



MAREVA

winning synergy to make the BlueRing ports materialize

2009 – 2012

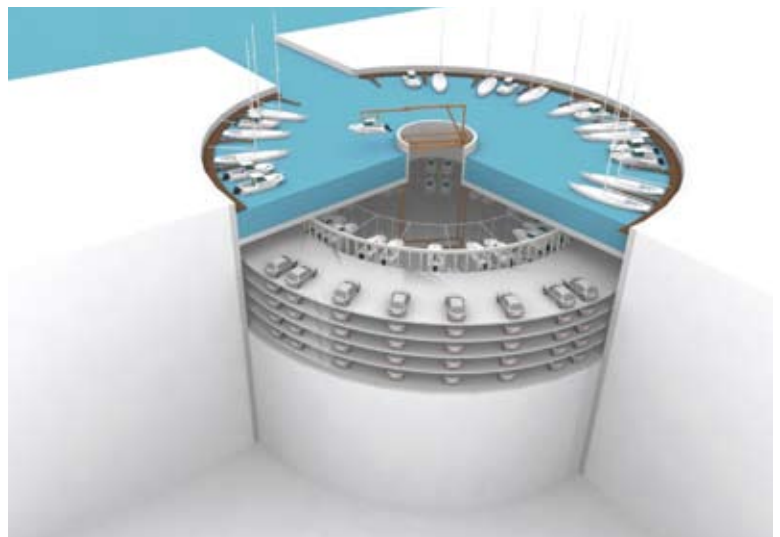
BlueRing is a new port concept that uses an original organization concept to make optimum use of space.

The starting point was to use self-stabilizing construction to build circular docks. A patented procedure is used to stack the infrastructures one on top of the other inside a diaphragm wall. The surface consists of the wet port, underneath which are the other areas of the port (dry port, port services), car park, shops, etc.

MAREVA is a collaborative research and development programme that sets out to perfect the concept, overcome the last technological impediments and begin work on a first project before 2012

“2007 and 2008 saw the project come to maturity. I had already started to work with two vital partners: SCE, which is an engineering company with the expertise to conduct the studies required prior to marketing and project management, and Soletanche Bachy for the works. At this stage I needed support in order to develop a larger collaborative project. The contribution of Atlanpole and the PGCE were decisive for organizing the research and development programme and identifying all the partners. The MAREVA project will enable us to make a decisive technological advance and market a product that is both innovative and highly perfected. My ambition is for the first project to be located in France, if possible in this region in order for BlueRing’s partners to share in the economic benefits”.

damien grimont, chairman of BlueRing



HOW THE PROJECT FITS IN WITH THE PGCE’S CONCERNS :

- STUDYING STRUCTURES IN COMPLEX AND/OR EXTREME SITUATIONS
- SUSTAINABILITY AND LIFE CYCLE OF BUILDINGS AND INFRASTRUCTURES
- SAVINGS IN RESOURCES
- ENVIRONMENTAL PERFORMANCE OF CONSTRUCTIONS AND FACILITIES
- OBSERVATION AND MODELLING FOR THE DESIGN AND MANAGEMENT OF SUSTAINABLE URBAN PROJECTS
- ECO-INNOVATIVE DISTRICTS

PROJECT GIVEN THE PGCE SEAL OF APPROVAL IN 2008

BlueRing is positioned on a growing global market and provides an original solution to the problem of port space that is compatible with sustainable development. The concept saves resources (by making optimum use of space), develops coastal zones and preserves landscapes. It is both ambitious and realistic and has been granted funding from the FUI (Fonds unique interministériel) which aims to support the collaborative development of new products with the potential to be put on the market in the short or medium term.

BlueRing was awarded a prize by Design’in Pays de la Loire 2008

••••• Technical details



THE R&D PROGRAMME

MAREVA aims to overcome four technological impediments:

- **The civil engineering structure:** research into materials will attempt to improve their mechanical performance, durability and watertightness.
- **The basin access gate:** in order to withstand stresses and assist self-dredging, research will be conducted into the shape and operation of the basin gate, as well as the materials from which it is made and its design.
- **The "self-dredging" basin:** detailed numerical modelling and basin trials to simulate the hydraulic flow and evaluate the effectiveness of desilting.
- **Dry port:** optimization of the storage capacity leading to the development of innovative mechanical devices such as a long reach retractable fork and a new system for lifting boats.

The results will be presented in a 3D virtual model which will ensure the integration of the different parts of the port with the structure, the satisfactory management of interfaces and the technical and economic feasibility of a bluering port.

COST OF THE PROGRAMME:

2.8 million euros, with 50% from the FUI (Fonds unique interministériel).

THE CONSORTIUM

5 FIRMS

- Technical coordination of the project: **bluering**.
- **SCE**, a consultancy and engineering firm working in the area of regional development and environment management. Administrative and financial coordinator.
- **CREOCEAN**, a consultancy and engineering firm working in the area of the coastal and marine environment.
- **solétanche bachy**, a general foundations and soil technology contractor.
- **Maum**, a specialist in automated materials handling and storage systems.

3 LABORATORIES

- **The GEM** (Ecole centrale de Nantes and université de Nantes) is conducting civil engineering research on the concrete structure, on the design of the composite materials used in the basin access gate, and will calculate the stresses acting on the gate and the structure.
- The hydrodynamics and maritime engineering team at **the LMF** (the Fluid mechanics Laboratory at the Ecole centrale de Nantes), is responsible for the hydrodynamic studies and simulations of the self-dredging basin.
- **The Nantes university Planetology and Geodynamics Laboratory** are in charge of the hydro-sedimentary studies and simulations for the self-dredging basin.

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on the bluering project

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on setting up a collaborative innovation project

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