

Collective C2 in Multinational Civil-Military Operations

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Track 4

- Collective Endeavors -

Civil & Military Operations: Evolutionary Prep Steps to Pass Smart Power Current Limitations

R. E. Bryant



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Outline

- **Summary Take-aways**
- **Networks & Frameworks for actions & results**
- **Framework chain examples (3)**
 - With recent examples/corollaries
- **The Why of Opportunities – Implications**
- **Symposia Contribution Examples**
- **Why & Reprise**
- **Summary – The Big Picture**

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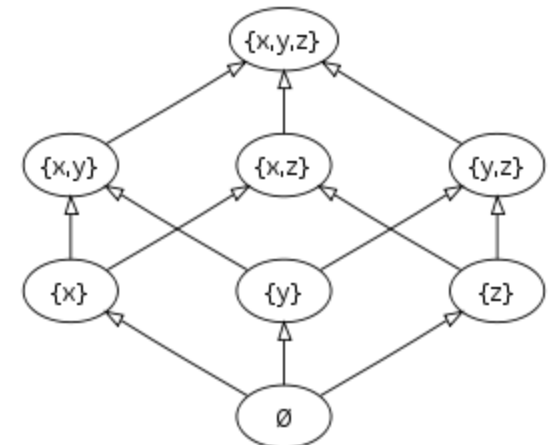
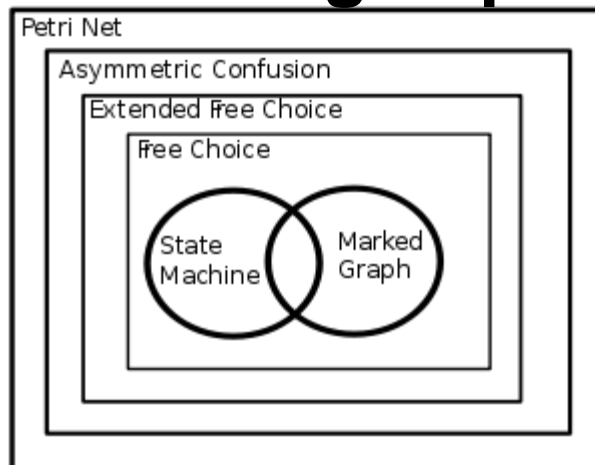
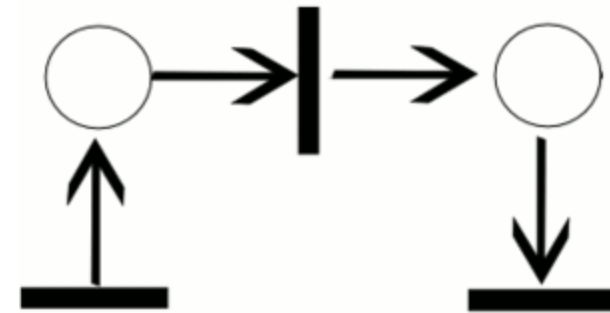
TO OFFER ANOTHER VIEW AND PERSPECTIVE

Summary – Take Aways

- **Less expenditure of effort or resources to achieve an intended impact or outcome;**
 - **Placing the point of interaction at the correct location and temporal instance;**
 - **Significantly improved targeting discrimination to reduce un-intended consequences; and,**
 - **Going beyond the traditional avenues of interaction for achieving results.**
-
- **Big Picture Objective – Gain Better and Greater Use All Tools for Better Results Through Understanding of Very Complex Systems**

Cause and Effect Networks

- **Influence Nets**
 - demonstrate interactions
- **Acyclic Graphs**
- **A diagram**
- **Extensibility & Complexity**
 - go up very quickly

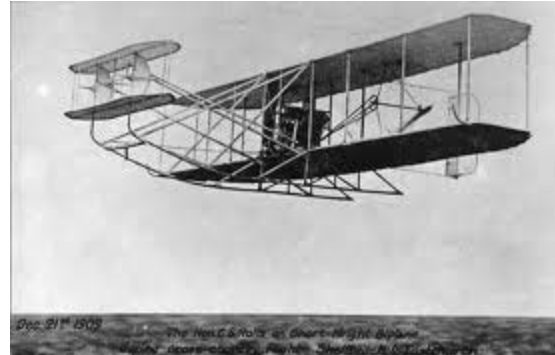
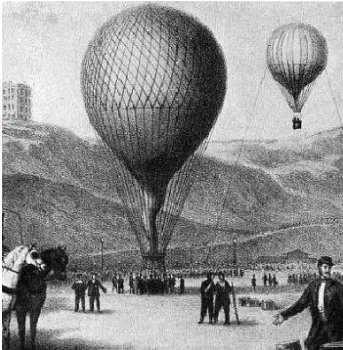


Frameworks of Interactions

- **PEMSII**
 - Political, Economic, Military, Social, Information, Infrastructure
- **DIME**
 - Diplomatic, Intelligence, Military, Economic
- **EBO**
 - Effects Based Operations
- **Styles of Influence Networks and potential for DoDAF diagrams/UML usage – besides just physical systems**
 - for cause and effect networks

Framework Chain Vehicle - 1

- **Aviation Ability and Technology Chain**
 - **Balloons – bi-planes – mono-wing planes**
 - **Engines – aerodynamics – guidance/coordination**
 - **Jet engines – electronics - lasers**



1st Chain – New Pieces

- **Schneider Trophy & Personnel**
 - Competition, personal connections
- **Branson & SpaceShipOne**
 - Competition, funding, advances
- **Nano Hummingbird**
 - Sponsor, technology, overcoming hurdles



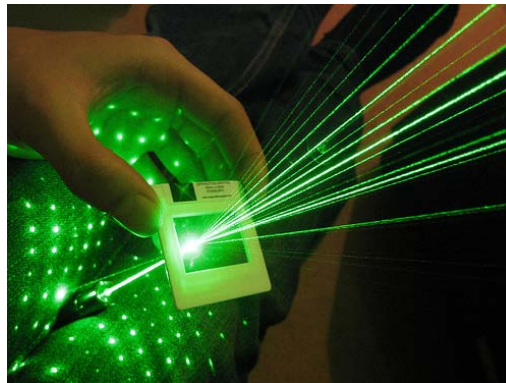
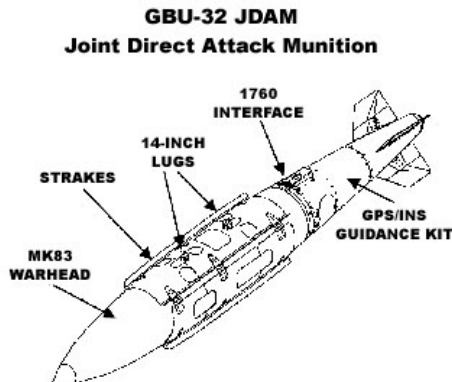
Framework Chain Vehicle - 2

- **Targeting Accuracy and Technology Sources**
 - **Gunpowder – firecrackers/rockets – trade**
 - **Knights – tools – cross-bows**
 - **Cannons – metallurgy – ranges**
 - **Aiming – windage corrections – fire control systems**



2nd Chain – New Pieces

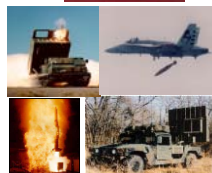
- **Sciences**
 - Gunpowder and explosives changes
 - Flight control systems – manual to automation and unmanned
- **Government and Industry teaming**
- **Application of new technologies**
- **Interactions between different groups & cultures**



IR&D Example

Inertial Measurement Unit

- ❖ IR&D project cost: ~\$10 million
- ❖ Performance has been demonstrated in over 20 systems
- ❖ HG1700 annual sales: ~\$100 million and rising
- ❖ Unit sales increased more than 10-fold
- ❖ Unit price reduced more than two thirds



Framework Chain Vehicle - 3

- **Medicine History and Opportunities**

- **Heart Surgery**

- **Animals then soldiers**

- **Medicine Sources – Explorers, Scientists & Doctors**

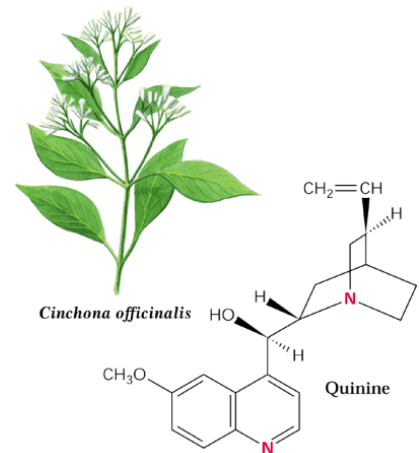
- **Tree bark, plants, mold**

- **Relieving symptoms**

- **Purgatives, bleeding, silver pins**



Figure 1: Dr. Dwight Harken, (1910-1993).



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Points out how learning takes place by different cultures

3rd Chain – New Pieces

- **Training and Experience**
 - Military & Civilian Training
- **Military & civilian health care**
 - Acupuncture acceptance
- **Treatment of the Whole Individual**
 - Complexity of treatment interactions
- **Continued discovery of natural medicines**
- **Printing organs and skin**



Opportunities & Implications

- **Cause and Effects Understanding**
 - “What James’s wider audience had failed to understand was that the statistics were besides the point. The point was understanding; **the point was to make life on earth just a bit more intelligible**; and that point, somehow, was lost.” (Lewis, 2003, p. 95, Hardball)
- **Several Wicked Problem ‘Solution’ Points:**
 - a) Solutions to wicked problems are not true-or-false, but **good-or-bad**;
 - b) Every wicked problem can be considered to be a **symptom of another problem**;
 - c) **There is no immediate and no ultimate test** of a solution to a wicked problem; and,
 - d) Every solution to a wicked problem is a “**one-shot-operation**”, because there is no opportunity to learn by trial-and-error, **every attempt counts significantly.**” (Rittel and Webber, 1973, Dilemmas in a General Theory of Planning)

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**Paths to results are not direct,
they can be very indirect and complex**
Implication from *Connections* by James Bourke

Symposia Contributions

- ***“Automated Influence Network Generation and the Node Parameter Sensitivity Analysis”*** – Moon, et al., 2008
 - **Networks, Cause and effect chains**
- ***“Adding Culture to Command Decisions”*** – Woodley, et al., 2008
 - **Cultural and Social factors and dimensions**
- ***“Research Model of Cultural Influences on Information Sharing via C2 Systems”*** – van den Heuval, et al., 2008
 - **Cultural factors and priorities for inference and transfer to COAs support and assessments**
- ***“Identification of Adversarial Activities: Profiling Latent Uses of Facilities from Structural Data and Real-time Intelligence”*** – Grande, et al., 2008
 - **Inference of activities between facilities and people**

Symposia Contributions (Cont'd)

- ***“Holonic scheduling concepts for C2 organization design for MHQ and MOC”*** – Park, et al., 2008
 - Interactions at national/international, allied/joint level
- ***“Designing ‘Killer Applications’ of NCW – A process to support creation and innovation”*** – Kingston and Hew, 2008 – Gina Kingston and Patrick Hew, 2008
 - Using technology for improved solutions, connections to users
- ***“A Useful Methodology for Cost-Benefit Evaluations of Cognitive Process Improvements in Complex C2 Endeavors”*** – Acosta, et al., 2008
 - Analysis POA/COA costs, ROI, all interactions
- ***“Using NATO Human View Products to improve Defense Support to Civil Authority (DSCA)”*** – Stevens and Heacox, 2008
 - Add Human view to the DoDAF – for all frameworks

Reason de'entire

- **Jame's quote RE background for comments**
 - “cause was the systematic search for new baseball knowledge” based on the **appropriate data and information in context to the circumstances and sequences of events**
 - “ “The problem,” wrote James “is that baseball statistics are **not pure accomplishments of men against other men**, which is what we are in the habit of seeing them as. They are **accomplishments of men in combination with their circumstances.**” (Lewis, 2003, Hardball)
- **Fromkin quote:**
 - “F. Scott Fitzgerald remarked that “the test of a first-rate intelligence in **the ability to hold two opposed ideas in the mind at the same time, and still retain the ability to function.**” By this he meant, he explained, “for example **[to] be able to see that things are hopeless and yet be determined to make them otherwise.**” ” (Quote from F. Scott Fitzgerald. *The Crack-Up.*) (Fromkin, 1996, In the Time of the Americans)

Summary Restated

- **Results**
 - Higher ROI while attaining results and outcomes
 - Identifying the best time, place, and method for action
 - Reduced ambiguity for action application, reduced side effects
 - Find the other paths and points in context and culture for gaining results
- **Interactions for results along with acting on and in the best manor**
- **Balancing ways, means, results, and consequences (intended and unintended)**

Take Aways - Summary

- **Look beyond the immediately visible**
- **Look for new knowledge on the subject being examined**
- **The team, teamwork, and circumstances are important for understanding**
- **The result can be improved understanding**
- **There will be few unrelated pieces of information**
 - **Within reason find the connections**

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Seeing multiple levels of circumstances, problems, and solutions at the same time – and acting

So What! – The Big Picture

- It takes the Team, all the players, to get the results
- The deeper, different statistics and facts can shed more light through the context
- Connections are not always direct, the path is complex
- Tackling the wicked problems and working for solutions can lead to deeper understanding and lower costs in the long run
 - Understanding the consequences

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“The route of war might succeed for a time – and the operative word in “might,” since nothing is certain in war – but the cost in blood, economic losses, and ill will for generations to come will be steep.” A. S. Card, *Shadow of the Giant*

Making life more intelligible, and thus better.

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