

Integrated Ops-Intel Team Sensemaking for Non-Traditional Warfare

Frank Stech

703-983-5920 • stech@mitre.org

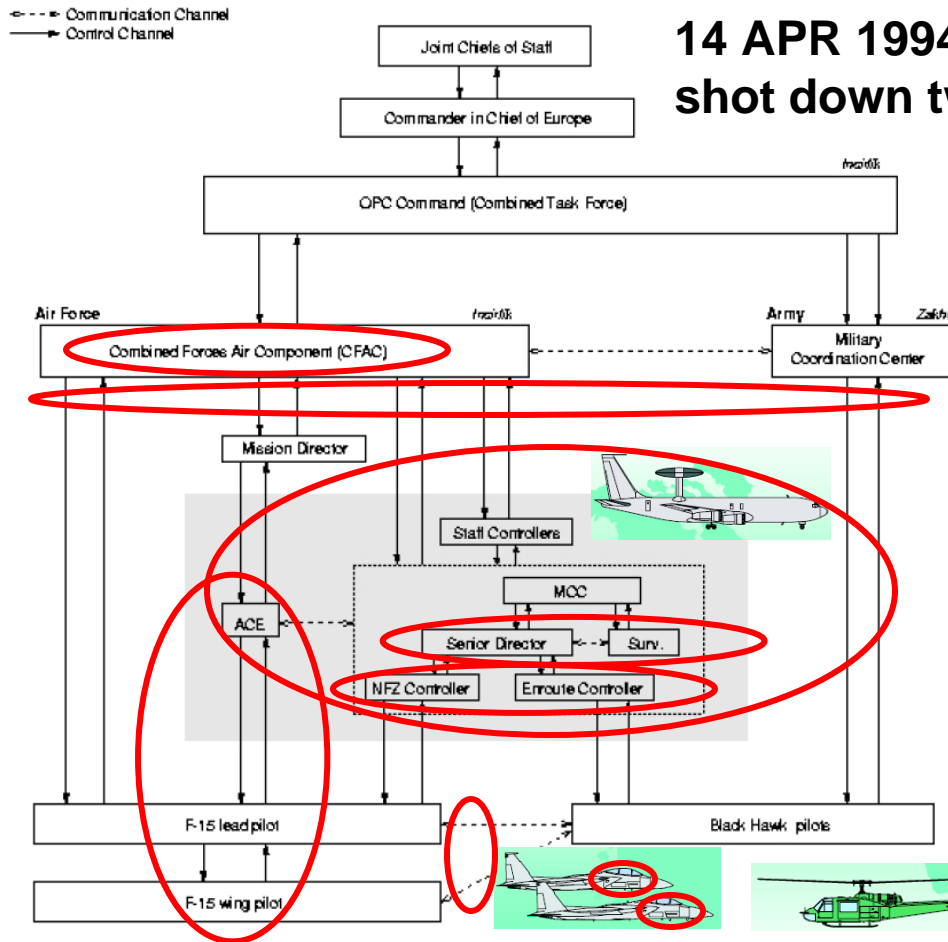
MITRE-Sponsored Research



Problem

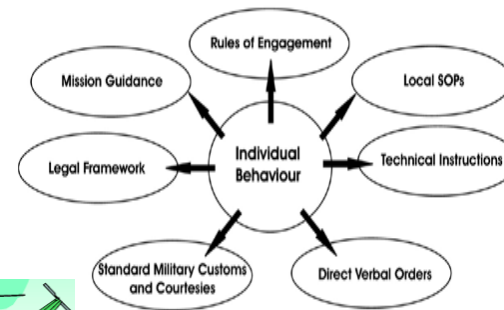
- **Notorious failures in operational and intelligence teamwork:**
 - Iraq Blackhawk shoot-down
 - 9-11-2001
 - Iraq WMD intelligence
 - Iraq counterinsurgency planning
- **Hypothesis: Such groups may lack the sensemaking methods of “high reliability organizations” (HROs)**
- **Sensemaking: enables groups to deal better with information uncertainty, ambiguity, and equivocation**

Background



14 APR 1994: Two USAF F-15s shot down two Army Blackhawks

- All physical components worked as intended
- 130+ different human sensemaking mistakes
- dysfunctional interactions and communication inadequacies



Figures: (left) N.G. Leveson, P. Allen, M. Storey (2002) "The Analysis of a Friendly Fire Accident using a Systems Model of Accidents." *International Conference of the System Safety Society*, Denver, 2002. <http://sunnyday.mit.edu/accidents/issc-bl-2.pdf> (right) S. A. Snook, "Leading Complex Organizations: Lessons from a Tragic Organizational Failure." April 27, 2000. http://www.pirp.harvard.edu/pubs_pdf/snook%5Csnook-i01-1.pdf

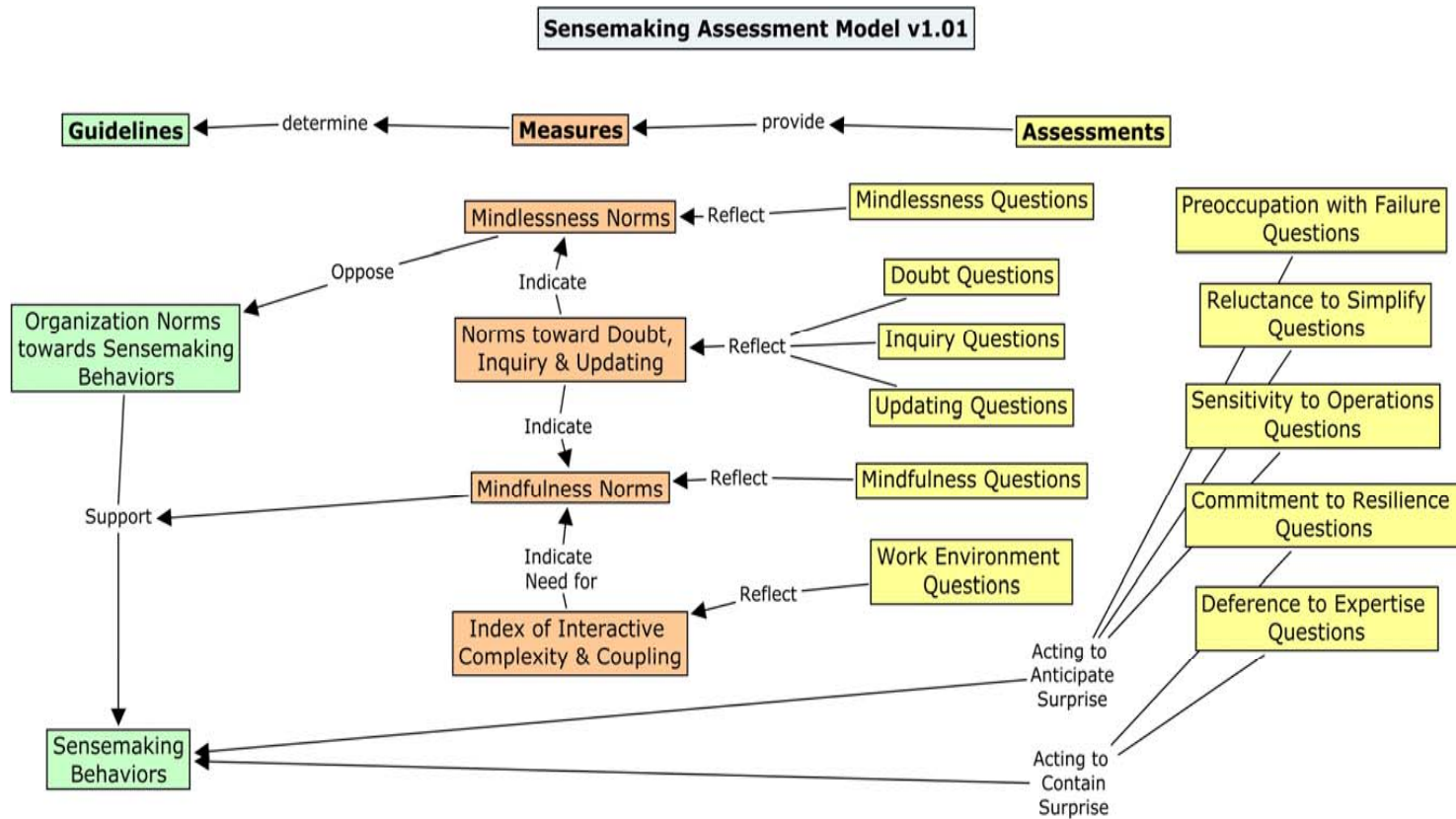
Objective

- **Develop and apply assessments and guidelines based on use of sensemaking methods in HROs and lack of sensemaking in “normal accidents”**
- **Equip organization designers and managers with team assessment measures and design guidelines based on:**
 - **Cognitive sociology**
 - **HRO methodology**
 - **Normal accident theory**
- **Aid intel team reform and ops-intel groups designs by applying the cognitive sociology of normal accidents and HROs:**
 - **Aircraft carrier flight deck operations**
 - **Nuclear power plant operations**
 - **Air traffic control centers**
- **Help in “curing analytic pathologies” beyond just enhanced situation awareness**

Activities

- **Survey methods and develop metrics for:**
 - **Cognitive analysis of ops-intel teams**
 - **Effective measurement of sensemaking**
- **Apply methods and metrics in assessments:**
 - **Observing exercises in “the wild”**
 - **Performing experiments in “the lab”**
 - **Determining task characteristics of non-traditional warfare analysis and operations**
- **Propose organizational design guides**

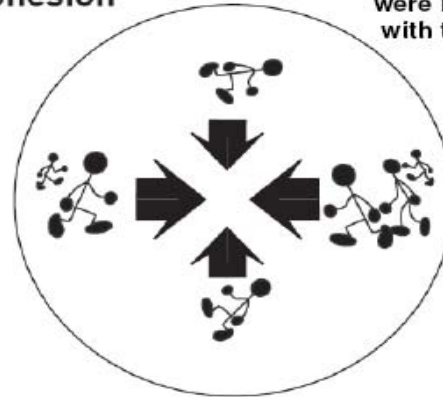
Highlight



Highlight

Imperative Cohesion

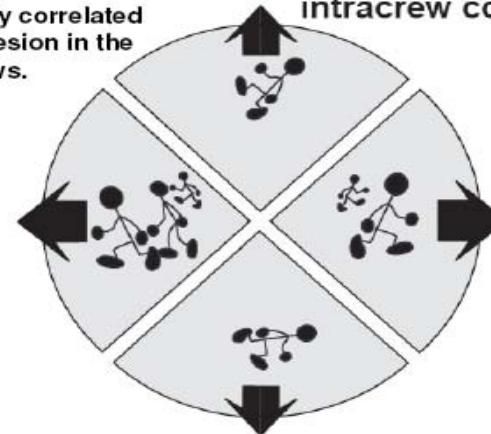
Intracrew cohesion



"Since the crew did not know each other well, since Dodge knew only three of them, since several were on their first jump, and since Dodge himself was rusty on leading a crew, it was imperative to build some common understandings and common action into this assortment of strangers. That didn't happen."

Accidents in field crews were inversely correlated with the cohesion in the crews.

Breakdown of intracrew cohesion



"As the entity of a crew dissolved, it is not surprising that the final command from the "crew" leader to jump into an escape fire was heard not as a legitimate order but as the ravings of someone who had 'gone nuts.'"

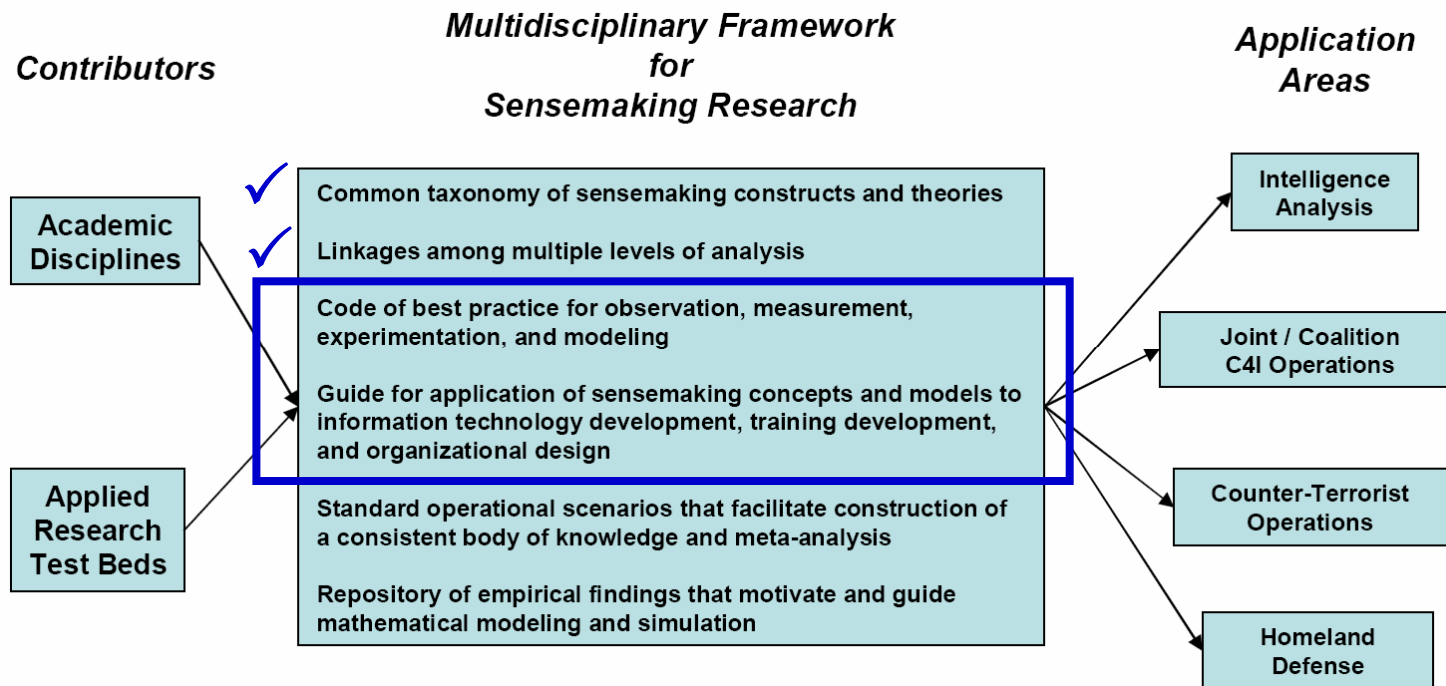
Weick, "The Collapse of Sensemaking in Organizations: The Mann Gulch Disaster"

Impacts

- **Yardsticks for assessing the re-engineering of ops-intel teams**
- **Extending and expanding MITRE expertise:**
 - **Cognitive sociology**
 - **Organization sensemaking methods**
- **Application areas:**
 - **Intelligence centers and teams**
 - **Operational centers and teams**
 - **Time-sensitive targeting cells**
 - **Air traffic control centers**
 - **Forensic teams (fraud, audit, etc.)**

Future Plans

Developing the Center of the Multidisciplinary Framework



Leedom (2001) *Final Report: Sensemaking Symposium*