

## Customers

The company has worked for a wide spectrum of national and international customers, achieving high quality service, flexibility and quick response. Siport21 customers are :

Port Authorities  
Shipping Companies  
Shipyards  
Tug Companies

Terminal Operators  
Engineering Consultants  
Port Building Companies  
Energy Companies

## International Activity

Over ten years of history, Siport21 has conducted nearly 400 studies of ship manoeuvring simulation, various training courses and port design projects, ranking as a reference in this field.

Siport21 has participated in the extension of the ports of Barcelona, Bilbao, Gijón, La Coruña, Algeciras, Cartagena and Valencia. The company has a world wide presence in Canada, Argentina, Uruguay, Chile, Peru, Brazil, Colombia, Guatemala, Dominican Republic, Germany, United Kingdom, France, Albania, Tunisia, Morocco, Mauritania and the Persian Gulf, among others.

## Staff

Siport21's office staff involves highly qualified technicians, pioneers in Spain in such studies and the use of simulation tools and methods. In addition, the direction of the company promotes research and innovation being part of the International Navigation Association (PIANC) and the Technical Committee of ROM (Spanish National Port Authority).

They received different awards:

“Gustave Willems” award 1998 from International Navigation Association (PIANC)

“Modesto Viguera” award 1997 from Spanish Port and Coastal Technical Association (ATPYC)



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## Ship Manoeuvring Simulation, Port Engineering and Maritime Safety Consulting Company



Siport21 is a port engineering and maritime safety consulting company, founded in 1999. Its business is focused on:

Ship manoeuvring studies and ship behaviour in port areas

Maritime safety projects and research on accidents

Analysis of floating structures

Training programs for Merchant Marine Staff

## Tools Available

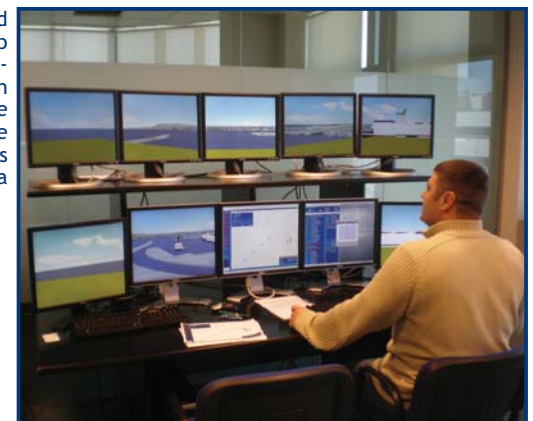


The company offers advanced methods and simulation tools for the analysis of ship manoeuvres. The most outstanding is the Real-Time Bridge Simulator, unique system in Spanish private companies. It involves a main bridge with complete instruments and a 260° wide screen as well as two desktop simulators. It is possible to develop independent simulations or a simultaneous operation of three bridges.

The following tools are also available:

Autopilot Manoeuvring Model (Shipma)  
Numerical Models for Moored Ship Response  
Ship-Moorings  
Optimoor

Creator  
GPS Flot



## Activity

### Assistance in Port Design

- Ports
- Navigation channels
- Locks
- Berths
- Terminals

Projects:  
New projects  
Modifications  
Extension of Port Infrastructure



### Terminals

- Operation limits (meteo conditions, tide)
- Tugs
- New Ships
- Optimization of loading/unloading processes
- Aids to navigation
- Operation manuals
- Moored ship research
- Analysis of lines and fender forces
- Safety assessment



### Maritime Safety

- Risk analysis
- Preventive measures
- Contingency plans and corrective measures
- Research on accidents

### Training

- Excellent facilities and appropriate staff
- Customized training programs
- Extreme conditions
- Emergency response
- For Mariners and Pilots

## Activity

### Floating structures

- Stability analysis of floating caissons
- Analysis of towing conditions (combined with maritime climate and wave studies)
- Dynamic analysis of sinking operations (numerical model simulation and scale model testing)
- Optimization of sinking operations
- Real-Time control of sinking operations



### Other activities

- Research and development
- Traffic analysis and simulation
- Risk analysis



### Offshore wind farms (fixed or floating)

- Maritime traffic interference
- Risk assessment of ship collision
- Recommendations for navigation aids and traffic management
- Concrete caissons (turbine support) or implementation of pile structures
- Structure deployment (GPS systems)
- Environmental characterization (climate, current, waves and instrumentation guidelines)
- Definition and analysis of the anchoring system of floating structures
- Analysis of the dynamic behaviour of the structure
- Technical advice for physical model tests
- Regulations of classification societies (interpretation and application)

