

Virtual reality in construction

Let the nurse put on a pair of virtual reality glasses and walk around the future operation room in the hospital to find out if it works in practice. Move the sink, or the door, and give it another try. Experience daylight in a planned building, or how the acoustics are affected by ceiling height.

Virtual reality, i.e. computer models you can interact with while being inside them, is no longer science fiction. It is a very useful tool for communicating and understanding complex engineering projects from idea, through design and construction, to maintenance. We already have the information models as most engineering projects today are done utilizing 3D models enriched with information through the use of Building Information Modelling (BIM) processes. But very few have used this new opportunity that Virtual Reality has to offer.

Virtual prototypes

The vision of this project is to explore and develop the use and value of virtual prototypes to promote better communication, understanding and innovation in engineering projects. The project will combine COWI's practical experience with engineering projects with Aalborg University's research in virtual reality and BIM Equity VR's deep knowledge of virtual reality technology.

Support design decisions

Designing a construction requires input from many disciplines on design and function and using a virtual computer simulation makes it easier for the architects and engineers to share their ideas and get feedback from politicians, customers and the public. Designers can make critical adjustments in early stages based on this input that will ensure the success of the finished building.

Models of the real world can be created using drones, photo techniques or 3D laser scanning and can be included in the VR model. The result of such a "Reality Capture" is a 3D model of the real world. To experience the new bridge in the actual landscape is a very powerful way to communicate how it will work together with its surroundings of roads and coastline.

Delivery

Over the next two and half years the project will join forces with on-going COWI projects and assist them in benefitting from virtual models. Focus will be on broad usage of relative generic VR in the first phase, on developing specific cases in the second and on making VR accessible for broader use in COWI projects in the third phase.