

Muster Modelling

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The DNV GL Safeti Offshore model includes a model for ‘Muster and Evacuation’ – this project idea is to improve this model.

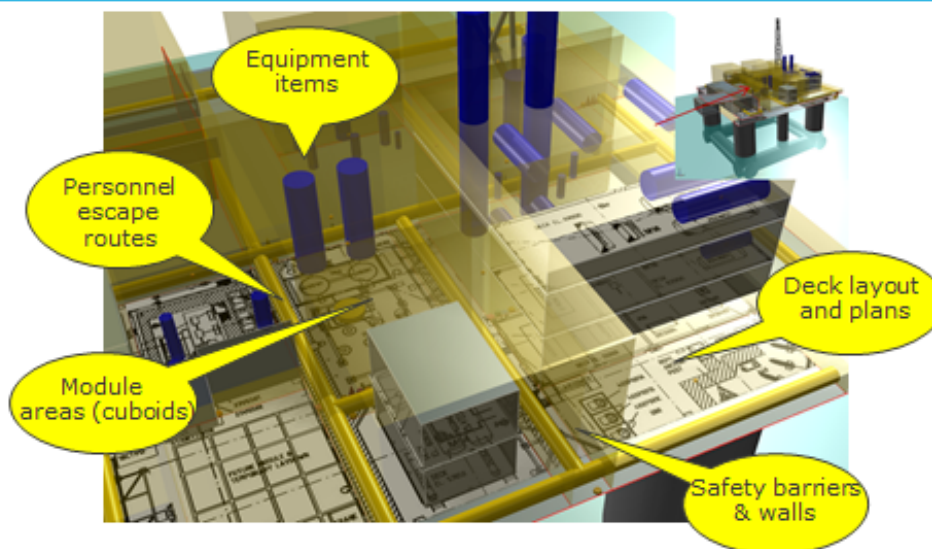
The model predicts how people will move around an offshore platform in the case of an incident and how people may be affected by the hazardous conditions like being subjected to toxic materials, explosions, fires, radiation and smoke.

The current model is relatively simple as many millions of scenarios are modelled. It is based on knowledge of the escape route network on the platform, and people are trained to go to a safe location, called Temporary Refuges (TRs) in case of eventual evacuation – by lifeboat or helicopter. The model is a network model (ie nodes and arcs) and is based on Dijkstra's algorithm for the shortest path (to the TR). The network is disturbed by the hazardous incident and parts of this escape network will become impaired – people may even get stuck with no option to reach a TR. Each person has a local knowledge of impairment but not a global knowledge – the model has very simple rules to change the path people take around the network.

We would like to investigate an extension to the current model where each person can learn about the state of the network by

- Their path taken through the network and an idea of which parts are impaired.
- Sharing their experience with other people they ‘bump into’ along the way (‘perfect’ or ‘partial’ sharing).
- Global information of the network through visiting designated “information nodes” in the network.

Safeti Offshore - 3D Visualisation of Geometrical Layout



Ungraded