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Modern Approaches to Multi-INT Analysis

In a Big Data World

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The Problem of Information Fusion:
"We are drowning in information but starved for knowledge. This level of information is clearly impossible to be handled by present means. Uncontrolled and unorganized information is no longer a resource in an information society, instead it becomes the enemy."

– International Society of Information Fusion
Concept of Operations Change

“Puzzles”/Known Problems  “Mysteries”/Knowable Problems
Look for known threats  Look for changes
Targets are Static  Targets are Dynamic
Limited Cross-Reference  Cross-Reference to Discover
Exploitation then Integration  Integration then Exploitation
TCPED – “linear”  OODA – “loop”
Products & Reports  Relationships & Patterns
Limited sensors/data feeds  Swimming in sensors

Fundamental changes in how the data is analyzed
What’s Inhibiting Multi-INT Today?

There is Too Much Data
Organizations are struggling trying to collect and analyze all of this data.
What’s Inhibiting Multi-INT Today?

• It’s happening but it’s been about heroics
  – Craftsmen working together building exquisite products

How to scale?
How Does Big Data Affect Multi-INT

- Distributed sources
- Distributed processing
- Distributed analytics

How best to fuse?
What data do you trust?
What to do??

- Embrace VUCA
- Adopt Concept of Data Aggregators
- Build Bridges Between IT and Tradecraft
- Generate Consumable Products
Embrace VUCA

**Old**
- Control
- Predictability
- Fine tuning
- Puzzles
- Clarity
- Evolutionary

**New**
- Destruction
- Surprise
- Confusion
- Mysteries
- Haziness
- Janusian

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Adopt Concept of Data Aggregators

Different organizations create silos based on their mission needs
Adopt Concept of Data Aggregators

Need distributed data collection but shared availability
Data Aggregator Functions

- Provide value added processing
- Broker relationships between producers/consumers
- Provide marketplace for consumers
- Provide scalable distribution services
Linguistics, Political Science, Regional Expertise

Math, Computer Science, Engineering, Music

I don’t trust anyone, lives are at stake

Trust me, I know what you want

Unique situations - need CONTEXT

Similar situations, let’s ABSTRACT

Synthesis, implicit connections

Modularity, explicit connections
Build Bridges Between IT and Tradecraft

Collaboration

Transparency

Utility

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Expose information utility

- Collection through processing
- Analytics
- Integrated products
- Visualization

Make data easy to “buy” & “sell”

- Reduce transaction costs
- As a service options

Align incentives

- Reward all the way back
• Tradecraft
  – *Data utility models and belief projections*
  – *Analyst decision support systems*
• Information Technology
  – *Streaming big data processing architectures*
  – *Multi-INT processing architectures for GeoINT/SIGINT fusion*
  – *Open source information exploitation systems*
  – *FMV ingest/processing platform*
  – *Insider threat detection platform*
• Business Models
  – *Intelligence as a Service*