Risk informed decisions in future collaboration environments

Mapping of information and knowledge onto a shared surface to improve planner’s risk identification

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- Focus is on enabling new ways of working in operations through implementation of innovative technologies.
- Introduction of new technologies can, however, also be a source of temporary or permanent increased workload.
  - Most companies have experienced investing in new solutions that are rarely or reluctantly used
  - Access to more data does not necessarily mean better overview or better communication
Our research questions

- How can new technologies improve collaboration in distributed teams on the Norwegian Continental Shelf (NCS) where Health, Safety and Environment (HSE) concerns must permeate all decision processes?
- Can the technology be an obstacle?
- What does it take for a technology to be an enabler of improved decisions, implementations and work practices?
- And can technology enable better risk identification?
Our approach

- Examining existing work practices and technology bottlenecks in IO teams through
  - Observing IO collaboration
  - Field visits

- Iteratively designing a testbed with several of the characteristics identified

- Using the testbed in initial usability studies
  - to assess how users interact with and react to the software
  - for collecting further user requirements for collaboration software
Our choices

• Focus on maintenance and (minor) modifications
• Focus towards safety related collaboration and risk identification
• Start with a single user in our tests to ensure basic usability before later testing in teams
The test bed

• This test bed is developed using an iterative design process
• Visualising in space and time
  • Notifications
  • Work orders
  • Work permits
  • Risks, conflicts and relations both as identified by people involved in the planning process
• Working conditions (or predictions of these):
  • Noise
  • Zone classification
First usability study

- Eight users participated in the 1st usability evaluation.
- Represented four petroleum companies:
  - Statoil, Eni Norge, Shell, and GdF Suez.
  - Selected for the study by representatives from the petroleum companies from their pool of potential future users of IO-MAP.
- Participants were all involved in planning in their organisations
- Some had previous offshore planning experience, others had not
Building scenarios for testing

• Worked closely with IO Center partners Statoil and DnV on scenario development

• Using Statoil’s Brage installation as case
  • SAP
  • HSE profiles
  • Other platform data

• Input and evaluations by platform manager, HSE coordinator onshore, planner onshore
Some preliminary findings and indications from study and preparations

- IO MAP fills an important function in visualising risks in connection to tasks and location, offering an extra highlight and reminder of risks on the map.
- Planners with pre-IO experience may have an advantage in identifying risk connected to a work order or operation at an early stage because of their off-shore knowledge and “gut-feeling”.
- It seems that IO MAP may help planners who never worked off-shore to get a share of gut feeling through visualisations.
- Feedback indicates that limited number of additions to the system will turn it into a groupware for distributed collaboration:
  - Needs will differ between users, this can be accommodated.
- History will remain an important parameter in our further work.
- Indications so far are that the same tool can be deployed across disciplines, with slightly different interface settings:
  - This must be investigated more closely.
Input to further scope from participants

- All wanted to keep risk visualisation, and several further risks were proposed
- They also wanted to see
  - Contractor activities
  - Drilling activities
  - Work that does not need a work permit, but could influence on the overall situation
- Wanted the same tool for all participants in the planning cycle
- Wanted the tool in several meetings a day, as well as for information handling and sharing between meetings and work sessions.
Further studies

• The second usability evaluation is planned to be carried out in late 2010 early 2011
• This evaluation will focus on the usability of IO-MAP in a group context, i.e., to support a distributed team of planners in effectively developing maintenance and modification plans in which safety goals are adequately prioritized
• We will also study cultural differences
IO Center Participants

- Statoil, GdF SUEZ, Eni Norge, Total, Conoco Phillips, Petrobras
- Aker Solutions, IBM, DnV, Kongsberg, FMC