



Energy-SmartOps

Integrated Control and Operation of Process, Rotating Machinery and Electrical Equipment

Visualization of connectivity - Project Overview (ESR-H)

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Introduction

Current problem

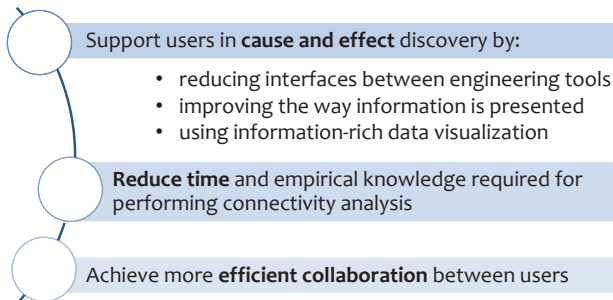
Finding the root cause to a problem in chemical facilities requires collaborative efforts of domain experts who need to investigate, compare and read data from different sources. In large-scale complex systems this is a daunting, time-consuming task.



Research objectives

We aim to define new concepts for the representation of plant and equipment connectivity that can be used by these domain experts from mechanical, process, and electrical disciplines.

Goals



Motivation



Customer challenges

- Data overload
- Increase of complexity
- Organizational changes - brain drain



Technology trends

- Big data
- Use of semantic ontologies
- Integrated operations - IO



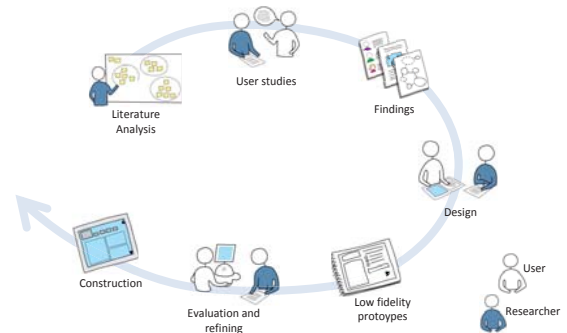
Energy efficiency

- Smart is the new green
- Better use of installed assets - EU Plan

Methodology

User Centered Design

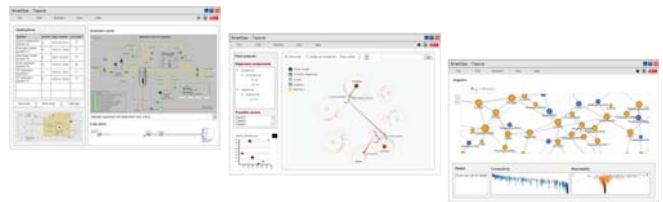
User-centered design (UCD) as a design methodology to make sure that the needs, wants, and limitations of end users are given extensive attention at each stage.



Progress

Main results

- User studies (interviews and site-visits at Statoil)
- Selection and prioritization of use-cases
- Review of data-exchange standards for plant data (IEC, ISO)
- Low- and medium fidelity prototypes from visualization environment
- Novel visualization concepts for process graph networks



Future work

XML modelling of test facilities

