In order to analyze complex event sequences and behavioral characteristics, a discrete-event simulation approach was used. The simulation model describes engineering processes as a discrete sequence of timelines. All the system engineering activities in this model are represented as a set of work items grouped by aggregation nodes such as requirements and system capabilities. Together, work items and aggregation nodes form a network, also called a KSS network or Kanban network. The KSS network evolves over time, and this evolution is represented by a chronological sequence of states in the network. The way the KSS network evolves is defined by an event scenario and other input parameters such as scheduling algorithm and team resource allocation. The event scenario is a sequence of events that describes how work items properties and relationships change over the course of their execution.

The Kanban-based scheduling system (KSS) applies original lean concepts to achieve these goals. The KSS provides a set of guidelines to coordinate work queues and work prioritization based on lean concepts.

One of the main purposes of the model is to compare amount of value delivered to the stakeholders over time using various work prioritization techniques. There are two algorithms that are compared here using the KSS simulator:

- Value-neutral work selection
- Value-based prioritization technique known as Kanban Scheduling

Simulation results:

- Delivered value comparison
- Number of suspended work items