

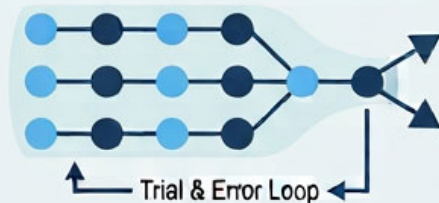
7th Annual AI4SE & SE4AI Research and Applications Workshop

CRISP: A Systems Design Approach for Prompt Engineering

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Air Warfare Directorate, 22 September 2026

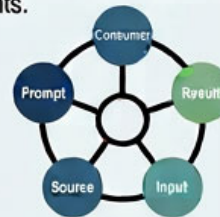
1. Problem: Operational Bottlenecks

- Current Department of War (DoW) GenAI.mil tool interactions rely on intuitive, unstructured attempts, lacking rigor.
- This causes operational bottlenecks, especially for military weapon systems.
 - Inconsistent Outputs:** Unpredictable responses challenge trust.
 - Increased Latency:** Excessive prompt iteration stalls decision loops.
 - Decreased Scalability:** Cannot modularly package, share, or manage components.



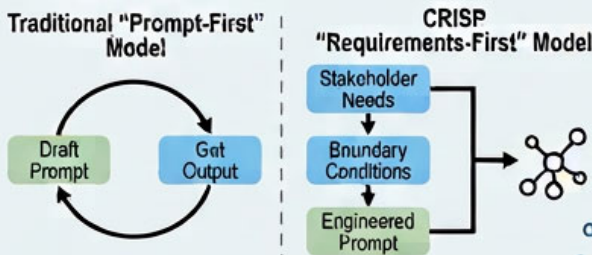
3. Architectural Foundations of CRISP

- Merges COPIS model with Systems Design Thinking for a requirements-first model.
 - COPIS Model:** Customer, Output, Process, Input, Supplier, structures GenAI variables.
 - Systems Design Thinking:** Empathize, Design, Ideate, Prototype, Test stages map to critical boundary phases.
 - Operational Rigor:** Structures human-machine interaction to output bounded, traceable documentation and specifications that meet mission requirements.



2. Reversing the "Prompt-First" Approach

- A shift to engineering prompting for improved GenAI use.
- CRISP means: Consumer, Result, Input, Source, Prompt.
- Top-down approach starts with stakeholder and operational requirements, not direct model instruction inputs.



4. The Five Pillars of the CRISP Model

CRISP Phase	COPIS Alignment	Systems Design Thinking Alignment	Operational Application
Consumer	Customer	Empathize	Defining end-user specific mission requirements and operational context
Result	Output	Design	Architecting the precise structure, layout, and success criteria
Input	Input	Ideate	Identifying specific variables, constraints, and parameters
Source	Supplier	Prototype	Designating authoritative data repositories, e.g., grounding RAG
Prompt	Process	Test	Developing the instructional mechanism and iteratively validating outcomes



Questions?

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