**The Analytic Component System (ACS): A Framework for Structured Tradecraft**

**What is the Analytic Component System?**
An organizational framework and a computational platform for analytic tools and techniques that support structured tradecraft

**Goals**
Enable analysts to compose their workflows from modular components

**Approach**
Make analytic components composable by defining their data dependencies and products using a standard set of analytic constructs

**Challenges Addressed**
- Analytic Subtasks
- Component Mappings
- Integration Costs

**Benefits**
- Analysts can enact their workflows using a library of modular analytic components
- Analysts can opportunistically determine their workflows depending on the state of available information
- Analysts can integrate or replace components in their workflows
- Workflows can be reproduced and analyzed using information captured in the analytic constructs

**Potential Further Benefits**
- Separation of concerns for developers
- Scalable computation
- Proactive computing
- Hybrid tool/technique workflows
- Facilitate collaborative workflows
- Instrumented workflows
- Datasets to guide component

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**Definitions**

**Analytic Component:** A method of performing an analytic subtask

**Analytic Tool:** An automated or computational analytic component

**Analytic Technique:** An interactive or manual analytic component

**Tradecraft:** The process by which an analyst identifies the subtasks necessary to produce an analytic product, as well as the components they will use to accomplish the subtasks

**Structured Tradecraft:** Tradecraft that is supported by well-defined subtasks and mappings of components to the tasks

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**Challenges**

**Analytic Subtasks**
Structured tradecraft requires a common set of analytic subtasks performed by the various analytic components

**Component Mappings**
The stated purpose of some components may be different from the standardized tasks, and some may accomplish multiple tasks

**Integration Costs**
Analysts quickly become burdened with integration costs associated with translating and communicating information between different components in a workflow

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**Workflow Enactment**
Analytic workflows are typically not completely defined before the analyst begins them. The analyst's workflow must adapt to the availability of information.

**Challenge:** How to enact heterogeneous workflows without burdening the user with massive integration costs?