

CASE STUDY: MARITIME TRANSPORT

PACSCAT (Partial Air Cushion Supported Catamaran)

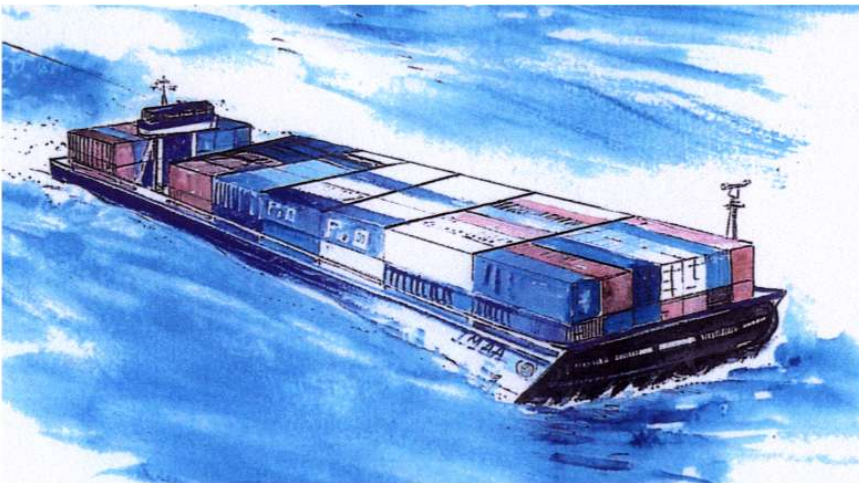
PACSCAT is a 30 month project funded under the FP5 GROWTH Programme. It was launched in December 2002, with an EC grant of nearly €1 M.

Objective

With rapid growth in freight logistics markets throughout Europe, and already congested land-based infrastructure, expansion of waterborne modes is considered essential. The objective of PACSCAT is to develop and evaluate a novel vessel concept for high-speed waterborne freight transportation, based on a Partial Air Cushion Support Catamaran. This will allow operation on inland waterways, particularly the Rhine and Danube, without the draught restrictions of conventional vessels.

Description

The PACSCAT study is based on a slender hull Partial Air Cushion Support Catamaran concept developed by maritime transportation consultants IMAA Ltd. The air cushion is contained between the sidehulls and end seals, and is generated by installed lift fans.



The vessel will be designed to operate on the Rhine and Danube rivers, utilising existing berthing/ loading facilities. The draught and height can be optimised to cope with shallow conditions on both rivers and the bridge height limitations. At a design speed of around 20kt (37km/ hr), the vessel will be optimised to attract freight from road transport to rivers. The payload capacity will be in the order of 2000t, which is equivalent to around 60 truckloads. The technical and market feasibilities have been confirmed to a preliminary level through testing and analysis under an earlier EU CRAFT Exploratory Project, completed in May 2001.

The PACSCAT collaborative RTD project (Contract Number: GRD2-2001-50116) duration is 30 months.

The project is being carried out in 8 main work packages (WPs). These are:

- WP1 - Market assessment, exploring specific waterway logistics markets and wider replication markets
- WP2 - Specification of two initial river freighter vessels
- WP3 - Performance assessment of the vessels as specified, utilising advanced hydrodynamic analysis, model tank testing and large-scale open water testing

- WP4 - Operations assessment including risk assessment and human factors for PACSCAT craft operation, and definition of operating envelopes compliant with regulatory limits
- WP5 - Detailed design of initial PACSCAT river freighters in accordance with above outputs
- WP6 - Cost-effectiveness appraisal based on actual yard cost modelling for construction using WP5 outputs, and operating cost estimates resulting from WP3 and WP4 outputs
- WP7 - Commercialisation planning, to address initial introduction of PACSCAT and subsequent replication
- WP8 - Dissemination of PACSCAT achievements to a wide range of operators and other actors

A series of successful model testing campaigns in UK and Germany has recently delivered encouraging results to the project consortium. In parallel, market appraisal and route evaluation work is underway at the Institute of Shipping & Logistics in Bremen, with support from intermodal specialists MDS Transmodal and from the German freight logistics company Sovtransavto.

Participants

The PACSCAT project is being undertaken by a European consortium spanning the complete value chain from vessel designer to operator, and including interfaces with key regulatory authorities. The project is led by the University of Southampton with management assistance from Marinotech South Ltd. Scientific and Technical coordination rests with Independent Maritime Assessment Associates (IMAA) Ltd who developed the PACSCAT concept. Other participants include:

- Avon Fabrications (Checkmate), UK
- CETEC Consultancy, UK
- Shipbuilders & Shiprepairers Association, UK
- The Institute of Shipping Economics & Logistics (ISL), Germany
- Witt & Sohn, Germany
- Wartsila Propulsion, Netherlands
- Germanischer Lloyd
- European Dev. Centre for Inland & Coastal Navigation (VBD), Germany
- MDS Transmodal, UK/France
- Sovtransavto Deutschland, Germany
- Maritime Simulation Rotterdam (MSR), Netherlands

Commercial benefits

- Expansion of time-sensitive logistics capacity on water-borne modes
- Enabling modal shift from roads to water, with resulting reduction in congestion and pollution
- Advancing capability to design low-wash, high-speed vessels
- Improved knowledge of logistics market sensitivities in the context of sustainable transport infrastructure developments

Further information on PACSCAT can be obtained from:

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