Purpose of the DSA Decision and Control making Framework

This framework provides a map for the relationship of various interrelated systems in the application of DSA. The five levels for well construction identified on the left-hand side of the graphic and listed below correspond to the five layers defined in the Purdue / ISA-95 reference model:

- **Level 4** - Enterprise management. Managing business-related activities of the drilling operation (business planning and logistics).
- **Level 3** - Operations management. Managing workflows to drill, protect the hole, and complete the well.
- **Level 2** - Execution management. Supervising, monitoring, and controlling the physical processes with real-time controls and software.
- **Level 1** - Machine control. Sensing and manipulating the physical processes.
- **Level 0** - Physical processes. Defining actual physical processes of the drilling and completion operation (Well construction).

**List value from DSA framework**

**List issues that need review in the framework**

**List items that need to be expanded in their description in the framework**

**States Definition for Automation**

This "state machine" concept of the drilling process is fundamental to drilling systems automation, and all tasks, models and activities during drilling correlate with the current state of the drilling process. Consequently, it is critical that the current state be well known and communicated to all users, and that the transition to a new state be broadcast simultaneously to all users in real time.

**Epics, User Stories and Use Cases**

The combination of epics (drill a stand), user stories (fast, safe connection), and use cases (discrete activities) provides the framework to identify systematic needs from the automation system providing the industry with a framework to track and control what is happening during any automated activity, including sharing a common understanding of the intent of the controlling automation system at any time.