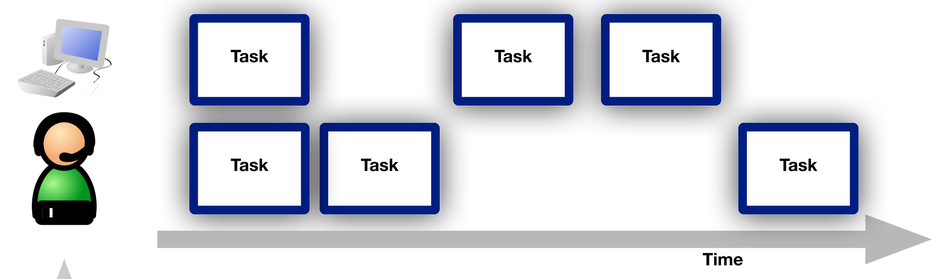
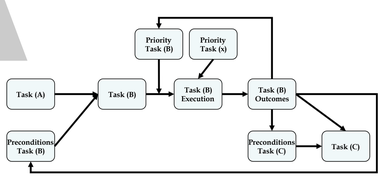
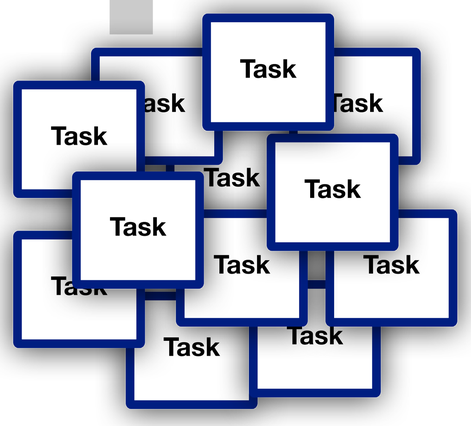
User Centric Simulation Environment for the Exploration of Human-Computer Collaboration on Patrol Vessels

Contextual workflow principle

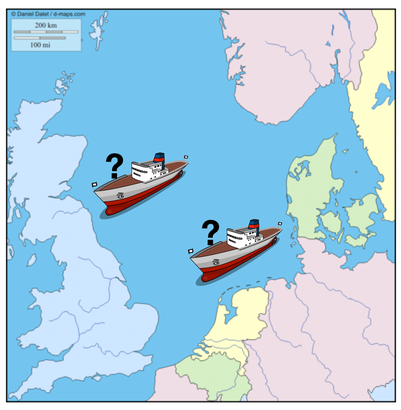




Tasks get organized and allocated based on:
- Priority of (other) tasks
- Task dependencies and task preconditions
- Contextual preconditions



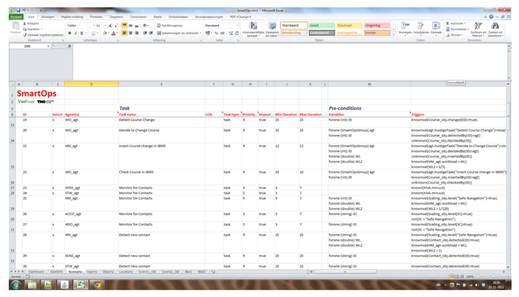
Scenario discribing context



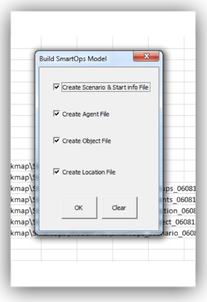
Contextual information triggers tasks

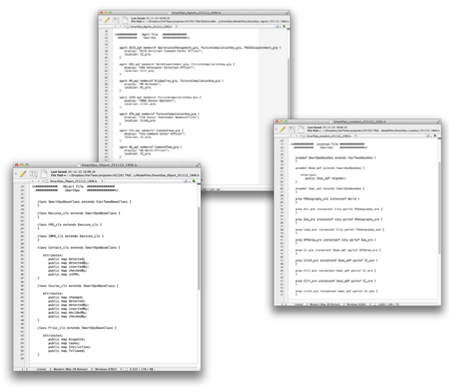
Simulation environment





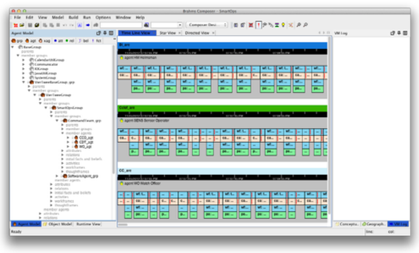
User friendly Excel based interface lets novice programmers and domain experts generate the programming code needed to build and run a contextual work practice simulation





A reusable template reduces modeling time for modeling:
- Agents and groups;
- Objects;
- Locations;
- Tasks;
- Scenario's.

NASA Brahms



The Brahms modeling and simulation environment runs the generated model

Use Case

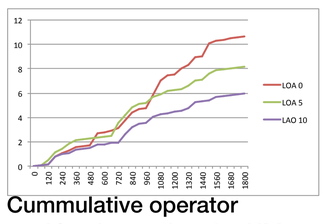
Experiment:
Operator Workload with varied levels of automated support (LOA) for monitoring, detecting and inserting contacts in CMS.

1. **LOA 0**: No extra automated support

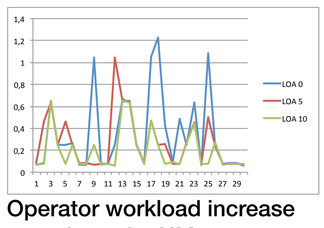
2. **LOA 5**: Operator computer collaborative work. Computer monitors, operator detects and inserts only hard to classify contacts.

3. **LOA 10**: Computer monitors, detects and inserts contacts.

Use case results



Cummulative operator workload over time for HM



Operator workload increase per minute for HM

No significant difference between the three levels of automation can be found regarding the estemated workload of the HM during the first (relatively) calm 12 minutes.

The increase of the level of automation during the following 'busy' 12 minutes starting from minute 12 has a damping effect on the estimated workload of the HM.

Conclusion

The user centered simulation environment is suitable for modeling and simulating complex, scenario based workflows for work practice exploration and work (re-)design

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TNO innovation for life