

WHITEPAPER

# Virtual Product development

Reduce error rate with virtual reality



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# Intro

Product development in mechanical and plant engineering faces numerous challenges: from high costs and long development cycles to errors that are identified too late in the process.

Virtual reality (VR) enables new possibilities in product development to overcome these challenges and improve collaboration in project teams. [Find out more in this whitepaper.](#)



***THAT wouldn't have happened with VR ...***



# Challenges of the classical product development

In classical product development, engineering and planning teams face several challenges that can lead to an increased error rate and finally to quality issues, project delays and cost overruns:

## 1. Tedious troubleshooting on the computer screen

Troubleshooting on the computer screen can be time-consuming and tedious. The representations of CAD models are often insufficient to fully grasp all the details of complex designs. For instance, unintentional collisions on planning drafts or within CAD programmes are rapidly overlooked.

## 2. Passive participation on design review man Desi

In ordinary design review meetings, engineers are often passive listeners while other project participants discuss the designs. However, inattention and fatigue due to inactivity in meetings poses a high risk of missing information and misunderstandings with serious consequences.

## 3. Physical prototypes with high costs

Once the planning phase is complete, the next step is the creation of a physical prototype or even manufacturing in the case of large-scale plants. As soon as the fabrication of a physical product starts, an enormous amount of resources is required. Every error that has not been detected by now leads to significant project delays and additional costs.



# Advantages of Virtual Engineering

The use of virtual reality in product development offers significant improvements to reduce the error rate before manufacturing and to enable more efficient collaboration in the project team:

## **Immersive and interactive visualisation of CAD models**

By using VR, CAD models can be visualised in an immersive and interactive environment. Engineers are able to view the models from different angles in VR, to zoom in on details and to gain a better understanding of important aspects of the design. The more realistic presentation of the CAD file allows to literally "grasp" the product.

## **Increased efficiency thanks to shortened development cycles**

VR enables faster and more accurate product development. Therefore, design validation and iteration processes become more efficient because project teams can quickly test different design options, gather customer feedback and implement modifications.

## **Intuitive defect detection before final production**

By being immersed in a realistic world of perception, engineers and designers will intuitively recognise errors. This allows them to virtually inspect building structures and check them for potential errors or construction problems. Weak points or errors are recognised and analysed even before they actually become reality. Finally, project teams are able to test the various solutions in VR and optimise the product.



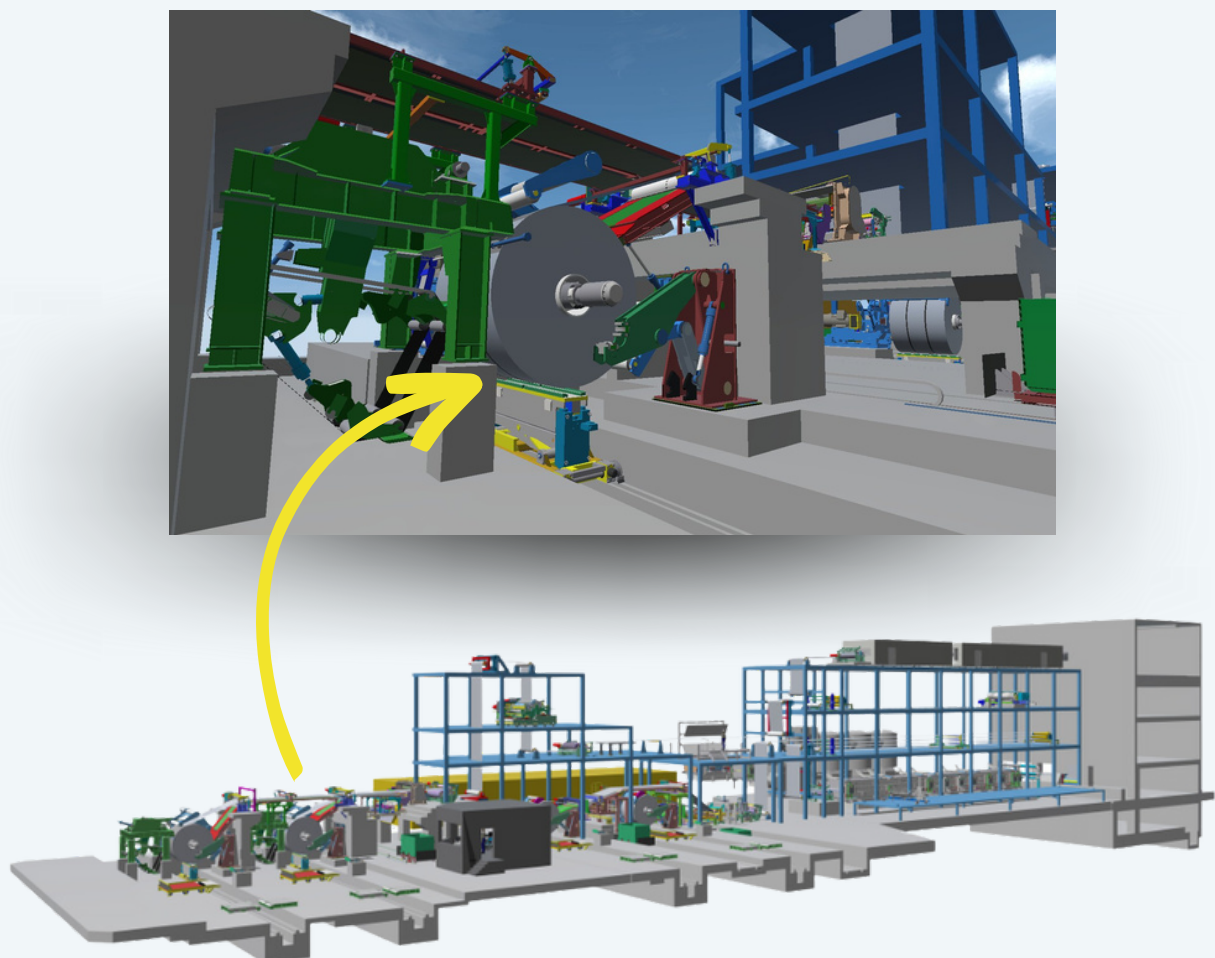
***Virtual reality is not a substitute for classical engineering tools, but a useful extension of the existing possibilities.***

## Interactive meetings at the virtual prototype

VR allows teams to work together simultaneously in a virtual environment, regardless of location. All project participants can explore the virtual prototype together, add annotations and mark changes to the model directly. This improves communication and minimises misunderstandings. And this finally also affects the error rate positively.

## Cost savings through virtual prototypes

Physical prototypes are always time-consuming and expensive. Virtual engineering enables the production and verification of virtual prototypes, which eliminates the cost of materials and manufacturing. In addition, virtual prototypes can be iterated and adapted more easily, which leads to further cost and time savings.



## **Fazit**

Virtual product development with VR is an efficient solution to reduce the error rate in engineering. The improvements in error detection, interactive collaboration and resource savings make virtual product development an important innovation. Virtual engineering enables more efficient, cost-effective and higher-quality product development in mechanical and plant engineering.

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## **Result**

In order to use the advantages of Virtual Reality, companies should first define their needs of VR and their use cases. After that: find and test a suitable VR solution, select hardware and qualify your teams. Experiences with our clients has shown that expert support during the implementation of VR is an essential factor of success. That's why we recommend: Let us support you in your first steps into the virtual world!

*\* WeAre will be happy to be at your side during all of these steps \**

# Get your Expert Call!

**You'll know more in just 10 minutes!**

In an initial telephone conversation, we check your VR needs.

- ✓ **we identify your VR potential**
- ✓ **and check if WeAre Rooms is a match for your business**
- ✓ **100% non-binding**



*Arrange  
your Call*



**I'll be happy to advise you.**

**MARC PROBST**

Customer Success Manager



# About WeAre

WeAre is your strategic partner for the implementation of Virtual Reality in mechanical and plant engineering. We will accompany you all the way from the analysis of your needs to the roll-out of Virtual Reality and the long-term VR infrastructure in your company. With our VR software "WeAre Rooms" we enable complex machines and plants to be grasped by your project teams & customers and reduce planning errors before production. Other companies such as SMS group, Vorwerk and PIA Automation already discuss their CAD files by using WeAre Rooms and achieve cost savings of up to 100,000€ per project.



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