

# PAN EUROPEAN PARTNERING BUILDING EXCELLENT RESEARCH FACILITIES

Working in Consortia providing knowledge, competence and risk  
minimization Success factors and challenges from a system  
integrator's point of view

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(Particle & Nuclear Physics Business RO)

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**IDOM**



## WHO WE ARE

We are an independent firm providing Consulting, Engineering and Architecture professional services, united in our way of doing things, shared objectives, the Service of our clients.



Bilbao Headquarters



Madrid Offices

4300  
Professionals

65  
Years of  
experience

920  
Partners

125  
Countries

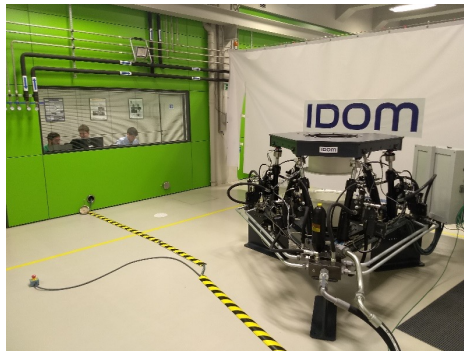


- Advanced Design & Analysis
- Energy
- Industry
- Architecture
- Consultancy
- Transport & Infrastructures
- Water & Environment

- Operating Globally
- 45 Offices Worldwide
- International activity >90%

## RESOURCES

- Operating from in Bilbao and Minneapolis offices
- Large Computing Facilities
- State of the art advanced Engineering and Scientific Software
- Prototypes and Assembly Laboratory
- Large network of associated suppliers



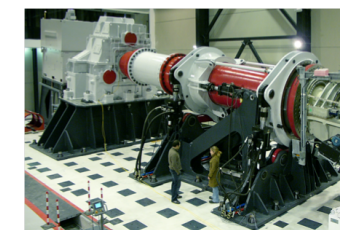
## COMPETENCES

- Mechanical Design
- Mechatronics
- Optical Design
- Optomechanics
- Singular Structures
- Analysis and Simulation
  - Solid & Fluid Mechanics
  - Radiation Transport (neutronics)
  - Electromagnetic
  - System Dynamics
  - Complex Phenomena
  - Multiphysics
- Systems and System Integration
- Turnkey System Provider

## MARKETS



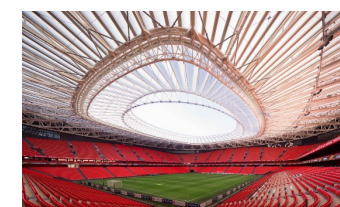
Scientific Facilities.  
Big Science



Test machines  
and facilities



Scientific & medical  
instruments

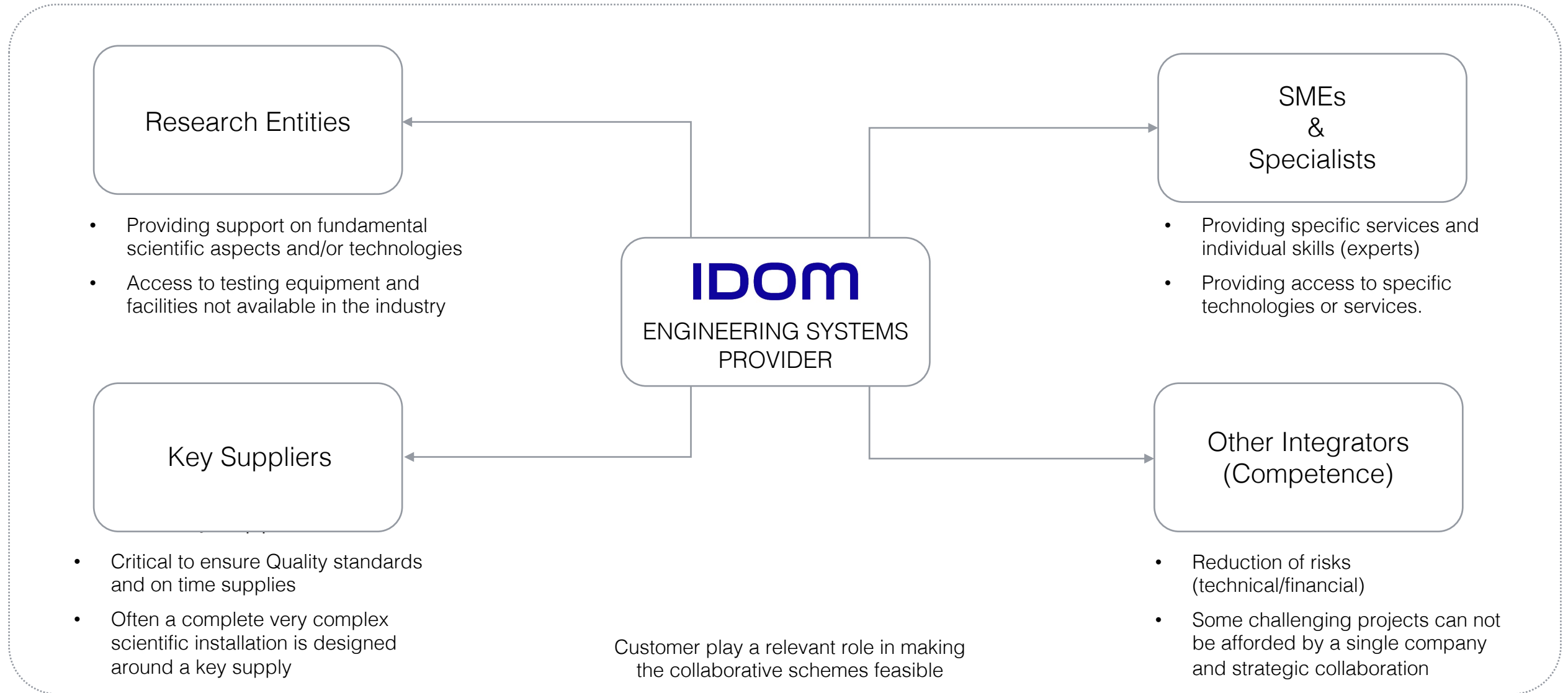


Singular  
structures and  
engineering



## WORKING UNDER COLLABORATIVE SCHEMES

Collaboration and teaming is **essential** in our activity. Typically any of a large engineering system provided by us will require several of the above listed collaborations





(RESEARCH CENTERS)

### Fraunhofer DyNaLab

In this case IDOM was in charge of the complete facility including the building, civil works and the test rig (EPC).

In this case, all the facility was designed and build around a custom one-of a kind infrastructure that required specific development for this application:

- A 10 MW (500tons) motor was developed together with a German motor supplier
- An innovative 30 MVA grid simulator was implemented in collaboration with a Swiss power electronic supplier
- Other collaboration with the main fabricator and the hydraulic system company were relevant.



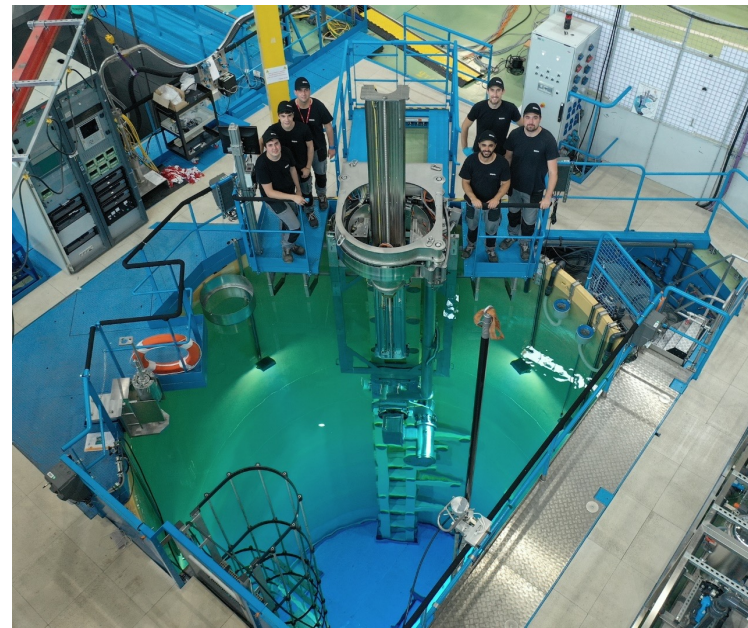
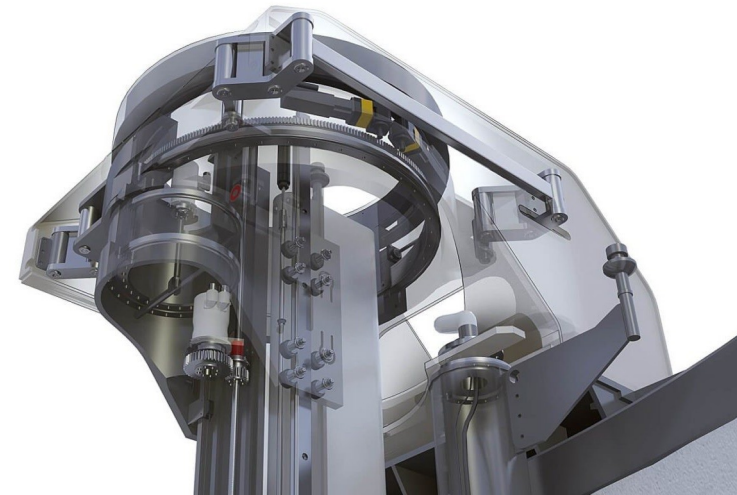


(EXPERIMENTAL REACTORS)

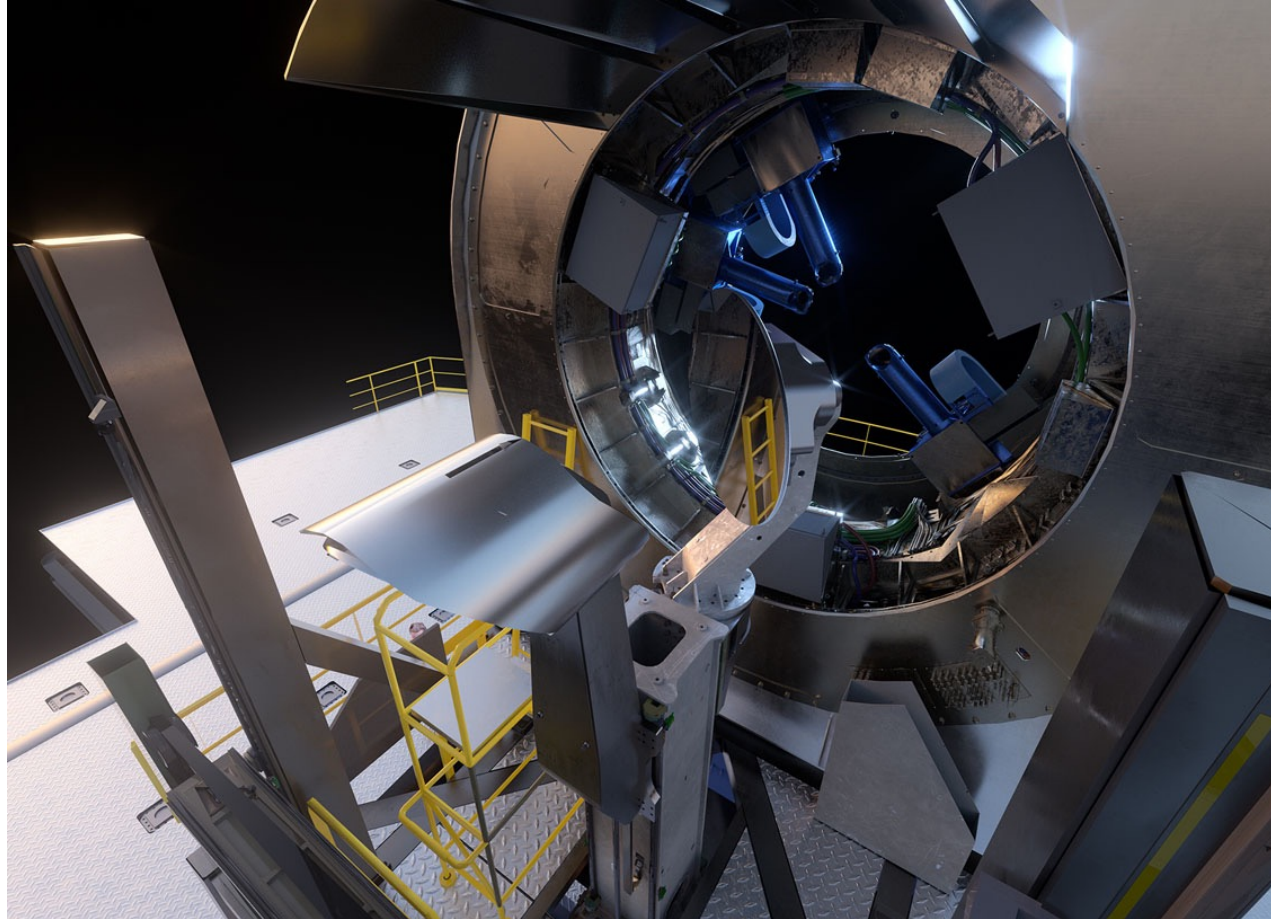
### ELT Prefocal Station

The complete system has been developed and assembled by IDOM, however intensive collaboration with the manufactures and suppliers has been required in the following fields:

- With the main steel fabricator to ensure the components are manufactured following the stringent nuclear regulations and qualifications.
- With the suppliers of all the components and control system developers to ensure that the nuclear safety aspects are properly addressed, and the installation is radhard.





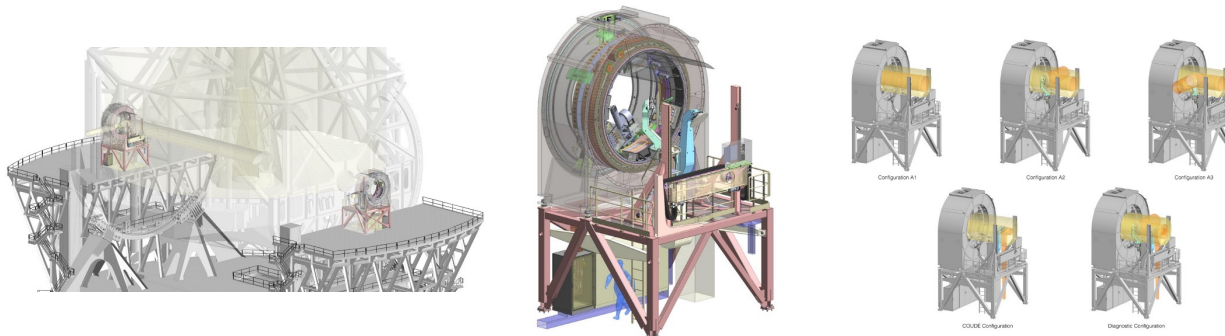


(ASTRONOMY)

### ELT Prefocal Station

Even tough IDOM has in-house all the capabilities to develop  
The complete pre-focal station intensive collaboration with our network of suppliers is required:

- To ensure that the best technologies are selected, and the final product achieves the high-quality Standards for such an equipment.
- To safely develop the critical components and long lad time items such as big mirrors, etc.







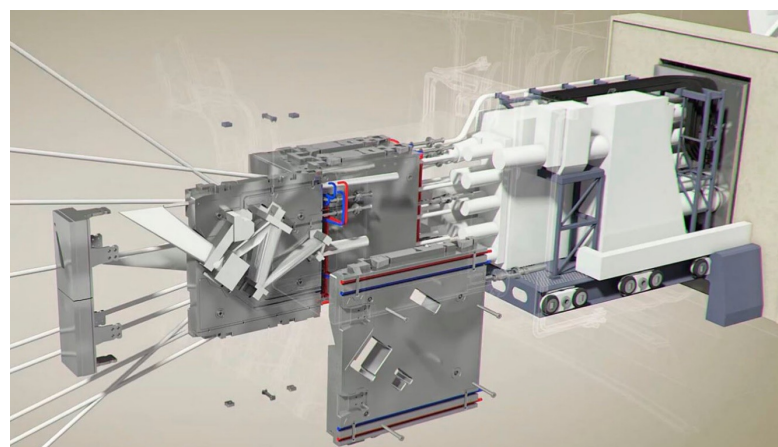
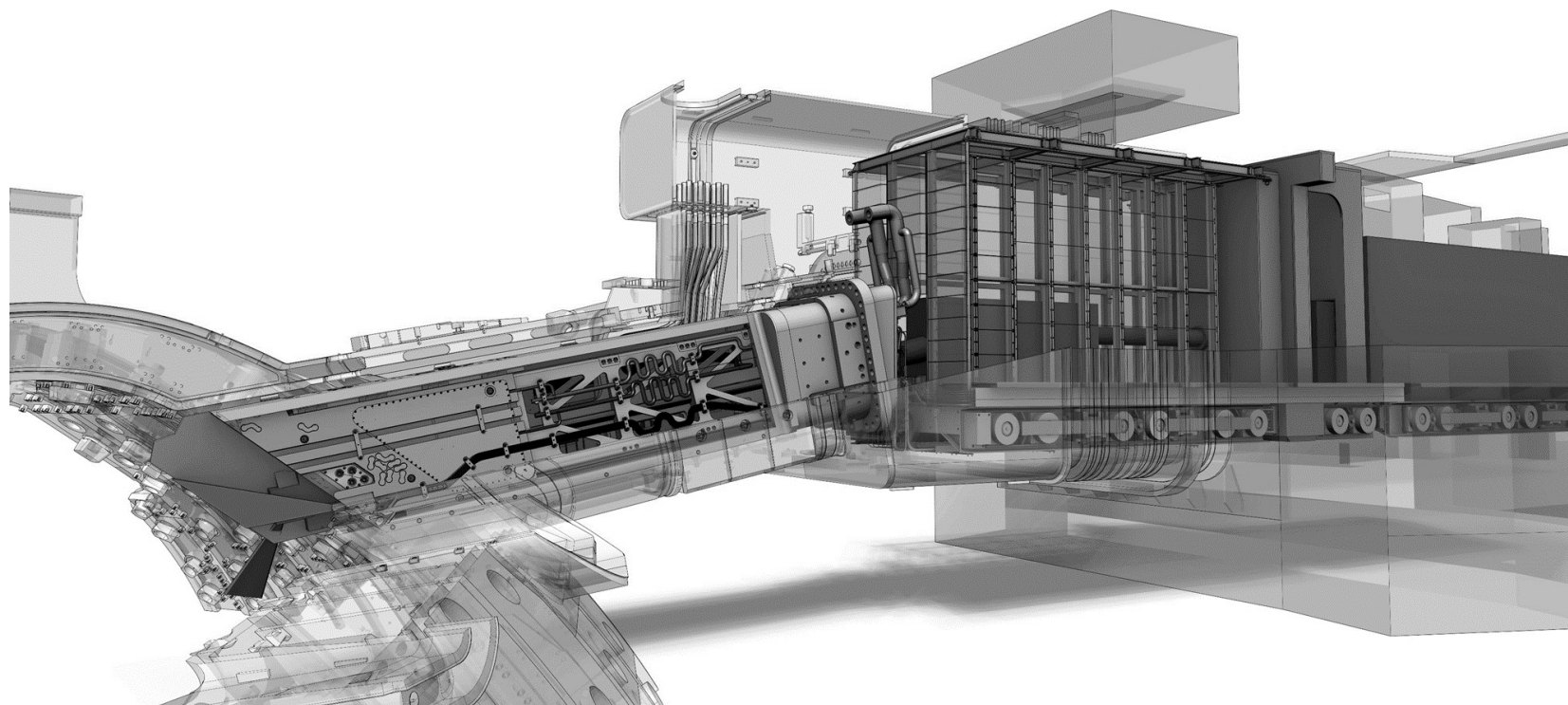
(FUSION REACTORS)

Design and integration of the European diagnostic ports of ITER

Large Project consisting of the design of the diagnostic ports (under the stringent rules and environment of ITER) but also integrating all the diagnostics of very different nature (optical, RF, neutronics, etc.)

Collaboration has been:

- Very intensive and extensive with the client and other stakeholders (interaction with tenants)
- Involving research institutes to assist on testing, RH activities ,etc.
- Involving specialist from the industry (SMEs) to apply different technologies and prototyping





## KEYS FOR SUCCESS

Collaboration and teaming is **essential** in our activity. Typically, any of a large engineering system provided by us will require several of the above listed collaborations (as shown in the examples).

Although every case is different, under our experience the key for success of collaborative approaches in challenging scientific projects, might be based on the following ideas:

- The arrangement of a consortia shall look for the simplest and optimum configuration that will provide the best value to the client trying to avoid forced schemes.
- The proposed organization must “**make sense**” from: Technical, Organizational & Financial point of view.
- The roles and responsibilities must be perfectly defined and in the same way, the governing rules of the consortia or any other collaboration scheme must allow the fluent development of the activities.
- The customer has a relevant role on the success of large and challenging scientific projects: organizing the works and schedules considering the complexities and setting balanced contracting rules that will allow the industry to arrange/create sound industrial organizations with reasonable risks.

# THANK YOU

**IDOM**

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