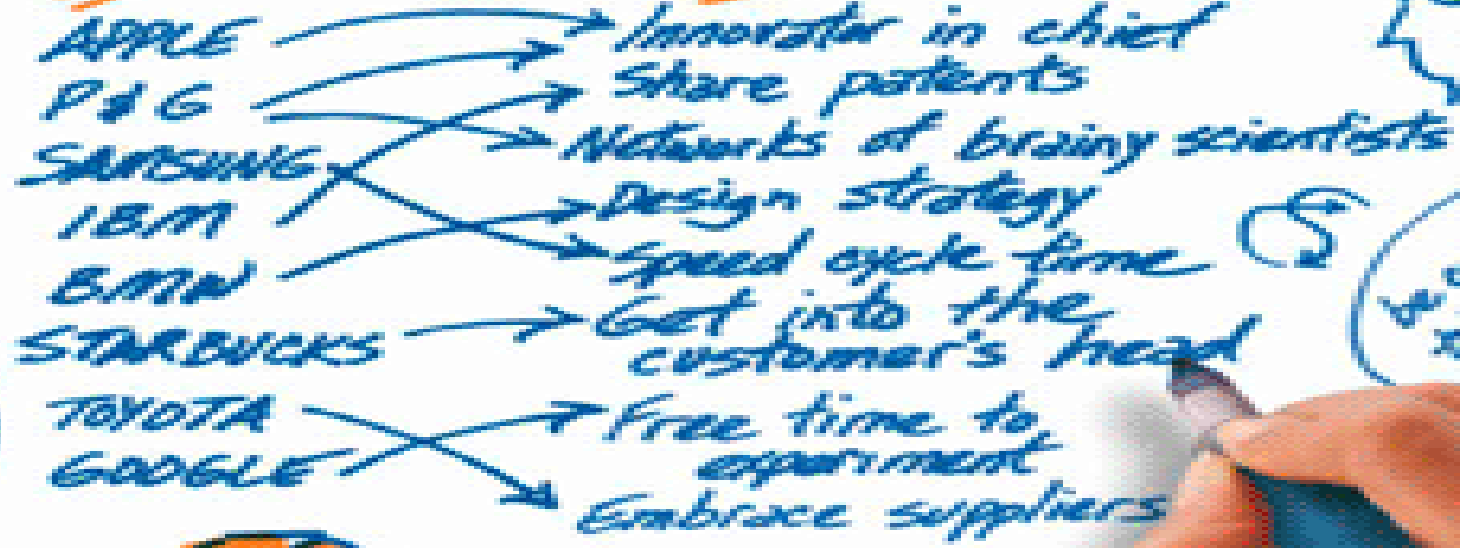
In Search of the *"Dragon"*

BusinessWeek

THE WORLD'S MOST INNOVATIVE COMPANIES p.62

WHO

- APPLE
- P&G
- SAMSUNG
- IBM
- BMW
- STARBUCKS
- TOYOTA
- GOOGLE

HOW

- Innovator in chief
- Share patents
- Networks of brainy scientists
- Design strategy
- Speed cycle time
- Get into the customer's head
- Free time to experiment
- Embrace suppliers

by Jena McGregor

be courageous take big risks!

chats with Sony?!

call a pizza?!

is there an innovation premium in the stock price? oh yeah!!!

Corporate Mortality is very high!

Average life expectancy of all firms, regardless of size, measured in Japan and much of Europe, is only 12.5 years.

The average life span of a multinational organization - Fortune 500 or equivalent - is around 45 years.

One third of the companies listed in the Fortune 500 in 1970 for example, had disappeared by 1983 - acquired, merged or broken to pieces.

The first S&P index of 90 major US firms was created in the 1920s. The firms on that original list stayed there for an average of 65 years. By 1998, the average tenure of a firm on the expanded S&P 500 was 10 years.

Source: The Living Company, Arie de Geus

The Challenge:
Creating and Sustaining Growth

90% of all firms are unable to sustain an above-average growth rate for more than a few years

80% of venture capital funded start-ups fail within the 1st 2 years

75% of new products launched by established firms fail

Source: Christensen, 2004

The State of Innovation

- Where Quality was 10-15 years ago

- Ideation is not the end game(current IBM commercial)

- Implementation & sustainment are the real issues

- Organization for innovation

- Absence of "Best Practices"

- Replication issues

- HR strategies for Jekyll and Hyde personas

- Confusing innovation & entrepreneurship

- Accepting & managing the oxymoron of "organizational innovation"

- Legitimizing "Corporate Judo"

- Lack of disciplined methodologies to differentiate great ideas from great opportunities

The 7S + 1 Framework
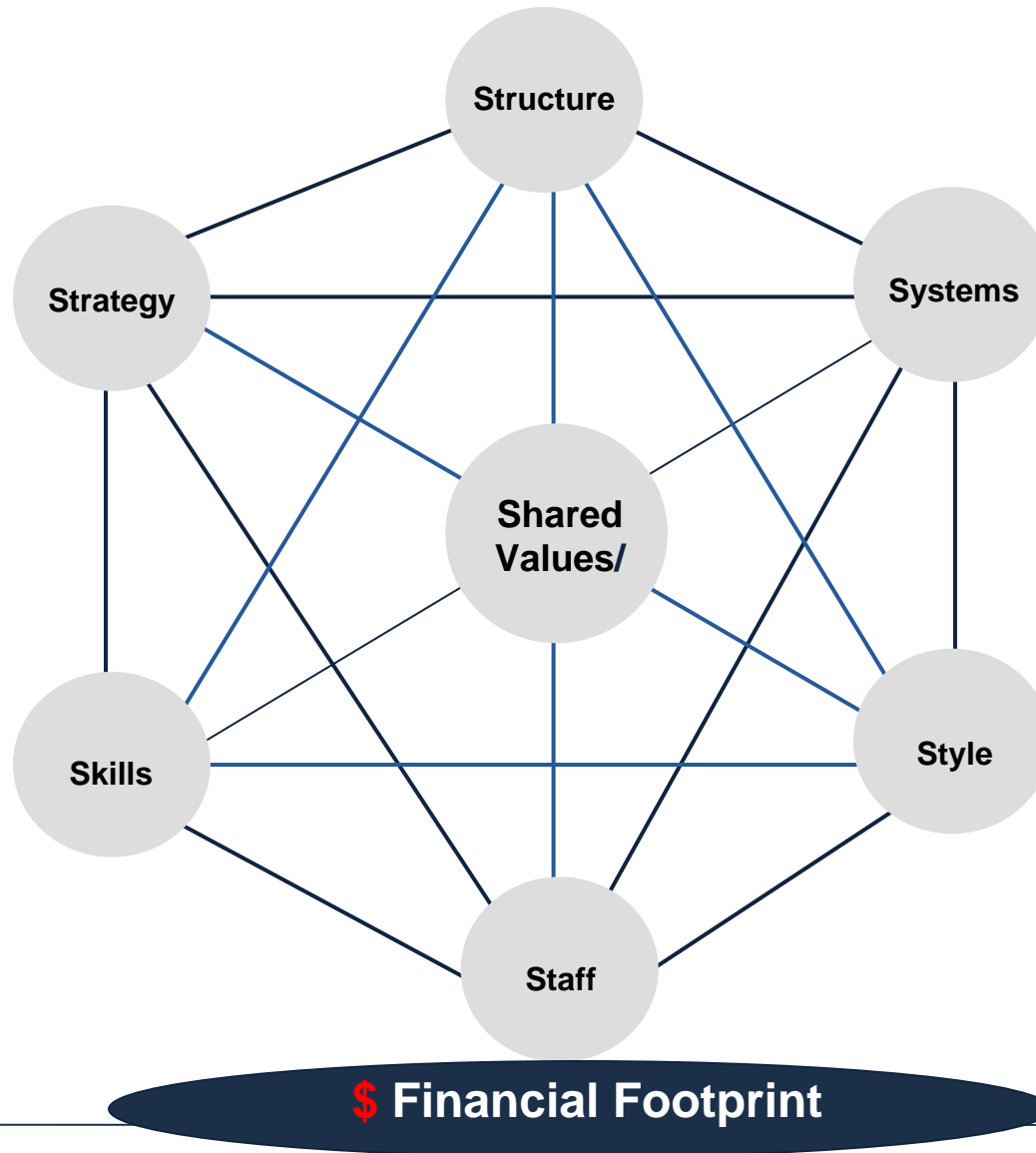
Entrepreneurship: Innovation's lesser known sibling

Entrepreneurship always involves innovation; Innovation does not always involve entrepreneurship

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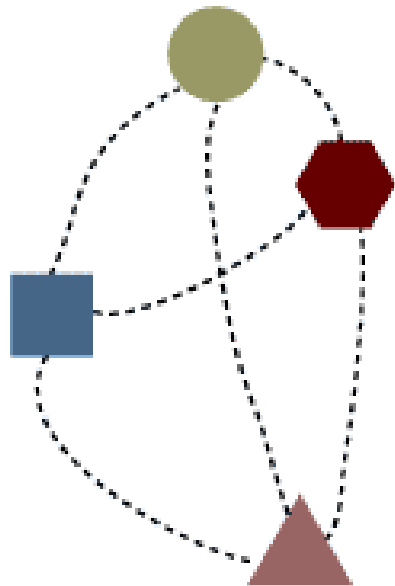| Opportunity Identification | ⟷ | Opportunity Shaping | ⟷ | Opportunity Capturing |

The Balancing Act

Timmons, 1999

Will the Innovation Create Value?

$$V = B/C$$

A new model of Innovation

Innovation Network

| Business model	Specialization
Inventor	Intellectual powerhouses that conduct basic science research and/or design products and services that result in patentable inventions. **Example:** MIT, IDEO, SRI, GE Global Research, KAIST, Celera, Oxford, Microsoft Research, HP Labs, CNRS, Persistent, IIT
Transformer	Multifunction production and marketing services that convert inputs from Inventors and other Transformers into valuable business innovations for either internal or external customers. **Example:** Dell, Pfizer, BP, Merrill Lynch, SAIC, IBM, Infosys
Financier	Funding source for Innovation Network service providers — especially Inventors and startup Transformers. Financiers will seek to own intellectual property rights for inventions. **Example:** Cargill Ventures, Silicon Valley Bank, Garnett & Helfrich Capital, InterActiveCorp, ICICI Bank, Vulcan, IP2IPO
Broker	Market makers that find and connect Innovation Network service providers — buying and selling or enabling service delivery both within and among companies. **Example:** Knowledge Campus, yet2.com, PLX Systems, Big Idea Group, InnoCentive, Evalueserve, ISTC, Intellectual Ventures, P&G's Technology Entrepreneurs, DCMA, METI, TiE

Source: Forrester Research, Inc.

Opportunity Evaluation

- Differentiate good ideas from real opportunities
- Business plan or paying customer
- Follows the opportunity think inking process
- Compelling, defensible, durable, sustainable
- A unique value proposition for a customer set
- Is the value worth the risk?
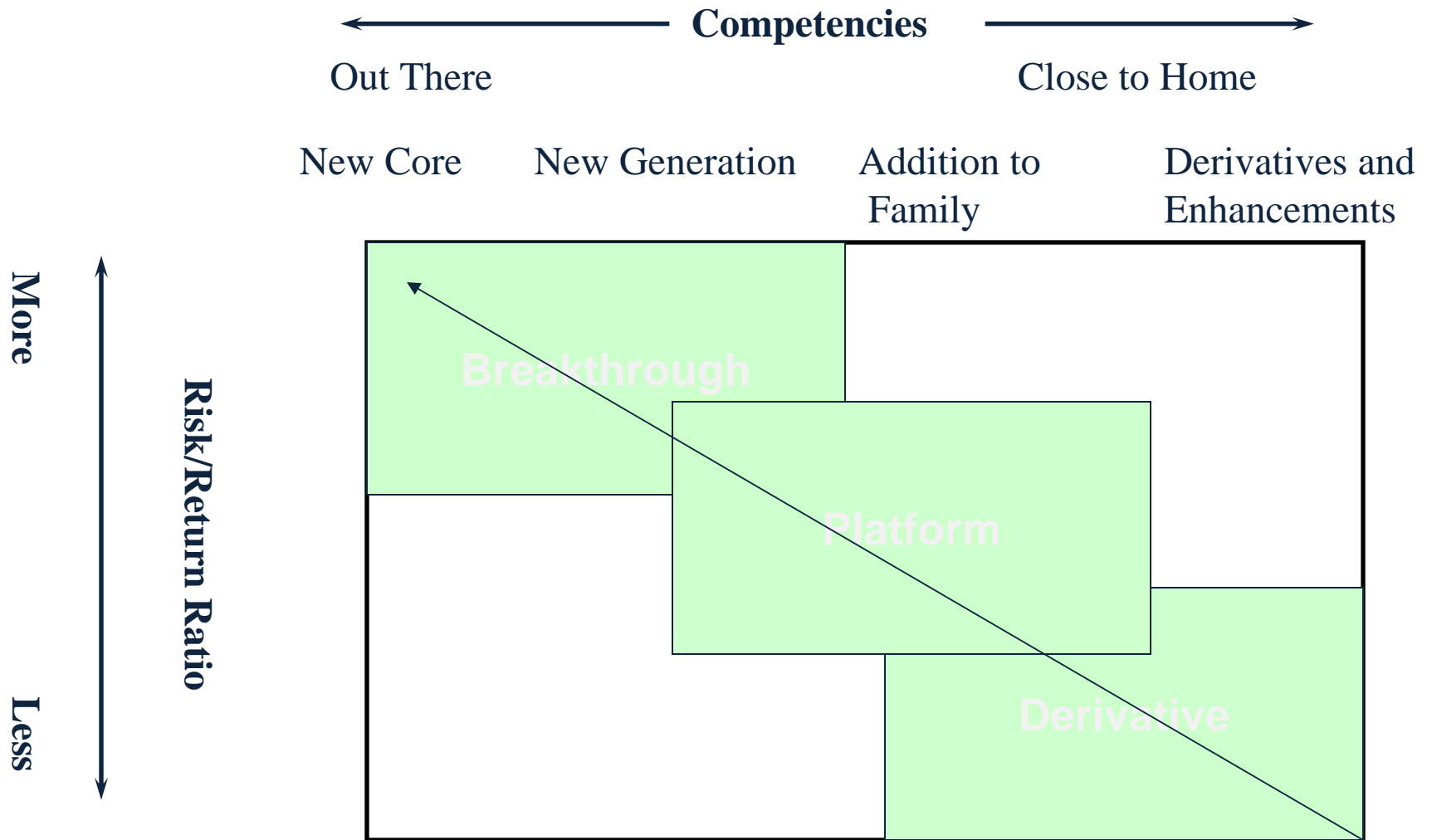
The Balancing Act

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Opportunity Identification ⟷ **Opportunity Shaping** ⟷ **Opportunity Capturing**
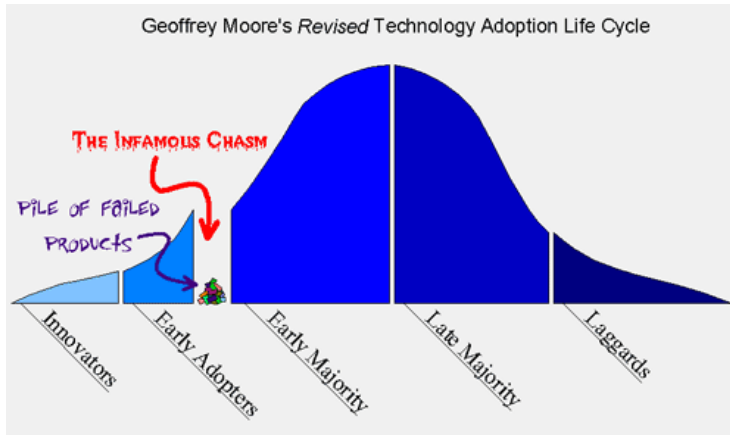
Opportunity Identification & Shaping

How light bulbs are powered by logic

Using practitioner input to shed some light

1. Human barriers to adoption

2. Methods for understanding the "problem space"

3. Practice session on problem analysis

4. What people need

Problem 1: Designing for wide adoption

Geoffrey Moore's *Revised* Technology Adoption Life Cycle

THE INFAMOUS CHASM

PILE OF FAILED PRODUCTS

Innovators | Early Adopters | Early Majority | Late Majority | Laggards

- Features vs. Usability
- Desirability vs. Efficiency
- Narrow vs. Wide adoption

Problem 2: Designing for interoperability

- Language—codes vs. natural language
- Frequency of use—Police & Fire vs. Utilities
- Training—Learnability vs. Intuitiveness
- Culture—big city vs. rural

"Governance is the greatest gap being found in field testing of interoperability initiatives"
Robert Zanger, U.S. Department of Justice

Organizational ROI

- Customer…..convenience, ease of use, features
- Social……….benefits to society or group
- Operational...improved infrastructure, efficient processes
- Strategic….....fulfilling the mission, aligning with strategies
- Financial…...increased revenue, lower costs, risk reductions

Human goals

- Human needs and goals drive value
- Value varies by practitioner (interoperability)

GIS software for "Best Practices" *Police:* officer **safety** page of Intranet **through** **Process** **shares information** **improvement** between **water supply facilities** departments exercises and agile increasing practices from compliance of the **software** **use of PPE's** for **$90 million** the Department of increased Labor & Industries revenues based on A/B testing of phones
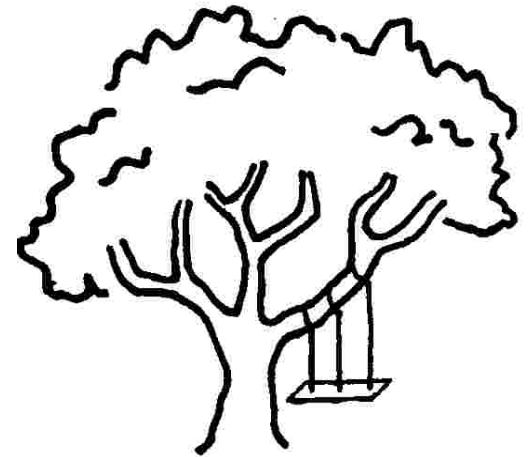
Don't do this
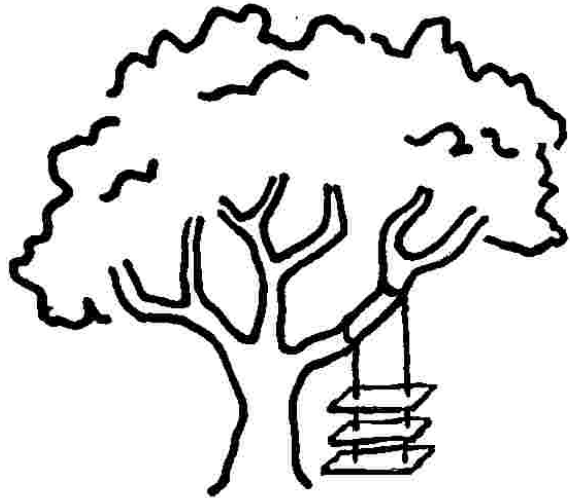
Features over usability
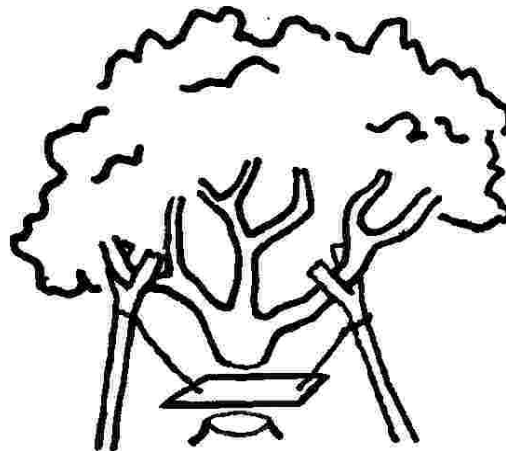
Product requires extensive customization

Specs based on system not users

Human: Infant/Parent
Need: Calmness/Safety & Time

"It's for gentle soothing and rocking for baby, not for jostling and bouncing fun, that's what a bouncer is for"

Provide value based on *human needs*

Human: Adult
Need: Relaxation

"The minute I sat in it all the stress of the day was erased."
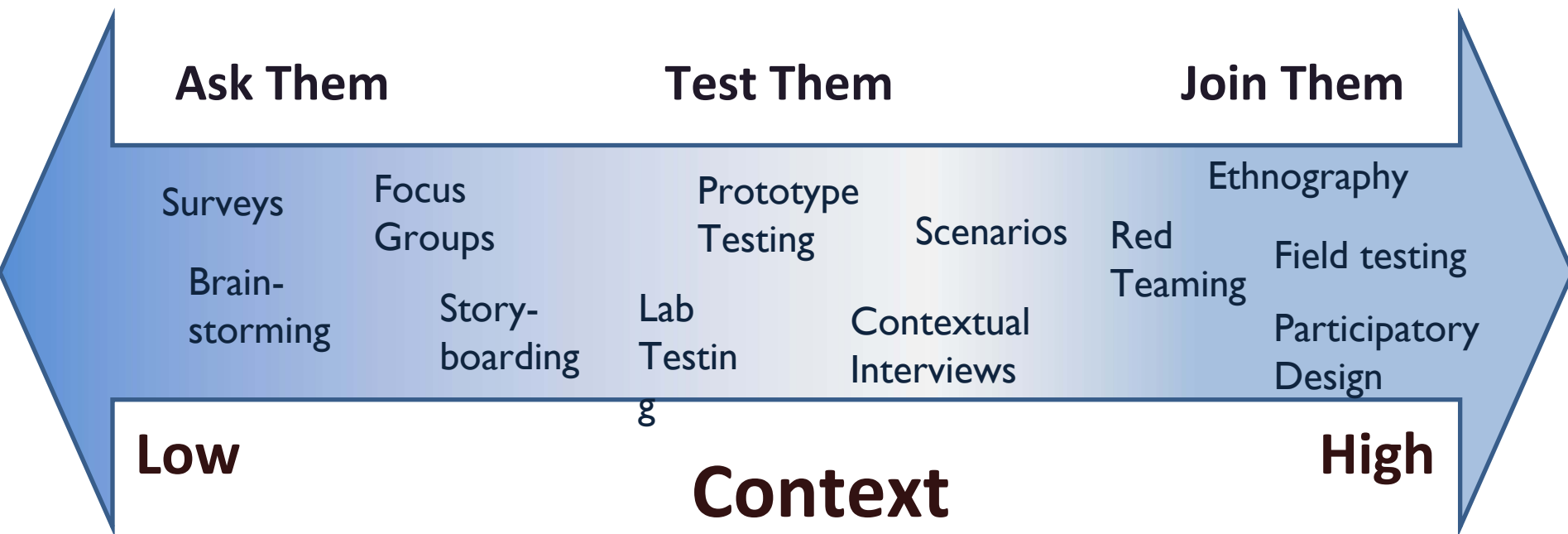
Human: Adult**s**
Need: Relaxation & Intimacy

*"**We** can read, nap, or enjoy a drink in comfort"*

Understand what people want

Understand the context of use
Who, what, why, where, when, and how

Ask Them   **Test Them**   **Join Them**

Surveys   Focus   Prototype   Ethnography
                 Groups   Testing   Scenarios   Red
Brain-   Teaming   Field testing
storming   Story-   Lab   Contextual   Participatory
                 boarding   Testin   Interviews   Design
                                g

Low   **Context**   **High**

An exercise in discovering value

The mobile phone contextual interview

1. Partner up with 1-2 others
   - One person gets interviewed
   - One person interviews
   - One person takes notes of issues

2. Ask them to talk about their mobile phone use
   - What do you like best?
   - What do you like least?

3. As things come up, ask them:
   - **Why** they do it?
   - **How** they actually do it
   - **Have them provide an example or show you**

Why?

How?

Examples!

Specify what people want

Effectiveness	Efficiency	Desirability
Metric	**Metric**	**Metric**
Success rates	Errors	Purchase patterns
Adoption rates	Time measurements	Attitudinal Surveys

Examples of Good Opportunities

iPhone

"It just feels so natural …every screen should be able to be touched"

"This is the perfect solution for people like me who simply want to make calls and send the odd text message,"

"It's sleek, you can keep in contact with anyone, anywhere! surf the web, share pics, or email... and its all at your fingertips!"

"All of us kids have been wondering when a 'senior-friendly' phone would hit the market

Case Study in Innovation

The Coast Guard
Post 9-11

The 7S + 1 Framework / Post 9/11 CG

Structure

Strategy

Systems

Shared Values/

Skills

Style

Staff
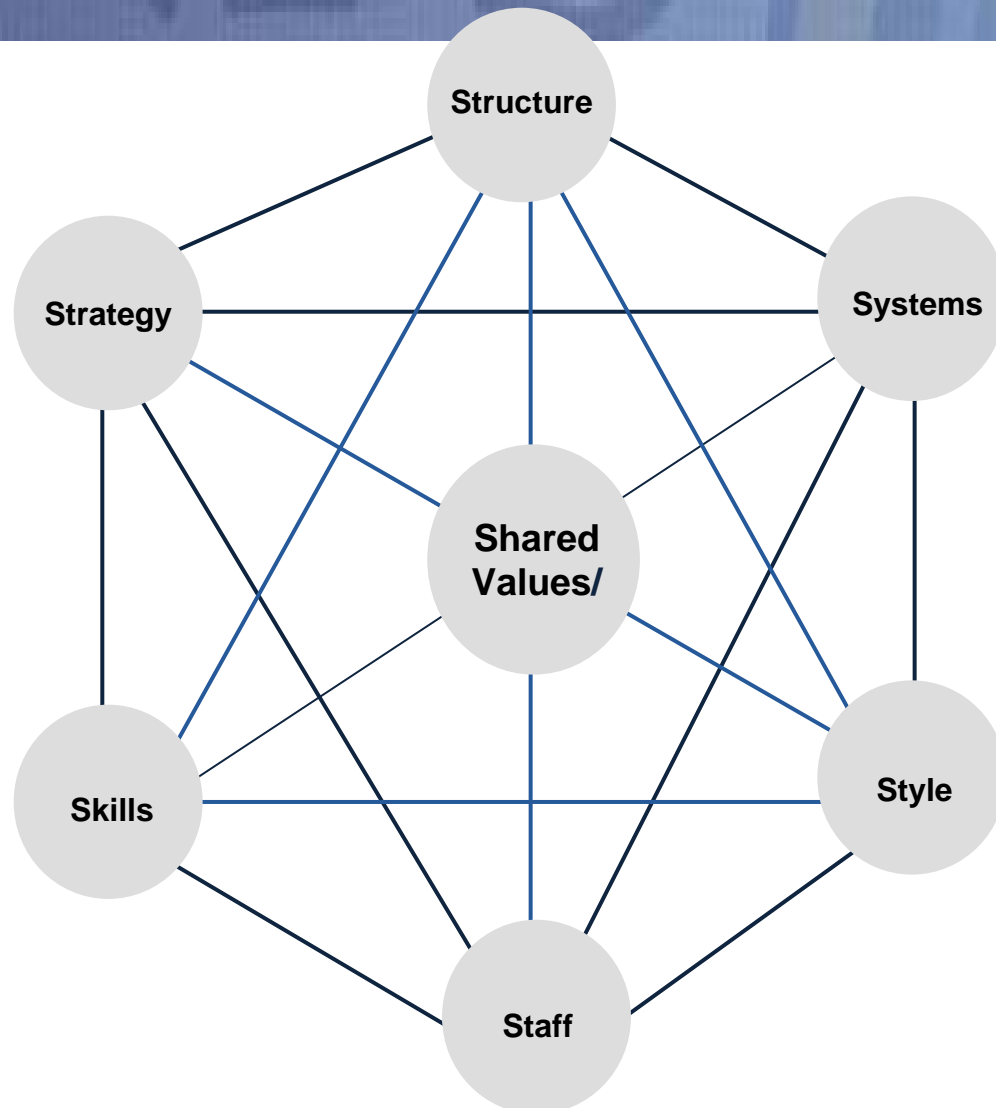
Post 9/11 CG Footprint

Coast Guard post 9/11 Strategy

"The vastness and complexity of the maritime domain make public and private partnerships a *prerequisite* of preparedness and effective response."

Then Vice Admiral Thad W. Allen before the Senate Committee on Commerce, Science & Transportation March 9, 2006

"The maritime threat environment of the 21st Century *requires* broader scope and a more comprehensive vision.

We *must* look beyond traditional surveillance of ports, waterways, and oceans, and continuously adapt to new challenges and opportunities.

We *must* set priorities for existing and developing capabilities to efficiently minimize risks while contending with an uncertain future."

The National Plan to Achieve Maritime Domain Awareness for the National Strategy for Maritime Security Oct 2005

Coast Guard Staffing Picture

1 firefighter for every 280 people
1 million firefighters – 750,000 volunteer

1 sworn officer for every 385 people
436,000 sworn law enforcement personnel
291,000 sworn sheriff's office personnel

1 EMT/paramedic for every 325 people
860,000 all levels of pre-hospital services:
basic EMT, intermediate EMT, paramedic

1 Coast Guardsman for every 6,300 Americans
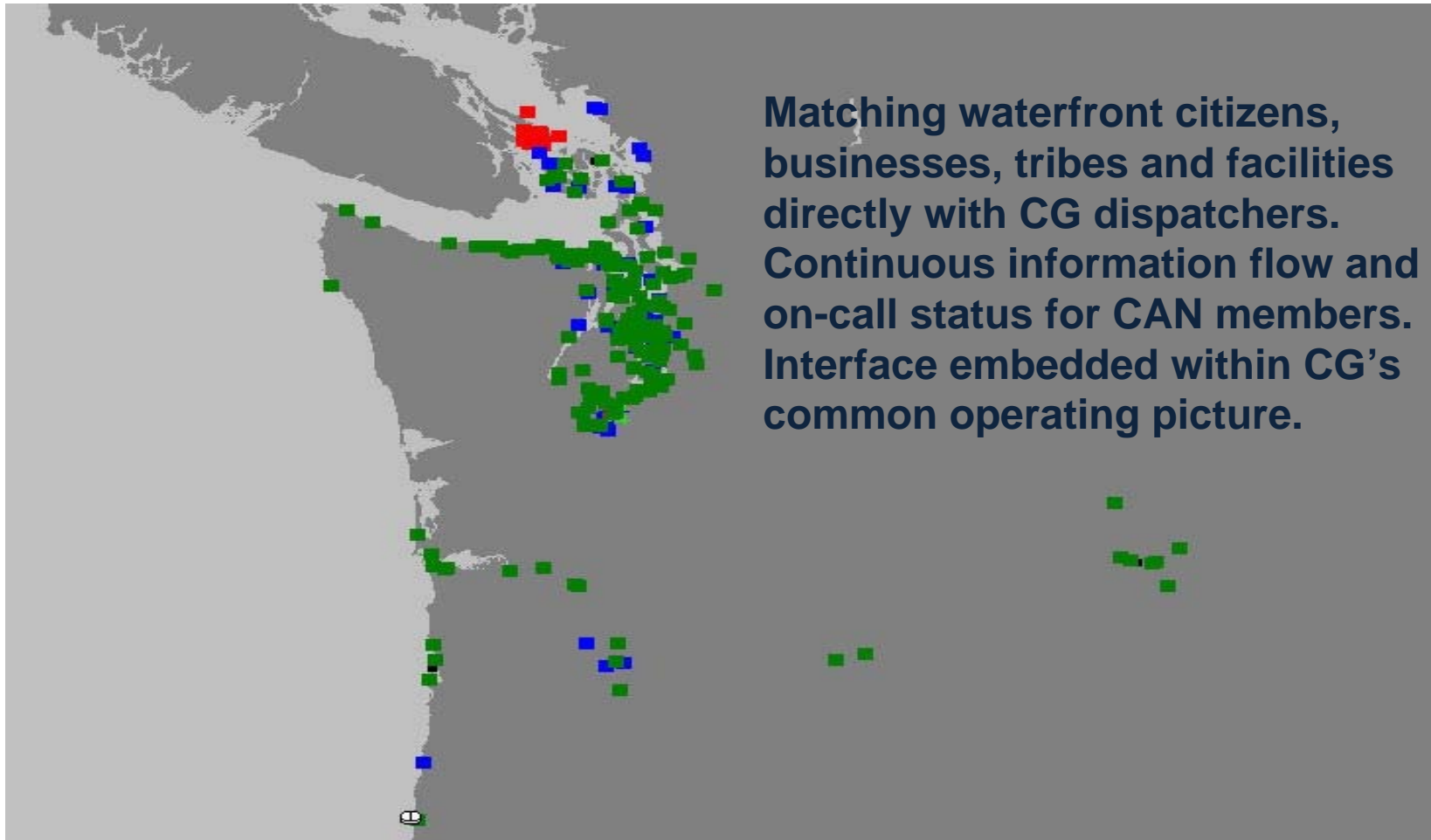**1 Direct Operational Coast Guardsman for 50,000 Americans**
1 Direct Operational Coast Guardsman for every 16 miles of shoreline
45,000 Active Duty Coast Guardsmen

Coast Guard Structure

- In 2001 the strain of Coast Guard's mission demands came to light. Studies by the Inspector General & a CG internal review team that year found that readiness conditions at the 188 CG multi mission stations had been deteriorating for over 20 years. This debilitating situation was exacerbated after 9/11 according to the GAO

- After 9/11, the GAO found that the CGs multi mission stations had experienced a substantial rise in overall activity levels. This rise in mission demand came with a prioritization of the CG's new homeland security demands. Field stations were summarily assigned the brunt of the Coast Guard's port security responsibilities and considerable increases in the stations' security workloads.

- This trend is documented in boat operational hours before & after 9/11. Boat hours increased by 44%. From 217,000 hours prior to 9/11 to 300,000+ hours by the end of FY 2004.

- Traditional missions, SAR, RBS, Environ Protection etc. suffered.

DHS/Coast Guard Innovation

Matching waterfront citizens, businesses, tribes and facilities directly with CG dispatchers. Continuous information flow and on-call status for CAN members. Interface embedded within CG's common operating picture.

Membership maintained in C2PC System

Common Operating Picture

Skills – Dispatchers working with waterfront citizens

The Coast Guard received a report from the Royal Canadian Mounted Police that a 28-foot Boston Whaler was stolen from Victoria, British Columbia in March 2007. Auto alerts were put out to CAN and the vessel was spotted the following day deep into US waters. It was recovered following a multi-week investigation.

A homeless man steals a 42-foot yacht and flees with a hostage into the vast South Puget Sound. Several CAN members called up and put on watch. Over three hours the vessel is ID'd and a successful arrest is made. Hostage is released safely.

A Canadian resident observed small vessel approach shore from nearby island at night, no lights. RCMP Investigation on nearby island revealed MDA lab in pre-production phase.

CAN Members placed on watch in response to a bomb threat to the Tacoma Narrows Bridge; aided USCG & LE in identifying unusual boats or beachgoers in area.

Skills – Dispatchers working with Waterfront Citizens

USCG called RCMP requesting assistance in locating vessel that was evading detection. RCMP called upon their CAN and suspect vessel was twice located in transit. Info relayed to USCG who affected a successful apprehension.

A CAN member called in a suspicious cylinder which had washed up on a community beach. The Coast Guard sent investigators to the scene and assessed it to be hazardous. The cylinder was safely removed and disposed of.
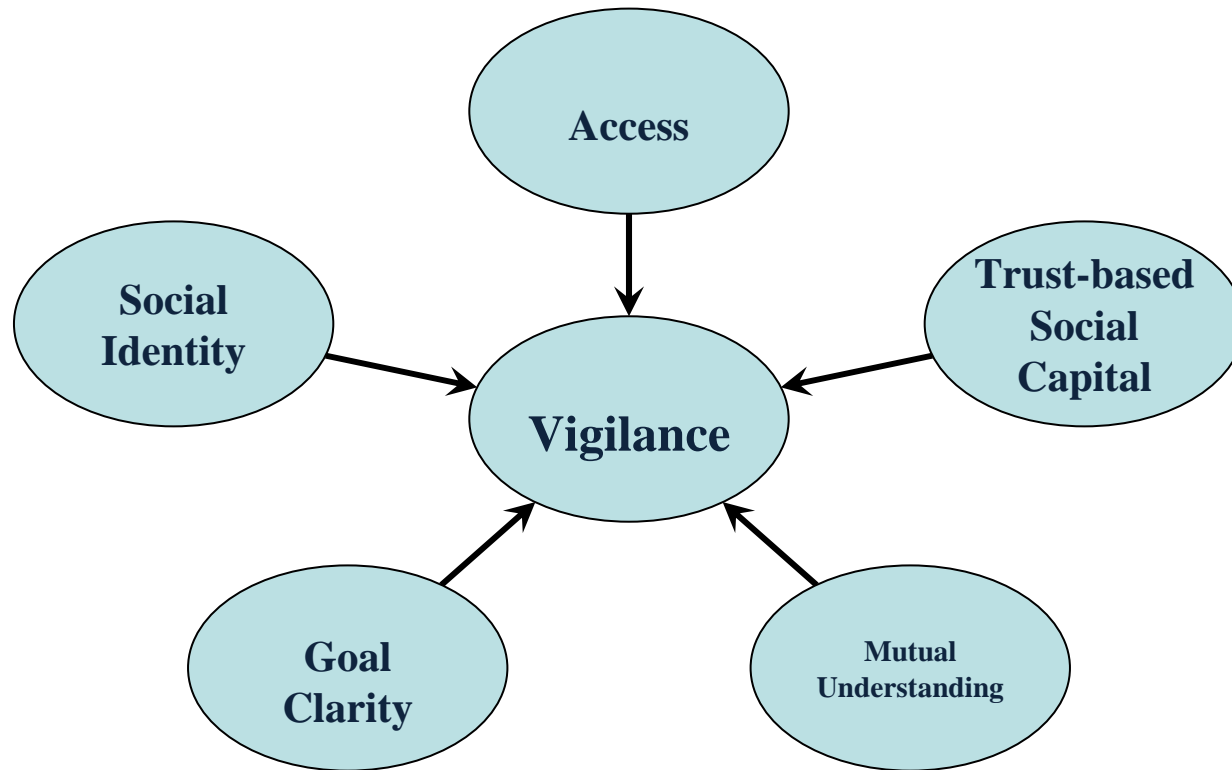
A Canadian citizen observes decrepit vessel in British Columbia. Aware of Coastal Watch profiles, he calls Coastal Watch reporting number. RCMP able to respond to apprehend 159 PRC migrants on board

Outcome: Shared Values

Are you Entrepreneurial?

- Efficiently Gets Proposed Actions Through Bureaucratic Red Tape and into Practice

- Displays an Enthusiasm for Acquiring Skills

- Quickly Changes Course of Action When Results Aren't Being Achieved

- Encourages Others To Take The Initiative for Their Own Ideas

- Inspires Others To Think About Their Work In New and Stimulating Ways

- Devotes Time To Helping Others Find Ways To Improve Our Products and Services

- Goes To Bat for The Good Ideas of Others

- Boldly Moves Ahead with a Promising New Approach When Others Might Be More Cautious

- Vividly Describes How Things Could Be in the Future and What Is Needed to Get Us There

- Gets People to Rally Together to Meet a Challenge

- Creates an Environment Where People Get Excited about Making Improvements

Questions?