

# EMPIRICAL AGILITY: Historical Evidence and Measurement Issues

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# INTRODUCTION

- Agility emerged as a crucial aspect of C2 in a bilateral session of the US and UK and was articulated in the CCRP book, *Power to the Edge* (2003).
- Primary empirical work has been by SAS-065 and 085 in order to validate key concepts and language.
- Defined initially by key activities used to identify it (e.g. flexibility), Agility was recently redefined by SAS-085 more analytically as “the capability to successfully effect, cope with, and/or exploit changes in circumstances.
- That definition is used in this paper.

# Prior Quantitative Research (1)

- Virtually no prior relevant quantitative work was focused on Agility because the topic was not a specific focus of C2 research.
- Quantitative work on C2 was rare before 1980 because:
  - Command was seen as an art, not measurable
  - Control was seen largely as a separate staff function
  - C2 was understood to be an artifact of military culture, not subject to numerical analysis.
- However, some relevant research efforts can be identified.

# Olmstead's Work for ARI

- Focus: US Army Brigade training exercises preparing to battle Warsaw Pact in Europe.
- Opportunity: Predictable patterns in Soviet doctrine and tactics.
- Agility: Changes in US C2 structure and process that generated enhanced performance.
- Not looking for Agility but found it.

# USMC Battalion Combat Performance

- Focus: Dozens of USMC Infantry Battalions in Combat from World War II through Vietnam.
- Research Issue: What factors distinguished different levels of mission accomplishment?
- Sponsorship by DARPA and USMC Commandant.
- Massive data collection (hundreds of factors), including expert data from former infantry battalion commanders.
- Agility: C2 Ability to quickly identify emerging military situations, decide on, and implement effective actions.

# Qualitative CCRP Work before SAS-065

- *Command Arrangements for Peace Operations* (1995) reviewed 20<sup>th</sup> Century alternative C2 approaches and showed less centralized C2 more effective in more dynamic combat settings.
- *Understanding Information Age Warfare* (2001)
  - Link 16 improved air-to-air agility
  - Fleet Battle Experiment demonstrated that better, more current information generated greater agility
  - Drones improved agility in ground and air operations
  - Nelson's C2 at Trafalgar demonstrated agility.

# Theater Level C2 During WW II

- DCA (DISA) sponsored analyses of successful Theater level C2 to help design future HQ (1983).
  - Changes in structure – more emphasis and staffing for Intelligence, less for Operations over time
  - Greater face-to-face time between Theater Commanders and their staffs with subordinates – changes in processes
  - Informal “work-arounds” and networks used improve responsiveness without disrupting formal processes – changes in structure.

# Patton's Air Force

- Innovations by Patton's Third Army and Weyland's XIX Tactical Air Command.
  - Fighter-Bomber radios manned by pilots in the lead tanks of armored columns
  - Aggressive Air Patrols along the Loire River to cover an exposed flank without assigning troops to protect it
  - Pushing air bases forward to minimize the time required to place air patrols over the front lines
  - Aggressive monitoring and attacking potential German counter-attacks by air units
  - Decentralized C2 for air operations, improving responsiveness.



# Freedman's *History of Strategy*

- Recent Book examining military and civilian conflicts at a variety of levels and from a range of perspectives.
- “Strategy is expected to start with a description of a desired end state, but in practice there is rarely an orderly movement to goals set in advance. Instead the process evolves through a series of states. Each one not quite what was anticipated or hoped for, requiring a reappraisal and modification of the original strategy, including ultimate objectives.
- This is the professorial version of “No Plan survives first contact with the enemy,” Von Moltke the Elder.
- Freedman also quotes Mike Tyson, “Everyone has a plan ‘till they get punched in the mouth.

# Insights About Empirical Agility

- C2 Agility has long been a desirable attribute.
- Agility can be consistent with Doctrine and Practice.
- Agility can take the form of disruptive innovation.
- Unless effective performance is present, Agility is not unambiguously present – hence, measuring “potential agility” remains an unsolved problem.
- Measuring agility remains a challenge.
  - State of the Art is nominal, not ordinal
  - Primary success to date is learning to recognize Agility.

# Illustration From History

- Setting: First Infantry Division, preventing effective attacks on Ben Hoa air strip in 1966
- Forces Available: one infantry battalion and one 105mm artillery battery, air assets
- Means Used, consciously mixed
  - Infantry raids
  - Artillery barrages
  - Active Harassment and Interdiction Fires
  - Coordinated systems of ambushes
- Was this Agility; if so How Agile?

# Key Conclusions

- The importance of C2 Agility is validated.
- C2 Agility can be recognized in a variety of settings.
- However, measurement challenges remain:
  - Potential Agility cannot be measured because of the absence of context and performance data
  - We lack Ordinal measurements of Agility
  - We do not know what components or levels of Agility must be present to define or qualify it.