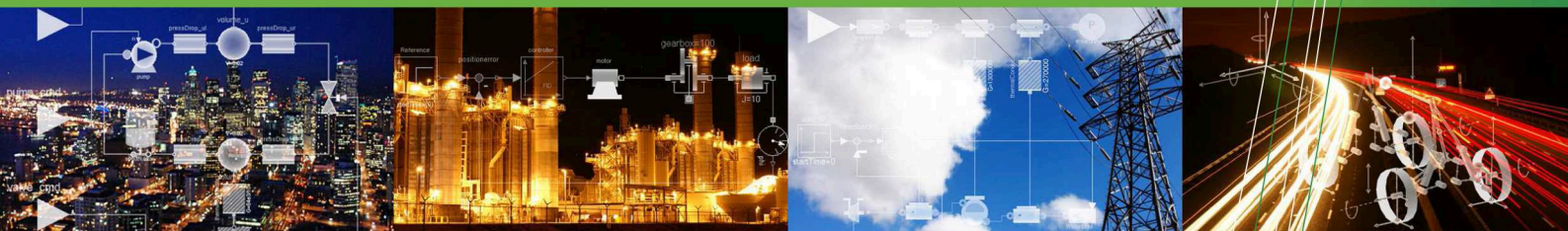


# *D*ynamica



## *Modelling, Optimization & Control*

Modelling  
Simulation  
Control  
Analysis  
Consulting  
Training







## MODELLING & SIMULATION

**Modelling** and **simulation** allow to work on "virtual prototypes" of the objects, plants, processes or products to be designed. **Simulation** is fast, repeatable, and allows to see things that on the real objects could not be accessed or measured. **Simulation** allows to take project decisions timely and effectively.

Dynamica allows you to exploit modelling and simulation in exactly the way your business needs.

Bringing dynamic modelling and simulation into the value chain means better process insight and improved margins.

## APPLICATION AREAS

- INDUSTRIAL & POWER PLANTS
- PROCESS & TREATMENT
- MANUFACTURING
- ROBOTICS & MECHATRONICS
- VEHICLES

## MODELLING & SIMULATION TECHNOLOGIES

Our **modelling** and **simulation technologies** cover both the component and the system level.

Concerning component modelling and simulation, we employ state-of-the-art tools for **CFD**, **FEM**, and so forth.

As for system modelling and simulation we conversely rely on **equation-based, object-oriented (EOOLT) methods**, having the **Modelica** language as the one of election.

Our **system-level approach** is completely **domain-independent**, so that it is possible to seamlessly combine models covering different engineering domains (mechanical, thermal, thermo-hydraulic, hydraulic, pneumatic, electrical, control) within the same framework, i.e. with a single software tool. This can be vital for innovative applications, such as studying integrated plants (that combine very different sub-systems) or developing sophisticated components.

Plus our technology exploits efficient numerical solvers, both fixed and variable-step, and is naturally keen to distributed simulation, **HIL**, **SIL** and **RCP applications**.

Consulting, training  
and methodology transfer

Customer  
autonomy

Optimisation  
engines

Complete  
applications, studies

Turnkey  
solutions

Business-specific  
model libraries

Technology  
licensing

Object-Oriented Modelling and  
Simulation (OOMS) engines  
Specific calculation engines (CFD, FEM)  
Control platforms

  
M O D E L I C A



## CONTROL

Control is the brain of most products and plants. It is a primary means to innovate by best exploiting already available resources.

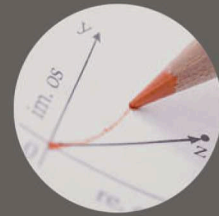
It can be **applied to virtually any product**, even those which are not commonly believed to need it, resulting in competitive advantages.

When dealing with control, compliance with industry standard is a must, but the ability of dealing with dedicated technologies is also important.

## CONTROL TECHNOLOGIES

Our approach combines the **capability of managing controls** at high abstraction levels, typically in the simulation context, and also to follow the **realisation of solutions** down to the tiniest details when needed.

As such, we can specify controls at any level, leveraging the use of model-based generation tools and low-level mastery of the resulting code. We can work with any architecture, **from microcontrollers through PLCs to distributed systems**, all in a unified design and specification framework.



## VALUE FROM MODELLING AND SIMULATION

**Dynamica** offers scalable, flexible, modular multi-physics modelling and simulation solutions, making virtual prototyping and decision aid accessible for any product, plant, and business at large.



## VALUE FROM CONTROL

**Dynamica** offers control design and optimisation for any application domain, and can follow the implementation of the devised solutions on any architecture, from Distributed Control Systems (DCS) to PLCs, industrial PCs, microcontrollers and anything else, even on your custom hardware.



## A UNIFYING VIEW

In the **Dynamica** vision, projects are unitary entities. Our modelling, simulation, control and optimisation technologies are fully integrated and interoperable. And if high-level decision needs in the future to be changed, the process of implementing the new one will be safe and smooth.



## ANALYSIS & CONSULTING

No solution can be effective if not preceded by an appropriate problem analysis.

No specification is guaranteed to be realised without the availability of assistance/consulting.

When introducing new resources in a system, proper supplier selection and management is crucial. We are not just technology suppliers, we are **solution partners**.

Right from the start of the project, not only we make our competence available, but discuss your plant/product's operation with you as things go on and progress.

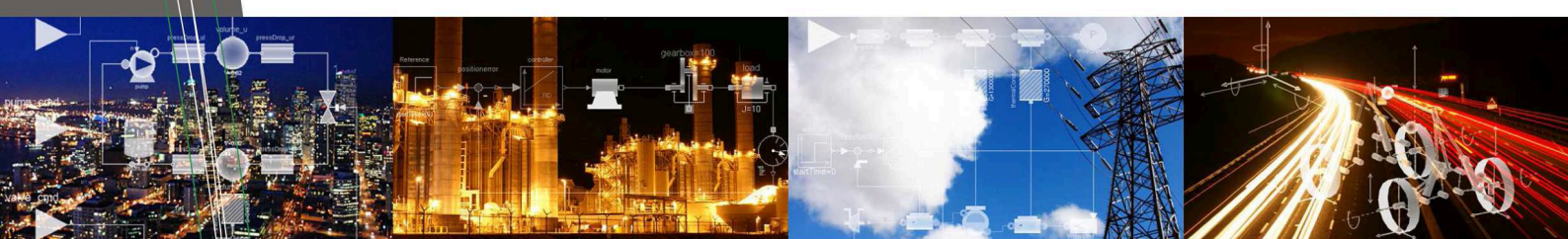
This results in a deeper insight on your part onto the addressed system - a further value for you to keep even when the project is completed.

## TRAINING

To help customers obtain full profit from our technologies, our vision is to provide training at **different levels**, and for **different purposes**.

From the operational viewpoint, our training solutions range from general-purpose to case-specific ones, that can be tailored to any particular situation and need. Also, when applicable, we can offer training on the job, i.e. in strict coordination with customer-specific product or solution developments.





## Modelling Simulation Control Analysis Consulting Training

**Dynamica** is a hi-tech company committed to bringing the newest generations of **dynamic modelling**, **simulation** and **control** technologies to be value for all customers, no matter the size of their business.

**Dynamica** offers solutions, **services** and **training/consulting** to exploit those technologies toward an optimal **engineering**, **operation** and **management** of the customer process or product.

**Dynamica** targets several application domains, including for example:

- power generation and management,
- process industry,
- manufacturing,
- robotics and mechatronics,
- vehicles

**Dynamica** takes specific care to provide solutions that integrate seamlessly in the customer's workflow, by relying on a strong competitive edge in **object-oriented**, **multi-physics**, **scalable-detail** modelling.

The **Dynamica** team puts together **decades of experience** in both **research** and **industrial applications**, plus strong connections to a vast competence network.



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