**Situation Awareness in Context-aware Case-based Decision Support**

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Humans naturally reuse recalled knowledge to solve problems and this includes understanding the context i.e. the information that identifies or characterizes these problems. For problems in complex and dynamic environments, providing effective solutions by operators requires their understanding of the situation of the environment together with the context. Context-aware case-based reasoning (CBR) applications use the context of users to provide solutions to problems. The combination of context-aware CBR with general domain knowledge has been shown to improve similarity assessment, solving domain specific problems and problems of uncertain knowledge. Whilst these CBR approaches in context awareness address problems of incomplete data and domain specific problems, future problems that are situation-dependent cannot be anticipated due to lack of the facility to predict the state of the environment. This paper builds on prior work to present an approach that combines situation awareness, context awareness, case-based reasoning, and general domain knowledge in a decision support system. In combining these concepts the architecture of this system provides the capability to handle uncertain knowledge and predict the state of the environment in order to solve specific domain problems. The paper evaluates the concepts through a trial implementation in the flow assurance control domain to predict the formation of hydrate in sub-sea oil and gas pipelines. The results show a clear improvement in both similarity assessment and problem solving prediction.