

## Proven technology for a new structure: Submerged Floating Tube Bridge

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## Abstract

The lack of available spaces to locate new or larger infrastructures implies an effort in finding new areas to locate the transport system. A Submerged Floating Tube Bridge could be a feasible possibility to cross bodies of water, minimizing the use of land and avoiding deep tunnels. The structure is nowadays a feasible solution, thanks to the experience in the offshore field. Nevertheless, even if every part of the structure has a proven technology, the different parts have never worked together, so the final structure results to be a new crossing solution. This implies a problem of technology qualification, which requires a broader scope than traditional reductionist approaches to address uncertainties at the system level.

**Keywords:** technology qualification, new structures, bridges, tunnels, transport system.

## 1 Introduction

The influence of the population growth and the increase of the built areas is affecting not only the evolution of the cities and the spreading of settlements, but also the transport system. The lack of available space and the need of improvement of the existing transport system is a problem that cannot be underestimated.

It is in this complex environment that a new concept, the Submerged Floating Tube Bridge (SFTB), could represent a possibility for the future development of the traffic system, thanks to the recent achievements in the oil and offshore field.

The paper highlights the possible role of the SFTB in the future plans for the transport and discusses the process to prove a new technology as a feasible one.

## 2 Urbanization and population growth

In the recent years, many discussions have been held on the future of urbanisations.

The expected development, due to the lack of new available areas and the difficulty in the planning and merging of new settlements in an existing urban environment, can have only one direction of spreading: the vertical one.

This means bigger cities with a denser population rate, that will have a huge influence in the request for the services of any type.

Among them, the transport system. For definition, the transport system has mainly a horizontal direction of acting and this collides with the availability of areas where the future improvements of the system could be put in place.