Middleware Building Blocks for NSF's CI Ecosystem

- Motivation: (1) **Sustainable** ecosystem of both existing and new components from which **tailored workflow systems** can be composed; (2) Lower barrier to integration of components; (3) provide reasoning framework to determine **which** systems to use, **when** and **why**, and (4) reduce the proliferation of workflow systems.

- Propose Building Blocks Approach:
  - Architectural design of middleware systems based on design Principles: (i) **Self-sufficient.** (ii) **Composable.** (iii) **Interoperable.** (iv) **Extensible.**
  - Applies traditional notion of modularity at the **software systems level**
  - Enable composability among **independent** software systems

- A **systems approach** which addresses both **technical** & **social factors**