Developing a Graphical CONOPS

Drs. R. Cloutier, A. Deshmukh, S. McComb, & D. Hamilton

Traditional CONOPS (circa 1960s)
- Textual CONOPS Standards
- Problems:
  - Takes a long time to create. Customer is not involved. Result is a static document.
  - Not interactive, not amenable to “what if” analysis.

“Graphical” CONOPS (circa 1990’s)
- Problems:
  - Still takes a long time to create.
  - Result is static text and graphics.
  - Difficult to change.
  - No human roles are represented.
  - Even with pictures, it’s still difficult to visualize.

Integrated Concept Engineering Framework (ICEF) for the 21st Century

Primary Research Question: Can the process of CONOPS development and understanding be improved through the use of a “drag and drop” graphical user interface?

The Team developed an environment to test the hypotheses that:

1. A virtual concept engineering process (VCEP) will improve the operational scenario artifact of a CONOPS document.
2. A virtual concept engineering process (VCEP) will improve collaboration during the development of the operational scenarios section of a CONOPS.

Using the Concept Engineering Framework

Research Results

Evidence shows a preference for VCEP approach over traditional CONOPS approach in terms of artifact quality.

Evidence shows a preference for VCEP approach over traditional CONOPS approach in terms of collaboration quality.

Artifacts Produced as a Result of this Research

Deliverables
- Technical Reports & Software
  1. ICEF Software Code
  2. SERC-2011-TR-031-2
  3. SERC-2013-TR-030-2
  4. SERC-2011-TR-030
  5. SERC-2011-TR-031
  6. SERC-2010-TR-007
  7. SERC-2009-TR-003

Journals and Conference Papers

Additionally, this research produced one Doctoral Dissertation and one Master’s Thesis.