

# Seeing the Big Picture: Principles for Dynamic Process Data Visualization on Large Screen Displays

**Alf Ove Braseth**

***Institute for Energy Technology, OECD Halden Reactor Project,  
Halden, Norway***

[alfob@hrp.no](mailto:alfob@hrp.no)

**Trond Are Øritsland**

***Norwegian University of Science and Technology,  
Interaction Design, Trondheim, Norway***

[trond.are.oritland@ntnu.no](mailto:trond.are.oritland@ntnu.no)

## Abstract

Control room operators in time-constrained situations easily lose situation awareness (SA) while monitoring thousands of variables and control-loops in large industrial processes. Information-Rich Design (IRD) is an industry-tested approach to designing large screen displays that closes the gap of SA. This paper develops a theoretical basis and proposes design principles for IRD focusing on visualization of dynamic behaviour of complex large-scale processes.

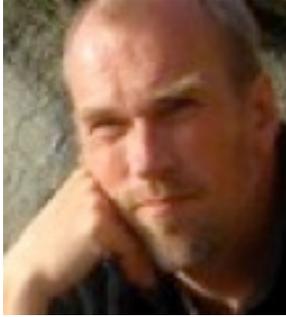
The theoretical basis is discussed in light of initial evaluations of the IRD concept, other display concepts for complex processes, scientific findings on visualization and perception of displays, and psychological literature on rapid, intuitive, information perception. Design principles are discussed using the case of an on-going installation of a third generation IRD large screen display for a nuclear research reactor.

**Keywords:** Large Screen Display, Complex Processes, fast Visual Perception

## Biographies



**Alf Ove Braseth** works as a MMI designer; he has a M.Sc. in mechanical engineering in 1992 at the Norwegian Institute of Technology. From 2000 to present he has worked as a Research Scientist at Institute for Energy Technology in Halden, Norway. He has designed Large Screen Displays for nuclear and petroleum applications and has several design patents, he has continuously improved the Information Rich Design concept through research and industrial projects



**Trond Are Øritsland** is an industrial designer with a Ph.D in Man Machine Interaction (MMI/HCI). From 1999 he has been an Associate Professor of interaction design at the Dept. of Product Design at the Norwegian University of Science and Technology. He is responsible for the department's man machine interaction and interaction design research and education.