

# Decision Factors for the Operational Warfighter: Explicit Insights

*Paul Van Doren*

SAIC

757-203-5926

Paul.vandoren@saic.com

# Agenda

- Outside the report
- Recommendations
- Interviews
- Explicit Incites
- Decision Factors

# Outside the report



or



# Outside the report

- the primary function of **comprehension is not to archive information but is instead to prepare agents for situated action**
- **“comprehension is grounded in perceptual simulations that prepare agents for situated action”**

**Lawrence W Barsalou, *Language Comprehension: Archival Memory or Preparation for Situated Action*, (Discourse Processes, 28(1)) 61-80**

# Recomendations

- Conduct surveys in conjunction with Joint seminar war games, concept briefings to war colleges, and joint training exercises to confirm and validate
- Expand the examination of decision factors to identify:
  - **Measures of merit,**
  - **Contributing decision variables,**
  - **Mathematical foundations (e.g., formulae) or**
  - **Decision models (e.g., subject matter experts or polls),**
  - **Information needs,**
  - **Information sources, and**
  - **Priority of (development) effort.**
- Address NCO and GIG enabled concept architectures, infrastructure, and technology approaches that will enable the flexibility and responsiveness needed

# Interviews focused on:

- Critical operational-level decision factors and associated measures of merit
- The importance of strategic and military endstate guidance
- The role of simulation in operational decision support
  - **Sense Making**: use M&S to aid the commander to understand information within the context of the mission.
  - **Risk Assessment**: use M&S to explore potential threats and opportunities.
  - **Decision Options**: use M&S to frame key decisions or develop and select options (e.g., courses of action).
  - **Decision Points**: use M&S to identify operational decision points prior to execution.
  - **Training**: use M&S to coach subordinates and enhance their understanding of the concept and command intent.
  - **Synchronization**: use M&S to develop understanding of time and distance factors pertinent to key decisions.

# Endstate Guidance

- All those that addressed the question responded in the affirmative and emphasized that all the critical decision factors are driven by the guidance or that the guidance provides the first critical decision factors.
- Colonel Matthew Caffrey noted, “USAF War College teaches that before considering COAs, one must settle on the decision criteria. And the first influence on the decision criteria is the theater guidance.”

Perspective	Positive	Conditional	Negative	Neutral
Seniors	3	0	0	2
Field Grade	9	0	0	8

# The role of simulation in operational decision support

- Strongly endorsed: Sense Making, Risk Assessment, and Training.
- Favored: Decision Options.
- Not supported or controversial: Decision Points and Synchronization.



# Commander Centric

- Retired Major General Scales

We need to better understand what information is necessary for making decisions. Important in this effort is understanding how different commanders use information. Cognitive systems capable of customizing the decision-making process will emerge from that understanding. Perhaps soon commanders will be offered exercises and decision aids that will optimize their ability to make the right decisions in the midst of a mountain of information that invariably will descend on them in the heat of battle

# Commander Centric cont'd

- Vince Roske, reinforced this perspective of commander-centric decision support.

The way the Commander integrates the analysis and gaming with the staff and how he uses it day in and day out to shape their thinking is vitally important to how effective it may be. Look to the relationships between the commander, his staff and the analysts; and then to the methodology used; and last to the models and tools used in the methodology - in that order of importance for impact and value.

# Flexible Uses

- Participants described M&S uses within the context of:
  - Staff planning techniques,
  - Brainstorming and wargaming problems, or
  - Command and staff training and preparation.
- Retired General Horner limited the air operations center (AOC) planning to two days to streamline the link between the air tasking order (ATO) and the real war (situation) versus an idealized plan. He warned that simulation results should not constrain a commander's thinking.
- Retired General Dugan observed that commanders might have a small team use M&S to raise potential issues and consider a range of outcomes vice making “command observations” to the staff (as a whole) to avoid premature constraints (in thinking) and/or overreactions.
- Lieutenant General Wallace emphasized V Corps use of simulations to explore options for attack up to and into Baghdad. Moreover, M&S provided a forum to rehearse the operation with his senior leaders.

# Responsive Application

- The value of M&S depends on how quickly results can be provided to the commander. Per General Dugan operational decision support tools must:
  - **Have current data,**
  - **Convey a valid context,**
  - **Produce timely results (*often immediate*),**
  - **Allow flexible changes in parameters and entities, and**
  - **Be highly transparent to the commander.**
- Transparency of the modeling process is paramount
  - **for commanders to have confidence in the tools and results.**
  - **enables commanders to be aware of M&S limitations.**
- Command confidence in decision support tools requires a key culture shift that will occur as new generations with M&S experiences move to command.

# Responsive Application cont'd

- Collectively responses reveal that despite the success made in training, experimentation, and analysis, M&S tools have not been well received by operational commanders for actual operations. All participants expressed a desire to use M&S while operations where underway, but only some did.
- M&S use is limited by:
  - Dynamic changes in plans and operations,
  - Time constraint to develop and publish plans,
  - Lead times to set up simulations and analyze results, and
  - Lack of confidence in the results.

# Unanticipated Revelations:

Simulations need to reveal the unexpected.

- General Mike Dugan observed, “Use of M&S could and should precede the real world operations so the staff can consider the range of outcomes.”
- Mr. Vince Roske wrote, “The real challenges today are to be found in helping commanders anticipate and deal with the “**Unforeseen**” problems. That means that our methods ... must be able to surprise us – show us plausible worlds we hadn't yet thought of.”
- Major General Scales observed: Disruption – the need to create uncertainty – should be the aim of war gaming. As a matter of course, every exercise, game, and major Joint training event should add uncertainty and unpredictability in the form of alien representation. Otherwise games become exercises scripted through the preconceptions and biases of Western culture

# Decision Factor Categories

- **Force Capability** (Diplomatic, Informational, Military, & Economic)
- **Physical States and Impacts** (States of Nature)
- **Intent for Cooperation, Competition, & Conflict**
- **Political, Military, Economic, Social, Informational, and Infrastructure (PMESII) States and Effects**
- **Transition States**