Essential business agility for the digital oilfield

How virtual and augmented reality can help expert work

Paul Helm
Geologix Systems Integration Ltd
LA12 Ltd

Agenda

Virtual Reality as a visualisation and collaboration tool

Examples from outside of the industry

- Education - STEM
- Emergency Services

Virtual Realtime Operations Centre

- Drilling
- Operations

Immersive collaboration

Education – STEM

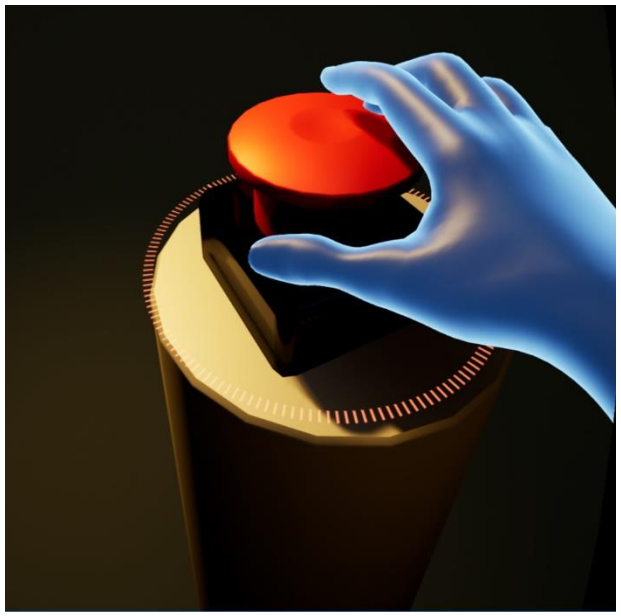
Objectives:

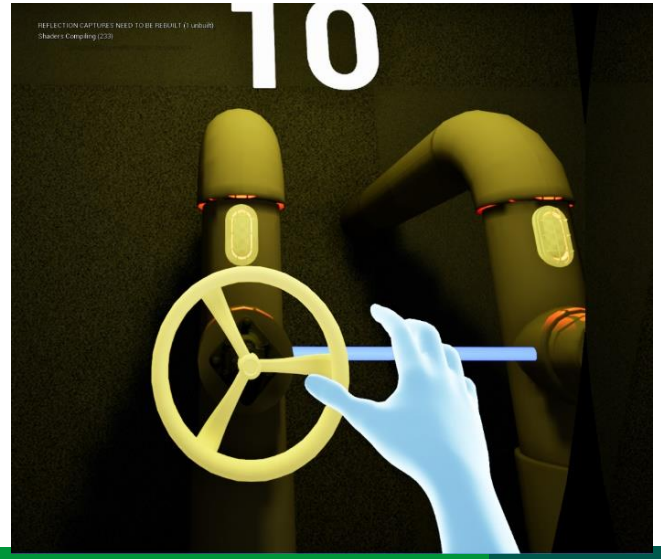
- Developed an interactive VR experience for a local STEM event
- Designed to encourage pupils to coding and technology as fun.

Working Model:

- Pupil selects one of three buttons
- Presented with instructions
- Trial starts with countdown
- Activate switches, levers, and dials in remembered sequence
- Stop the clock or out of time.

Education – STEM - Findings





Teachers Feedback

- Hi-lights soft skills strengths and weaknesses within 30 seconds
- Showed ability level in
  - Spatial awareness
  - Problem solving
  - Memory skills

Findings

- Over 600 9-13 year olds used the system.
- Speed of identification of characteristics and behaviour
- Capture timings and sequences to quantify behaviours
- Use to support and extend pupil assessments
- Tune learning profile

Fire Fighter Training

LA12 LTD

Geologix

Background

- Cumbria is the UK's second largest county
- Majority residents and businesses are around the edges / M6 corridor
- Industry spans Nuclear, Shipbuilding, Pharma, offshore gas production, Renewables…
- Prone to weather 'episodes'.

Cumbria Fire and Rescue Service

- Majority are retained, stations and staff
- Knowledge (skill) level is high
- Ongoing physical training
- Incident command in Penrith

Collaborative Risk Management Training

Expert tools

LA12 LTD

Geologix

Findings

- Immersive environment triggered deep seated response
- Effective war game approach
- Scenarios emphasizing risk management skills
- Validate procedures and protocols
- Emphasize collaboration
- Hone skills for situations they hopefully will never encounter

Realtime Operations Centres

Realtime Operations Centres

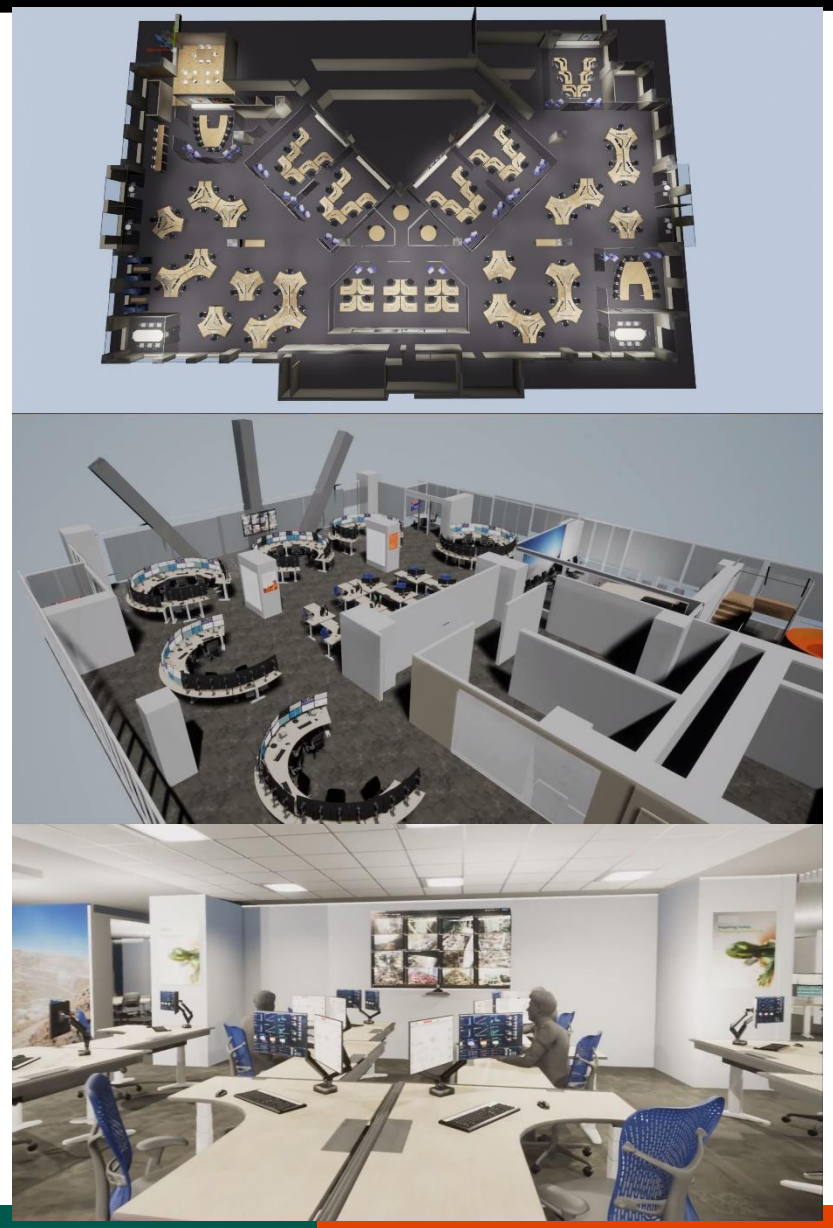
- Collaborative work environments
- Multi-disciplinary workforce
- Information rich with access to tools and people
- Improve operating efficiency through
    - Enhanced (informed) decision making
    - Shared situational awareness
    - Access to expertise
    - Integrated planning and execution
    - …

Expensive to set up and operate

Relatively inflexible

Long term change

High value assets



Virtual Realtime Operations Centre

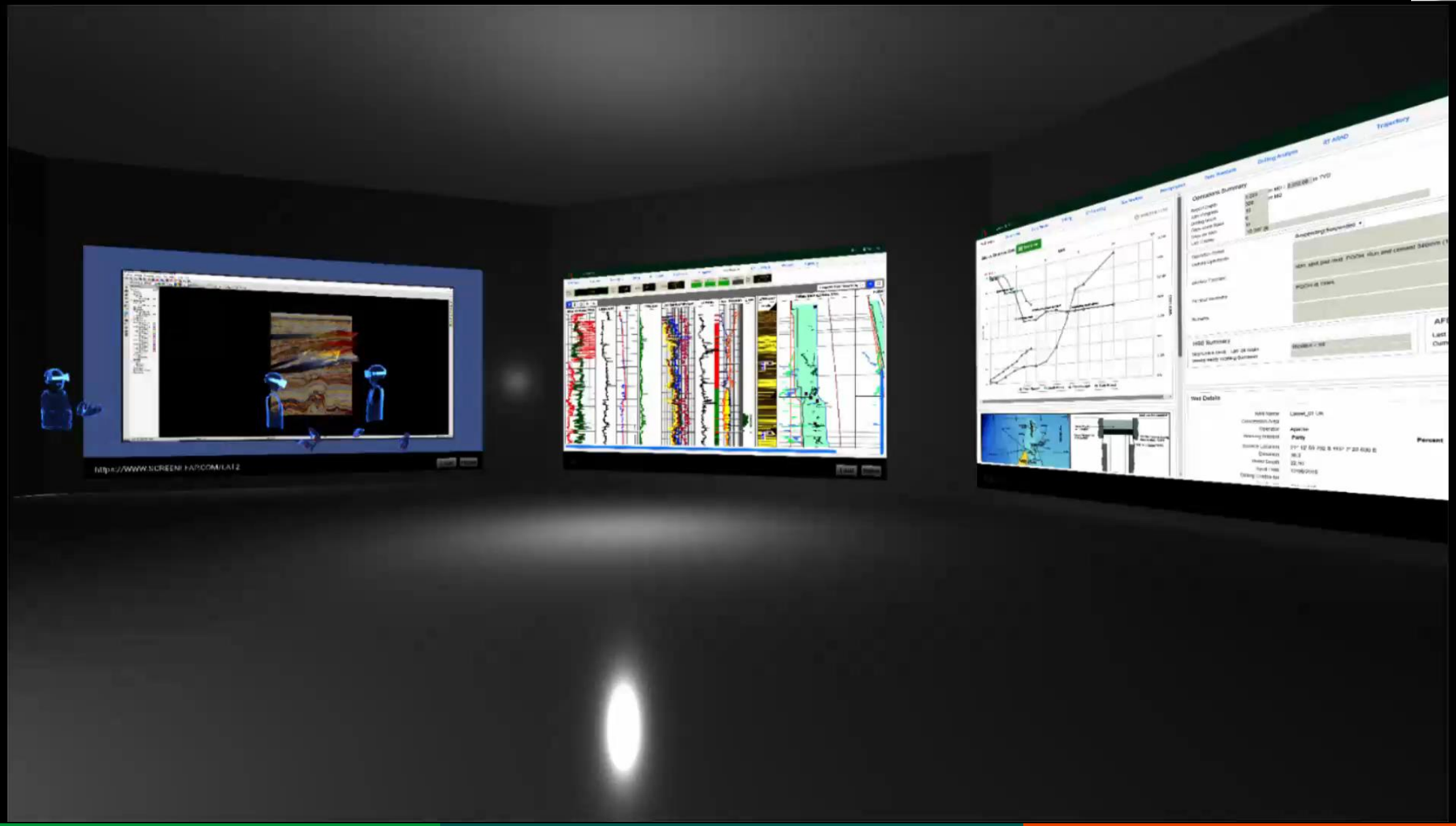
Purpose

- Offer similar ‘person to person’ collaborative experiences as physical Integrated Operations Centres (IOCs)
- Access to people and information to support decision making
- Shared access to a common model (situational awareness)

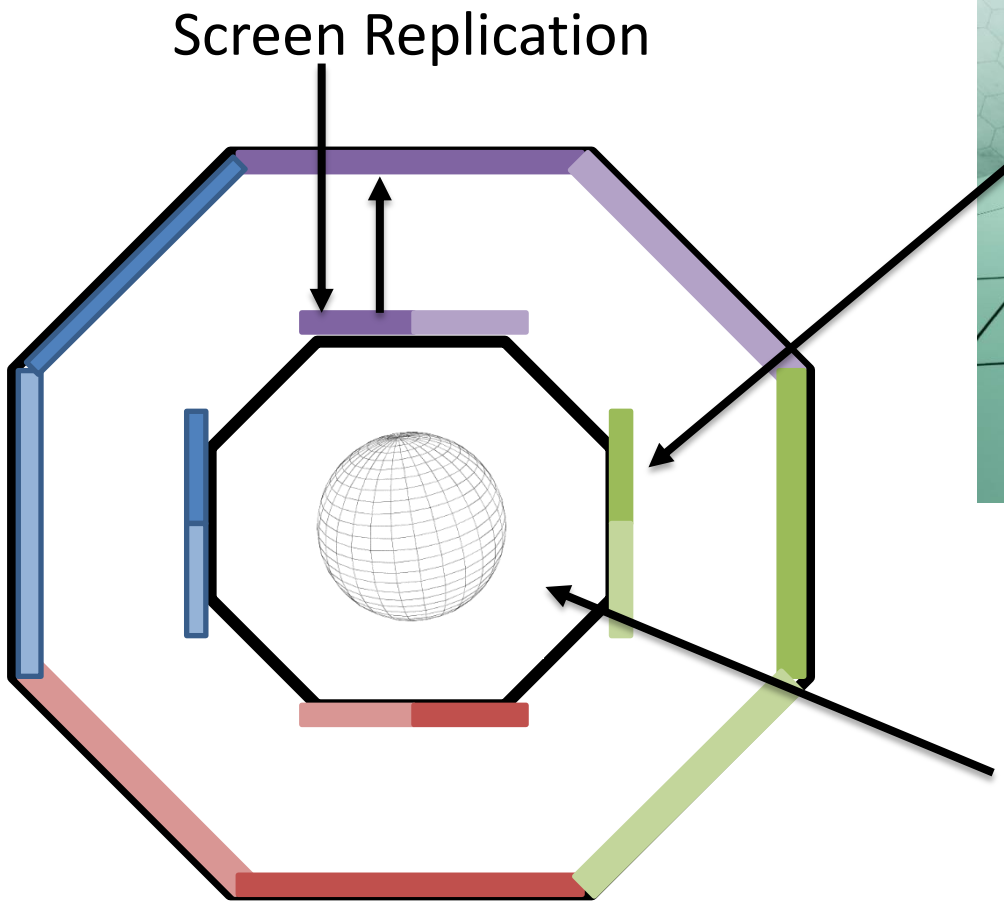
Approach

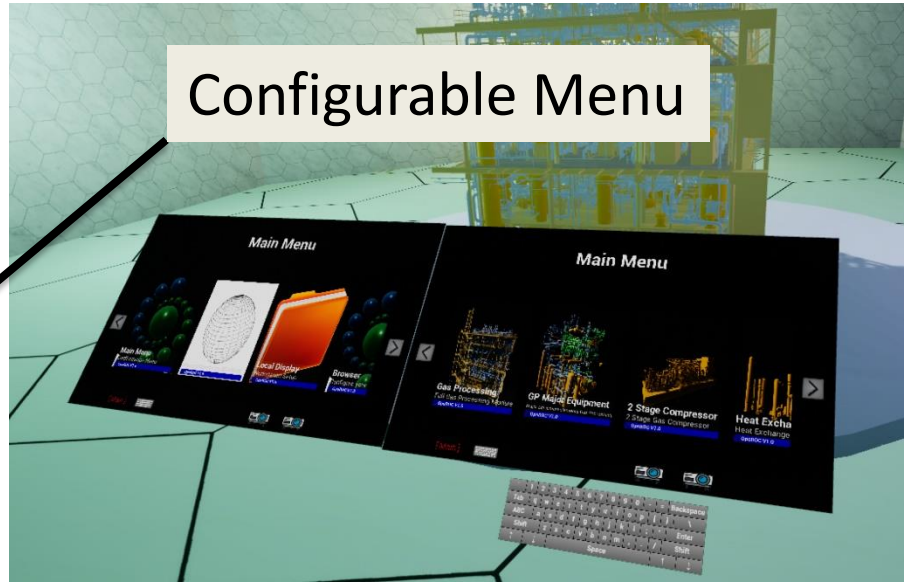
- Establish remote immersive working as a viable mode of operation
- Start with the familiar
- Introduce new display and interaction methods
- Additional tool in the portfolio

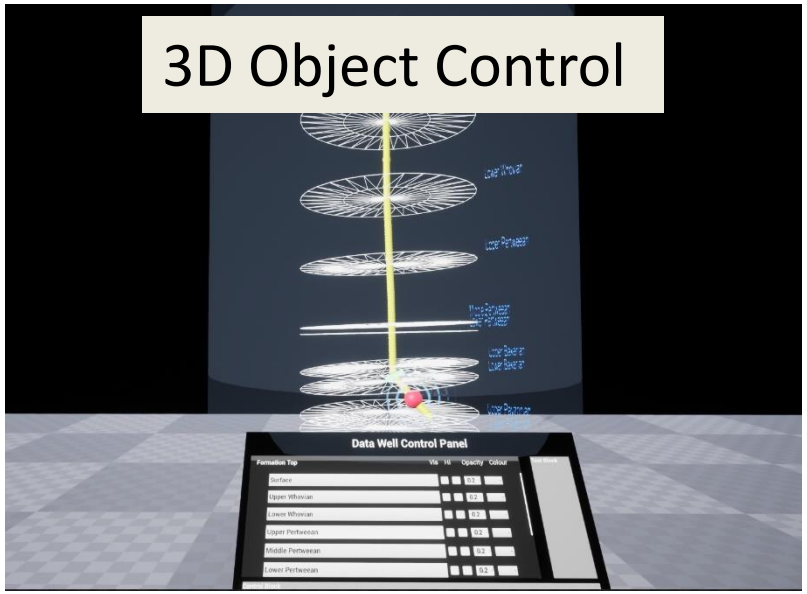
Familiarity in an unfamiliar setting



vROC – Configurable Layout







Replication across all concurrent users

Example - DrillROC

Example OpsROC

Immersive Virtual Collaboration

Summary

Immersive visualisation can be a powerful information sharing and decision enabling tool.

Dynamic content, configurable, integrated access to data sources, web services and applications.

Leverage collaborative working practices into marginal projects with dynamic setup / teardown of collaboration spaces.

Visual Integration framework with VR (and AR) combined with other emerging technologies.