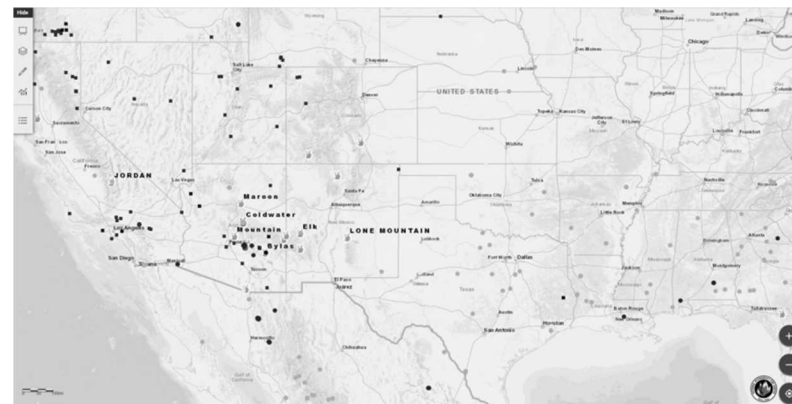


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Wildland Fire Fighting... Making the Knowledge Leap



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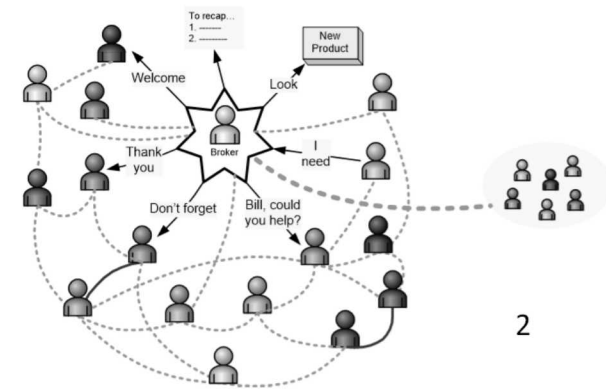
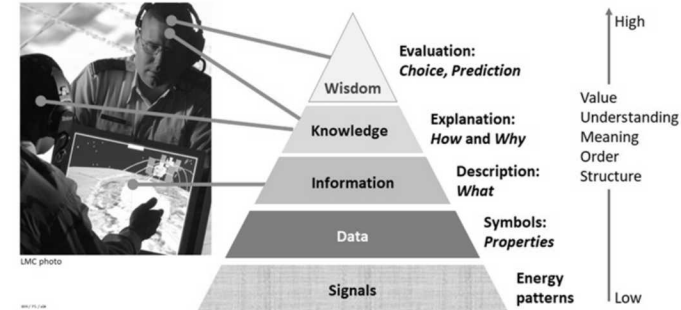
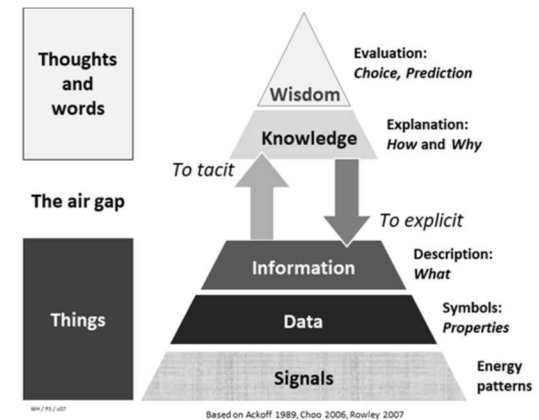


Outline – Bottom Line Up Front (BLUF)

Information: Necessary and important but not sufficient for ***Shared Situational Awareness*** which *is in minds not machines* - must *design the tech to fit the people* and jump the air gap between things and thoughts

Lessons Learned: Hundreds of global operations, including rapid evacuations of personnel - *team of teams approach* using **collaborative chat** for real-time crowdsourcing and sense-making to jump the gap – **Can the Fire Community Adapt?**

Change is Hard: Must understand the **What, Why, and How** of real people doing real operations to transform operations - *“Ensure the velocity of decision-making out races the velocity of the wildfire”*



Story Telling – Real-World Evacuation

Direction: U.S. Embassy will close due to a clear and present danger...

Mission: On or about _____, evacuate personnel and equipment – Life safety is priority-1

Assets Available: High-priority air and ground sensors along with national assets – produced a data tsunami

What Happened: *Successful mission but – we found ourselves drowning in data, starved for information, seeking sense-making*



Lessons Learned and Could They Apply to Wildland Fire Fighting Challenges?

#1 The challenge of vast and fast information is that more data often does not reduce situational complexity and ambiguity

#2 The culture of tactical responsiveness inverted our traditional priorities – too late model

#3: Single viewpoint situational awareness is necessary but insufficient in complex, adversarial contexts

#4: We needed to make the “knowledge leap”



#1 – Vast and Fast Information

The challenge of vast and fast information is that more data often does not reduce situational complexity and ambiguity

**It's 0300 Sunday morning
and the three questions
are:**

***Has something changed?
What could happen next?
Are we still prepared?***

**The Fog of War is
forever...**



LMC

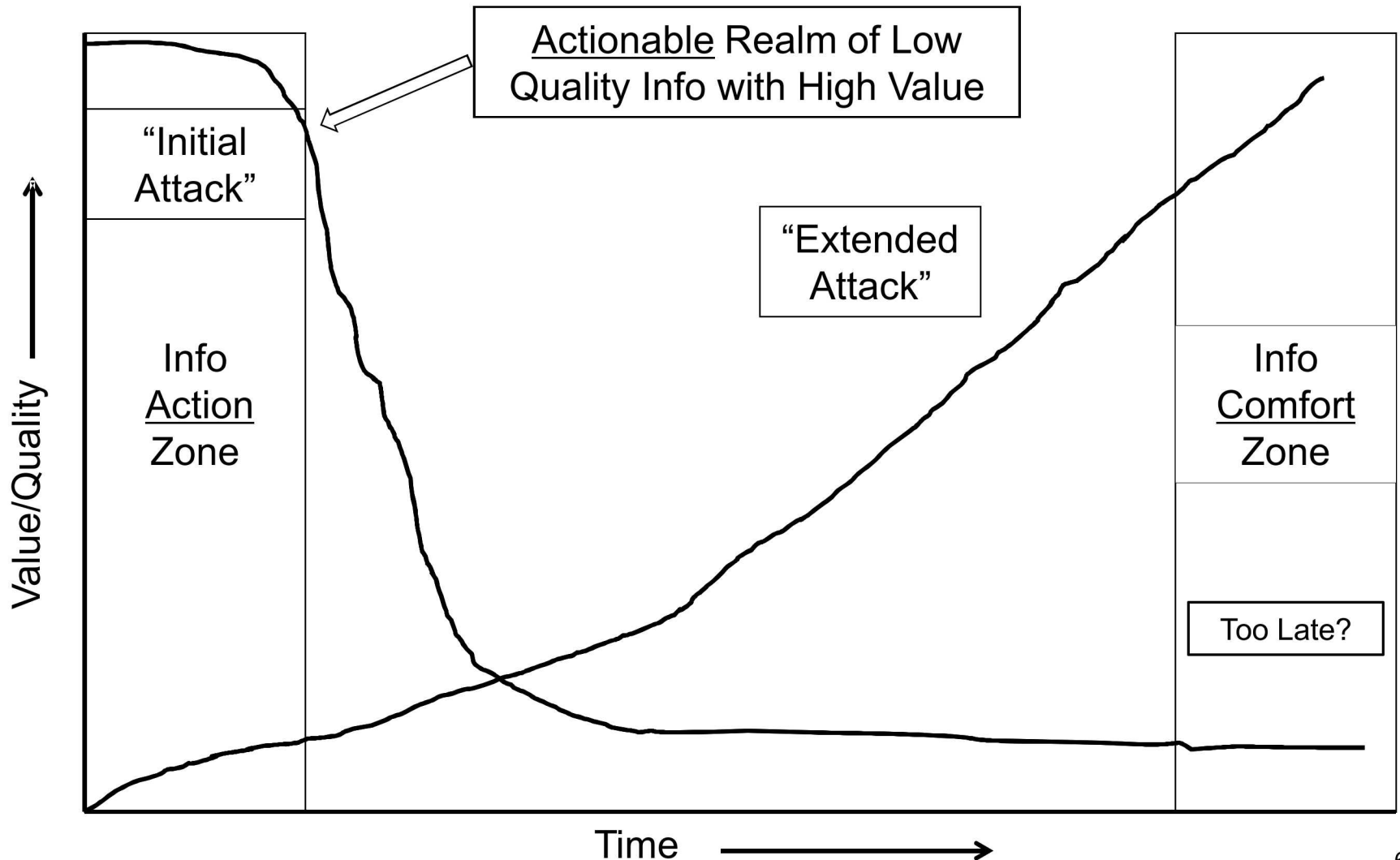
**Top-Down Solutions
are insufficient:
More process
More hardware
More software
More bits of precision
More quantification**

**The surprising bottom-up solution in this technical, formal environment:
more informal interaction via social media...**

“Who can we dialogue with?”

#2 - Tactical Responsiveness Inverts Our Traditional Priorities

Time Versus Value/Quality of Information



Single-viewpoint situational awareness is necessary but insufficient in complex, adversarial contexts

Situational Awareness:
maintaining a mental
model of what has
happened and is
happening in your
threat / opportunity
environment †



Situational understanding:
Using your mental
model to simulate the
near future and
options †

Problem: An individual or a single team often cannot reconcile contradictory information and multiple causes and effects

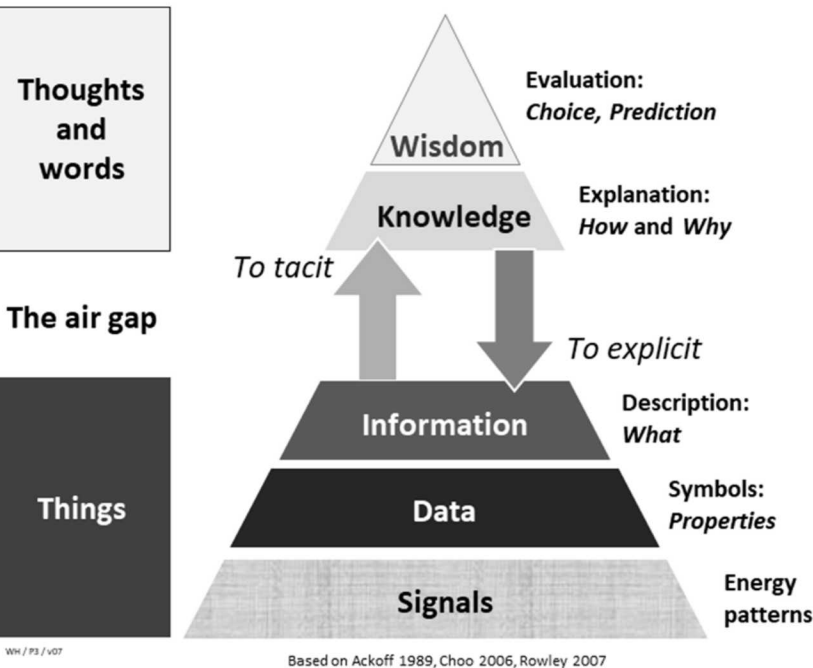
Solution: Rapid dialogue with people whose mental models are correlated but slightly different: “People look beyond information to triangulate reliability”*

“Anybody talked to the analysts about what they are really thinking?”

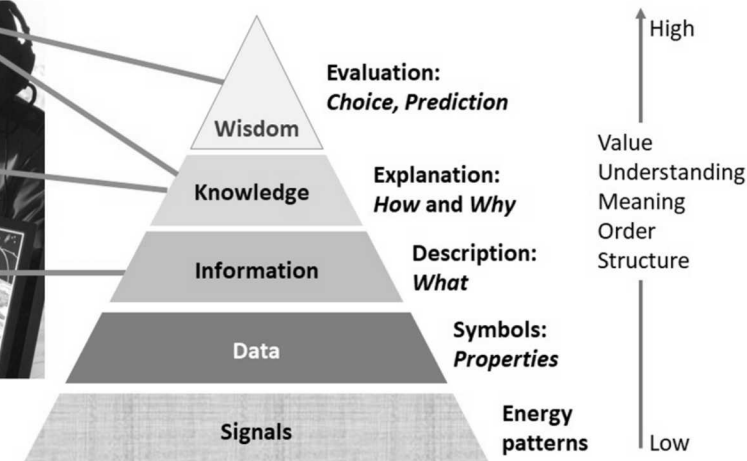
†based on Endsley; Klein; Weick, et al., 2005; others

*Brown & Duguid, 2000, *The Social Life of Information*.

Situations remain hard because data and machines are necessary, important but not sufficient

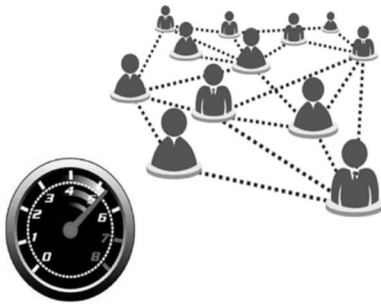


Human communication blends information and knowledge



Making the Knowledge Leap

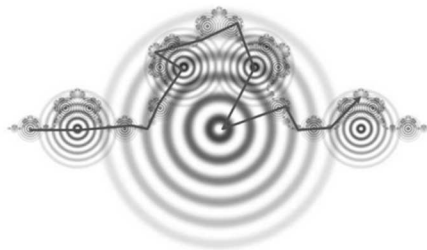
Accelerate the Social



Discover Others



Accelerate Interaction



Email



Social Media
& Chat Rooms

Collaborative chat allows situational awareness / understanding across semi-cooperative organizations

Team of teams approach



**Sensor ops
tribe**



**All-Source
Analysis
tribe**

20:10:15 Hugh: @Sam, what does *your* crystal ball tell us about near-term situation? It appears the opportunity for mis-calculation is high ...your thoughts sir?



**Crisis Cell
tribe**

Human Net is built on:

- Crowd sourcing
- Tradecraft
- Best practices
- Behavior modeling

Chat - easy to use, easy to configure,
cost effective, low-impact

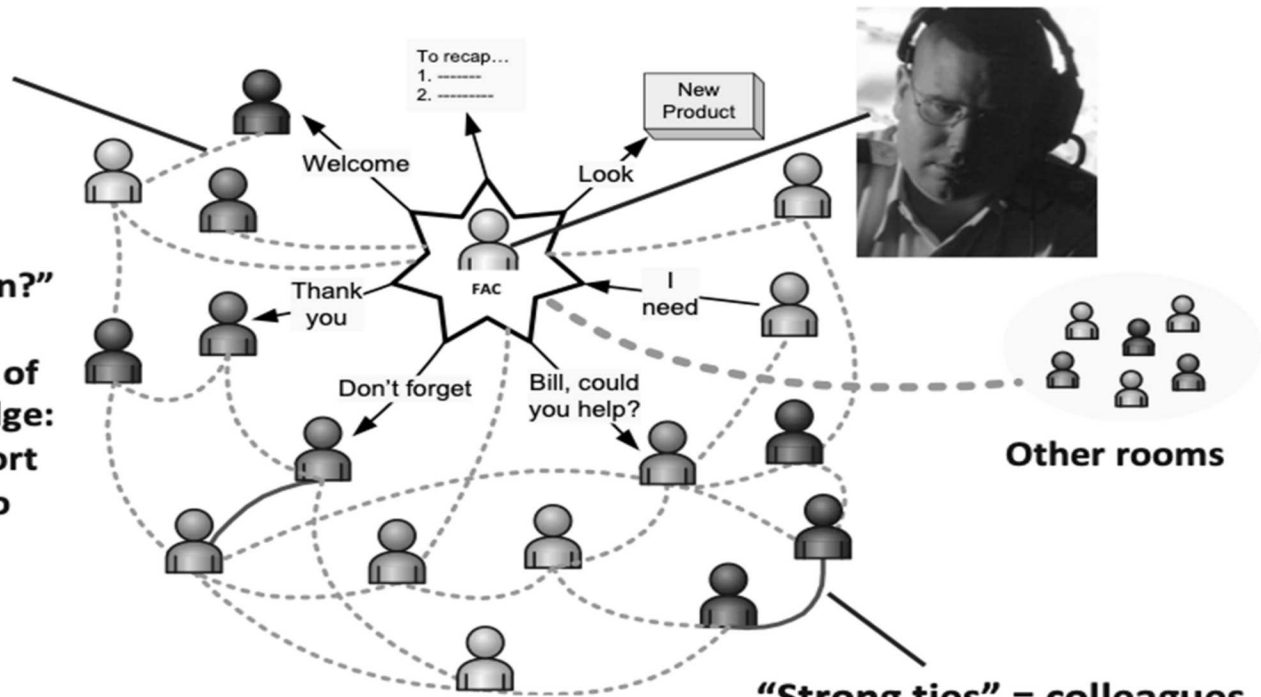
How Does a Large, Online Chat Space Work?

CollabOps facilitators cultivate *weak ties* that induce cooperative behavior over social distance

"Weak ties"* = acquaintances.

Orienting conversations:
"What's going on?"

Communication of explicit knowledge:
"We have a report you might like to see"



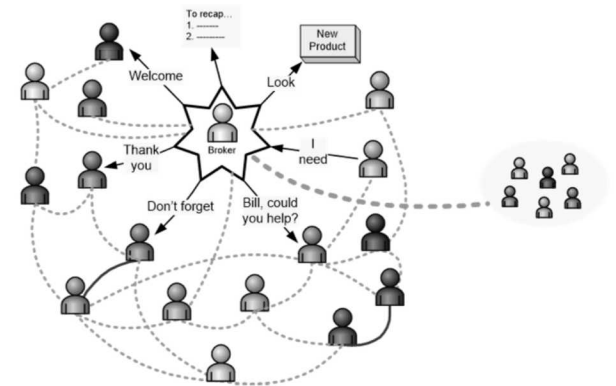
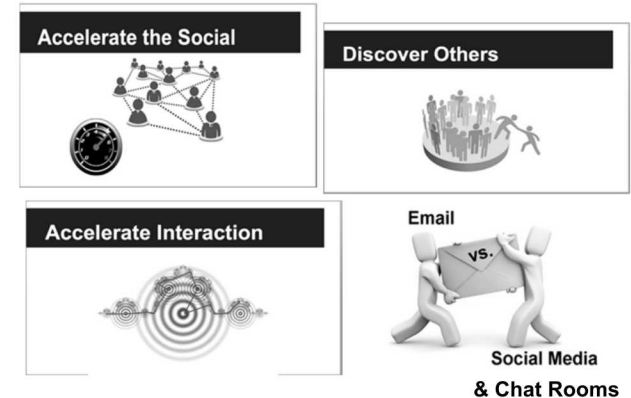
Creation spaces: "Environments that effectively integrate teams within a broader learning ecology so that performance improvements accelerate as more participants join" (Hagel, Brown, & Davison, 2010, p. 18)

*Granovetter 1973, 1983

"Strong ties" = colleagues.
Tacit knowledge: know-how.
'Crucial conversations': our risks, our decisions.

Collaborative chat –

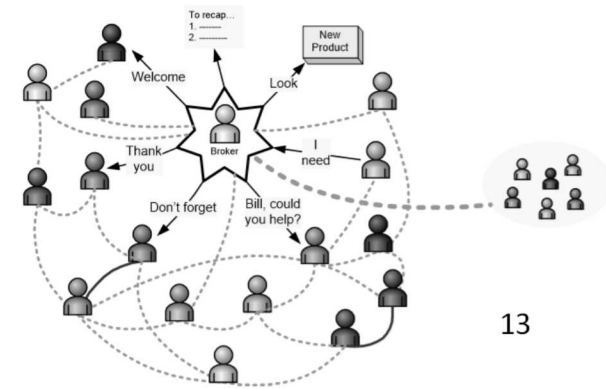
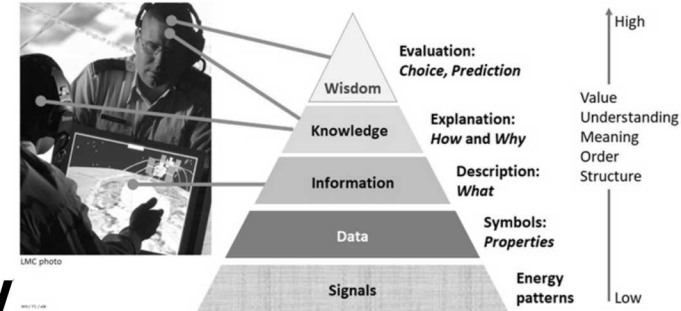
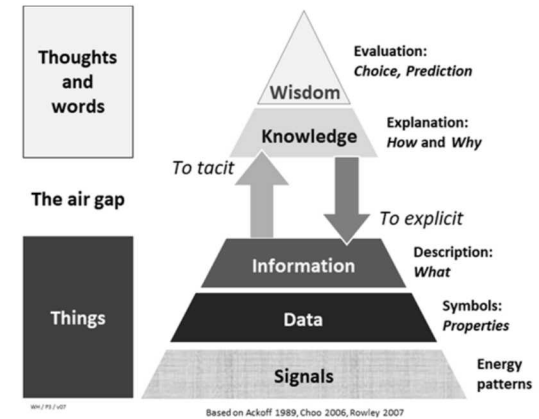
- Force multiplier for limited resources – team of teams approach
- Enhances, accelerates decision-making
- Focuses attention
- Brings diversity to sense-making
- Increases discovery
- Matches expertise to opportunities, faster



Shared situational awareness is in minds not machines so we have to make the tech fit into the teams

Team of teams collaboration using online, real-time **chat** for crowdsourcing and sense-making can help the wildland fire fighting community jump the knowledge gap

Must understand the **What, Why, and How** of real people doing real operations to transform operations - *“Ensure the velocity of decision-making out races the velocity of the wildfire”*



Tailorable, Flexible, Targeted Mobile Training Team (MTT)

- **Individual** - Targeted one-on-one training
- **Seminars** - ~4hrs; Overview of the basics
- **Workshops** - 3 days; team-centric; tradecraft, best practices, scenarios
- **Full Course** - 5 days; full immersion; final project; certification provided
- **Leadership Overview** - High-level; return-on-investment (ROI) emphasis

COLLABORATION SERVICES
The Human Dimension



Stellar Solutions, Inc. is an engineering services firm that provides high-caliber talent to complex projects in defense, intelligence, civil, and commercial sectors.

Our Collaboration Program provides exceptionally qualified experts for the most demanding challenges facing our customers.

Good Collaboration Can't Wait. Today's workforce needs more than collaboration technology to work effectively and be successful.

Credentials	Expertise and Experience	Services Provided
<ul style="list-style-type: none"> Training program designed by a former senior national-level Intelligence Community (IC) collaboration facilitator and two current IC facilitators certified to represent regional and functional National Intelligence Managers in multifaceted, collaboration environments. Extensive experience with building and working in complex business environments with geographically and locally dispersed teams. Skilled in coaching, mentoring and training individuals in state-of-the-art online collaboration using crowd sourcing, tradecraft and best practices - learn by doing approach. 	<ul style="list-style-type: none"> Developed and implemented innovative collaboration concepts at Department of Defense (DOD) locations - these concepts remain in use today, continue to be replicated across numerous organizations. Manages NRO's Collaboration Enterprise Program Office. Trained and certified watch officers, program managers, collaboration operators and Intelligence Coordinators. Developed Concepts of Operations, Standard Operating Procedures and mission critical foundational documentation. Working with Wildland Fire Teams and Incident Response. 	<ul style="list-style-type: none"> Mobile Training Team (MTT): Single instructor who comes to your location, flexible, tailorable approach dedicated to your organizational needs. Individual: Targeted one-on-one training Seminar: ~4-hour overview covering the basics Workshop: 3-days, team-centric; tradecraft, best practices - includes scenario work Course: 5-day course, full immersion on understanding how the human dimension, enabled by today's tech, is used to enhance collaboration within your enterprise - certification provided. Leadership Overview: High-level, ROI focused

"Crowd Sourcing, Tradecraft and Best Practices - Pushing Collaboration Beyond Technology to the Human Dimension"



What Does Information Consume?

“What information consumes is rather obvious: it consumes the attention of its recipients.

Hence a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it.”

Herbert A. Simon, Nobel Laureate, 1971.

Programmatic/Training

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Questions, Comments? -
Interested in knowing more
about the training?

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