Air transport and high-speed train user choices.

Expected impacts within the European transport scenario

The reduction of transport negative impacts, and particularly greenhouse gas emissions, is one of the most important goals of the EU transport program. Potential trends the EU will face in the next decades depend on the way its transport network develops and the integration among several transport modes. Particularly, the European Commission introduced in 2006 the concept of co-modality, referring to the "*use of different modes on their own and in combination*" to obtain "*an optimal and sustainable utilisation of resources*".

High-speed rails/trains and airports represent links and nodes of a potentially connected transport network, where short-haul trips between city pairs can be made by trains and longer ones by air according to a co-modal concept where two or more transport modes are used together in an optimal and sustainable way.

Co-modality between rail and air transport could produce benefits at local level – by reducing the airport carbon footprint –and global level – because high-speed trains could re-balance the user choice percentage between train, which is considered carbon-free, and air transport for short-haul trips.

Estimation of the airport carbon footprint requires the use of disaggregate airport data concerning both air related operations and air traveller choices to access the airport. Such estimation has been made for the airport of Bologna (in Northern Italy) by using a methodological approach aiming at identifying the Unit Carbon Footprint (UCF) associated to relevant transport variables –e.g., air demand and movements.

The impact of the high-speed railway system planned at European level is discussed within an aggregate framework to verify trends and potential evolutions. The aggregate analysis refers to air passenger and movement trends for Western EU countries – such as France, Germany, Spain – where high-speed systems are already operating and well developed.