



University of  
**Salford**  
MANCHESTER

**THINKlab**

# COLLABORATIVE ENGINEERING

DISTRIBUTED COLLABORATIVE  
ENGINEERING ENVIRONMENTS

[www.salford.ac.uk/thinklab](http://www.salford.ac.uk/thinklab)



SCHOOL OF  
**BUILT  
ENVIRONMENT**

# COLLABORATIVE ENGINEERING

## Distributed collaborative engineering environments

The manufacturing and building construction sectors are now under severe pressure to remain competitive; pressure that is derived from the globalisation of the economy and the current economic climate; pressure to produce greener products due to climate change and the scarcity of resources. Organisations now need to consider how best to enhance the performance of their products by involving stakeholders in the innovation process, ranging from R&D groups with new technological inventions and know how, to design and simulation teams with specialised skills, to companies with low-cost and sustainable manufacturing capabilities, to maintenance and operation teams, to name but a few.

In response to this demand THINKlab has already completed six major European projects, involving over 50 European partners, and developed novel distributed technology platforms that can support team collaboration among distributed multi-functional teams.

**Through this R&D work, we have an experienced team that can develop customised collaboration solutions for both the construction and manufacturing industries. We are specialised in the following areas:**

- Development of distributed technology platforms that can integrate various product information sources and simulation services to provide integrated problem solving environments.
- Advanced product visualisation environments that can enhance team collaboration among multi-functional teams.
- Support for building team collaboration using the THINKlab methods and tools.

*“A 4-D planning package for now that will take us into the future of delivering more”*

Steve Naybour, S&C South Alliance

*“The 4D Simulation environment developed by THINKlab is an outstanding example of a technology and digital approach being applied to drive better incomes not just for construction and industry but for wider society as well”*

Construction Excellence Judges

ARUP



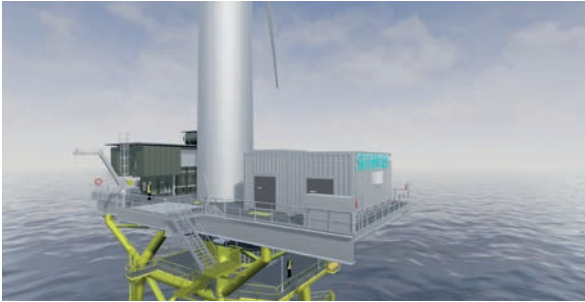
SIEMENS





*“The reaction to the VR model of our offshore electrical substation, produced by the THINKlab, has exceeded our expectations. It has saved us time and money by improving our design review process and it has helped us quickly communicate how our product operates to potential customers. We plan to use this tool in our future development of onshore and offshore electrical substations and to train Operations and Maintenance staff for our installations”*

Nigel Platt, System Engineering Manager, Siemens



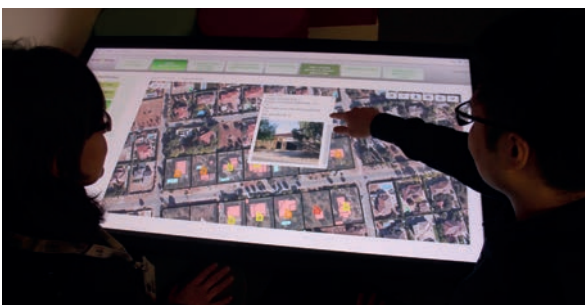
### Virtual Offshore Electrical Substation - Siemens

An interactive virtual model of Siemens new Offshore Electrical Substation allows users to explore the Substation in real time. The model makes use of Oculus Rift HMD technology allowing users to be immersed within the virtual world. Siemens have used this model as part of their design, safety reviews, launch and customer demonstrations.



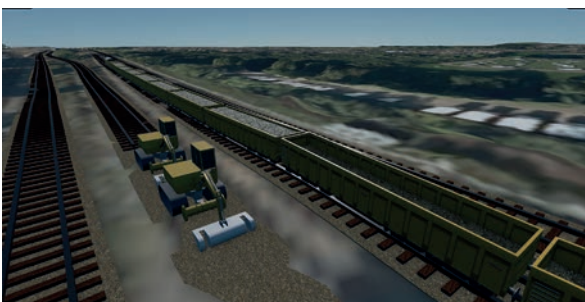
### CrossDrive

CROSS DRIVE targets on creating the foundations for collaborative distributed virtual workspaces for European space science. Using this system, distributed scientific and engineering teams can meet within a virtual representation of Mars to analyze scientific data and plan future missions. THINKlab contributed with their expertise in collaborative environments and virtual reality, designing and implementing the Collaborative Workspace, providing a common framework and allowing distributed teams to work together in a shared 3D space using telepresence technologies.



### Design4Energy

As a part of the EU funded Design4Energy project, THINKlab has created an innovative Integrated Evolutionary Design Methodology that allows stakeholders to predict the current and future energy efficiency of buildings. It allows stakeholders to make better informed decisions to enable the optimisation of the energy performance at the building life cycle level, including operation and maintenance.



### 4D Simulation Environment for Rail Track Renewal - Network Rail



Winner of National Construction Excellence for 'BIM Project of the Year'. This 4D Simulation Environment has been developed for Network Rail to plan track renewal programmes through a visual interface. It offers an interactive environment to consider a range of planning options involving labour, materials, equipment and to visualise potential scheduling issues.

