



Accelerating
the future
of aerospace

AEROSPACE VEHICLES DIVISION

COLLABORATIVE ENGINEERING SYSTEMS

Factories of the Future: Digital Twins

PRODUCTS & SERVICES



Master and optimise your manufacturing process

Machines are getting smarter. Nowadays there are sensors to record almost everything. Almost anything can be modeled and simulated. But what to do with all that information? How to translate data into solutions that really make a difference for your manufacturing business?

Royal NLR can help answer those questions using Digital Twin technology. We provide simulation of fabrication processes (virtual manufacturing), real-time monitoring of production unit performance (predictive maintenance, digital twins), and test-validated predictive simulation (virtual certification).

Real Space



Virtual Space



WHAT YOU NEED

- Model and simulate your manufacturing machine, process or component
- Understand the behaviour of your system
- Identify key sensor measurements for useful and meaningful analysis
- Exploit patterns hidden within seemingly complex machine data
- Learn from a lifelike and real-time simulation of your system or component
- Find bottlenecks and improve throughput
- Obtain data to improve the impact, durability, lifetime, and quality of your product
- Be ready for Industry 4.0!

WHAT WE DELIVER

You are the expert in your business, your machines, and your processes. You have the vision of what you want your product to be. Royal NLR has the “nuts and bolts” knowledge to help you get the most out of that vision, using the latest developments in industrial technologies.

We are technology experts in Data Science, IoT, Machine Learning, AI, Manufacturing, Modelling, Simulation, and Digital Twins. We can help you model, monitor, control, and optimise your machines and operations.

OUR CAPABILITIES

Digital Twins have started a revolution in the manufacturing and production industry. Sensors can be placed nearly anywhere, data storage has become cheaper and more secure, and computers have become powerful enough to analyse high volumes of data using data science, artificial intelligence, and machine learning. This makes it possible to gain new and unexpectedly detailed insights into how machines, manufacturing and production processes, and products, actually work and how they can be improved even further.

Royal NLR has the know-how to help turn your manufacturing enterprise into a factory of the future. We understand the science behind the technology and we can work with you to develop the best solutions for your needs. We can help orient you among the available technologies and provide advice on the available options.

OUR CAPABILITIES:

- Detailed multi-domain modelling of complex components and systems
- Simulation of dynamic, thermal, structural, electrical, and mechanical systems
- Coupling information technology and machines with embedded and remote sensors
- Efficient integration of data science, artificial intelligence, robotics, and new technologies
- Realising efficient and tailor-made user interfaces
- Collaborative engineering among different stakeholders
- Safe handling of IP, security constraints, and sensitive data
- Architecting and implementing Industry 4.0 solutions
- Digital Twin technology to wrap technologies into tailored, user-oriented solutions



PRODUCTS & FEATURES

Royal NLR can help you to decide what Industry 4.0 approach is the smartest for your business, leading to potential time and cost savings, both in the short-term and in the long-term. As a research institute, we have the specialised knowledge and expertise to get you up to speed quickly, efficiently, and effectively with Digital Twins and related technologies. Our experience with application of smart technologies to foster improvement in process control and machine and component design, efficiency, and lifetime has been a distinguishing characteristic in the aerospace industry for over 100 years.