

An integrated approach for the territorial impact assessment of high-speed railways

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Territorial Development in the EU toward cohesion and sustainability



1 European Spatial Development Plan



2 Lisbon Strategy

3 Green Paper on Territorial Cohesion

4 Europe 2020 Strategy

5 EU Taxonomy



“The concept of territorial cohesion builds bridges between economic effectiveness, social cohesion and ecological balance, putting sustainable development at the heart of policy design”

Green paper on territorial cohesion



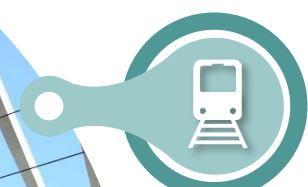
Railways in EU



In line with global and European strategies



works toward



THE ENHANCEMENT OF SUSTAINABLE TRANSPORT AND THE IMPROVEMENT OF ITS EFFICIENCY



THE INTEGRATION WITH URBAN NETWORKS AND THE INCREASE OF TERRITORIAL QUALITY



THE REDUCTION OF ENVIRONMENTAL IMPACTS AND THE IMPROVEMENT OF TERRITORIAL RESILIENCE



THE REDUCTION OF SOCIAL INEQUALITIES AND MAXIMIZATION OF SOCIAL BENEFITS WITH INCLUSIVE TRANSPORT



THE ENHANCEMENT OF LANDSCAPE AND THE RESILIENCE OF COMMUNITIES



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Sustainability Report - Relazione di Sostenibilità

- the **assessment of the socio-economic impacts of the infrastructures**, with specific reference to
 - the promotion of **social inclusion**,
 - **the reduction of inequalities** and territorial differences
 - Improving the **quality of life** of citizens

- the assessment of any significant contributions to at least one or more of the following **environmental objectives**, as defined in the context of the same regulations, taking into account the life cycle of the work to
 - **climate change mitigation**;
 - **adaptation to climate change**;
 - **sustainable use and protection of water and marine resources**;
 - **transition to a circular economy**
 - **prevention and reduction of pollution**;
 - **protection and restoration of biodiversity and ecosystems**;

Guidelines

for the elaboration of the technical and economic feasibility project to be considered at the base of public work tenders of the PNRR and PNC

Linee guida

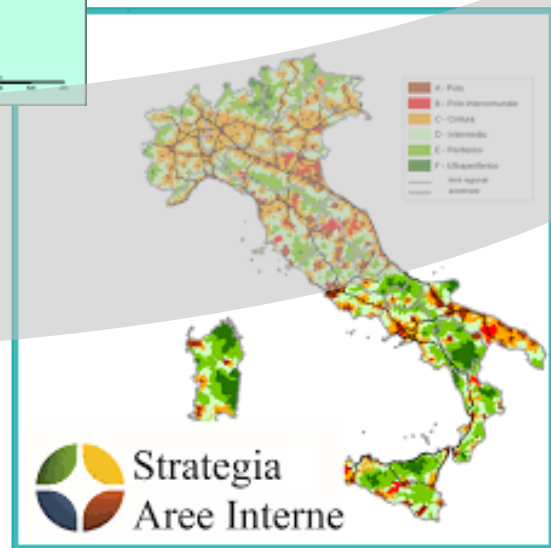
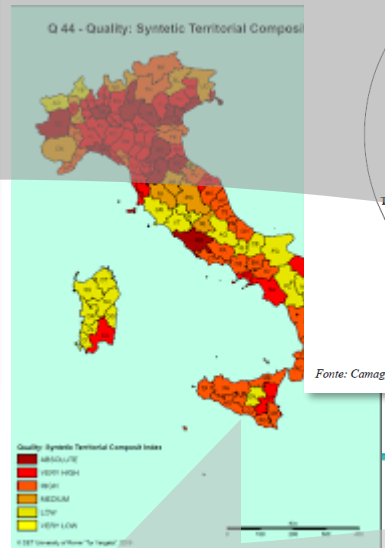
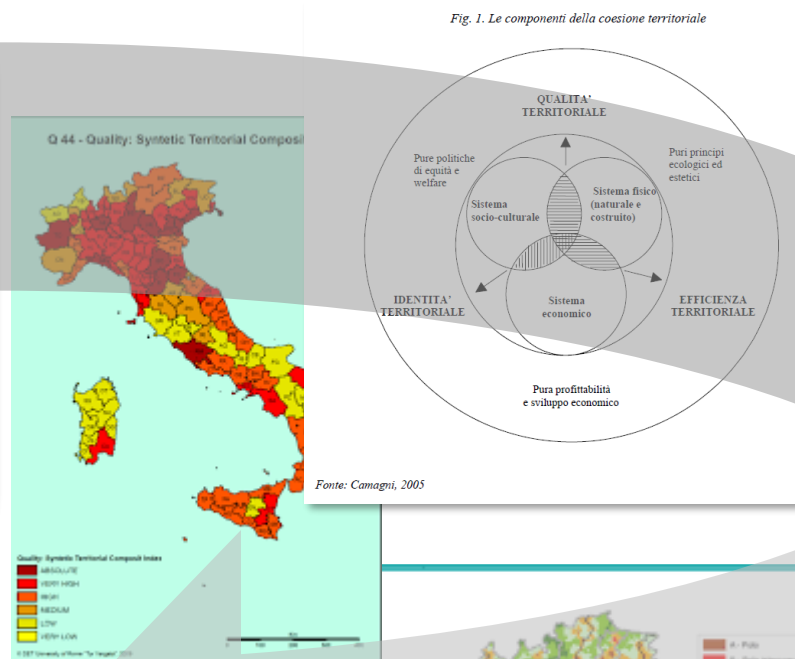
per la redazione del progetto di fattibilità tecnica ed economica da porre a base dell'affidamento di contratti pubblici di lavori del PNRR e del PNC

(Art. 48, comma 7, del decreto-legge 31 maggio 2021, n. 77, convertito nella legge 29 luglio 2021, n. 108)

Territorial Impact Assessment Methods and indicators

STATE OF THE ART: Territorial impact assessment is interpreted as an ex-ante mechanism that can be used to identify such impacts at national, regional and local levels in Member States to help identify potential policy conflicts or inconsistencies. It can also identify the differential nature of potential impacts between different places and in this sense it can provide a means of considering the spatial dimension of EU policy impacts (Fisher, 2013)

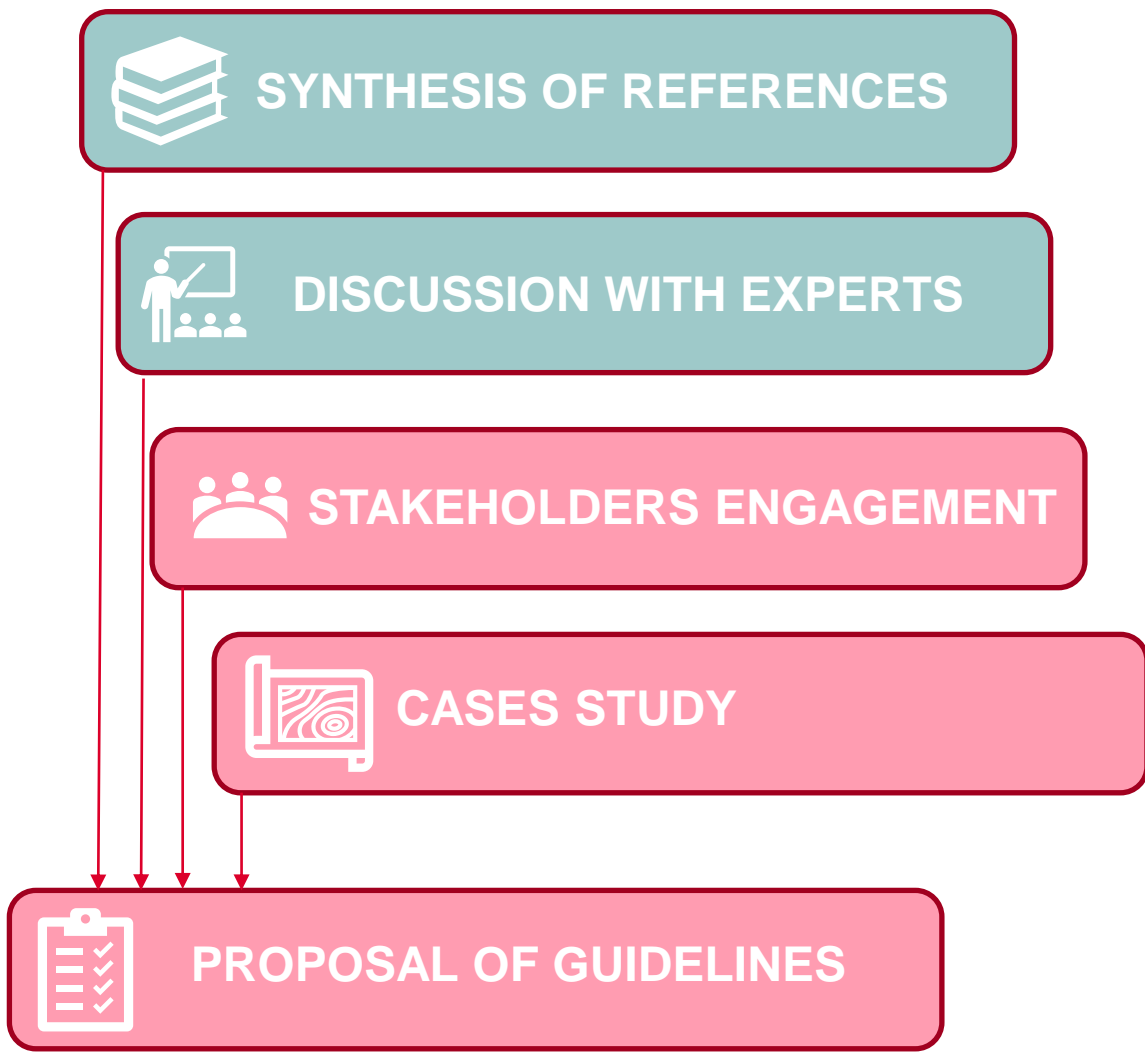
GOAL: synthesis of theoretical and methodological references to assess the territorial impacts of high-speed railways projects



Strategic evaluation capable to integrate the various dimensions of impact

The concept is cross-sectoral and includes socio-economic, environmental and cultural indicators for the involved territories

Methodology and phases/Index of the paper



1. Study of TIA methodologies and definition of indicators

2. Selection of the indicators in consistency with the Sustainability Infrastructures Protocols

3. Preliminary proposal of references for High speed rail TIA

1. Territorial Impact Assessment Methods and indicators

ESPON TEQUILA (Territorial Efficiency, QUality, Identity Layered Assessment model): introduction of an approach for impact assessment based on the 3 territorial dimensions (economic, environmental, social) related to territorial efficiency, quality and identity

PRIN STeMA: evaluation of the impacts in relation to the pillars of the 2020 European strategy: smart growth, inclusive growth, sustainable growth and resources and funds

ENVISION:

The framework provides a flexible system of criteria and performance objectives to aid decision makers and help project teams identify sustainable, resilient, and equitable approaches during the planning, design, and construction that will continue throughout the project's operations, maintenance, and end-of-life phases.

Envision bolsters environmental protections and conserves resources, promotes social wellbeing / equity, and helps communities thrive economically.

STUDY AND SYNTHESIS OF

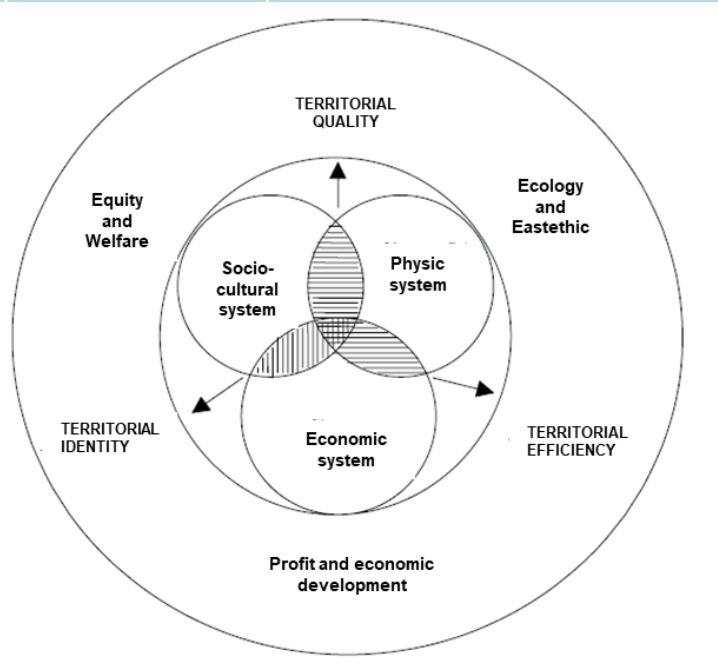
✓ **THE PILLARS OF EVALUATION**

✓ **THE INDICATORS SUITABLE FOR THE INFRASTRUCTURE**

1. Territorial Impact Assessment Methods and indicators



	ECONOMIC			SOCIAL - CULTURAL			ENVIRONMENTAL		
TEQUILA	<< Territorial Efficiency			Territorial Identity			Territorial Quality		
	Accessibility	Cooperation	Reduction of inequalities	Tourism	Territorial visions and vocations	Access to territorial heritage and lanscape resources	Life expectancy	Resources efficiency and saving	
STEMA	Sustainable growth	Inclusive growth					Sustainable growth		
	multimodal accessibility	Rate of cooperation	Unequal distribution of regional income	Touristic rate	Cultural opportunities		Risk reduction	CO2 emissions	Air



The components of territorial cohesion
Source: Camagni, 2006

2. Infrastructure Protocols: Envision credits



Energy

Distribution
Hydroelectric
Coal
Natural Gas
Wind
Solar
Biomass



Water

Treatment
Distribution
Capture / Storage
Stormwater
Flood Control
Nutrient Management



Waste

Solid waste
Recycling
Hazardous
Waste
Collection & Transfer



Transportation

Airports
Roads / Highways
Bikes / Pedestrians
Railways
Transit
Ports
Waterways



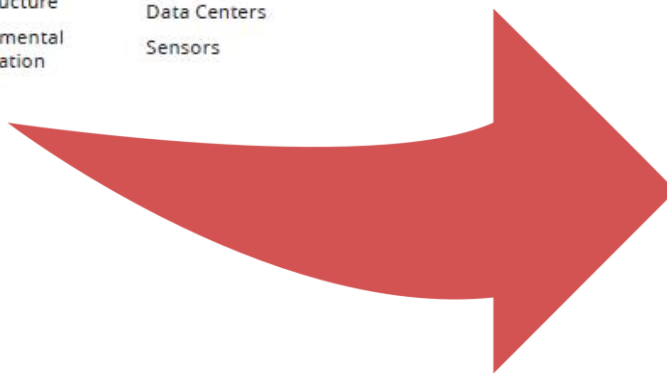
Landscape

Public Realm
Parks
Ecosystem Services
Natural Infrastructure
Environmental Remediation



Information

Telecom
Cables
Internet
Phones
Data Centers
Sensors



Quality of Life



Leadership



Resource Allocation

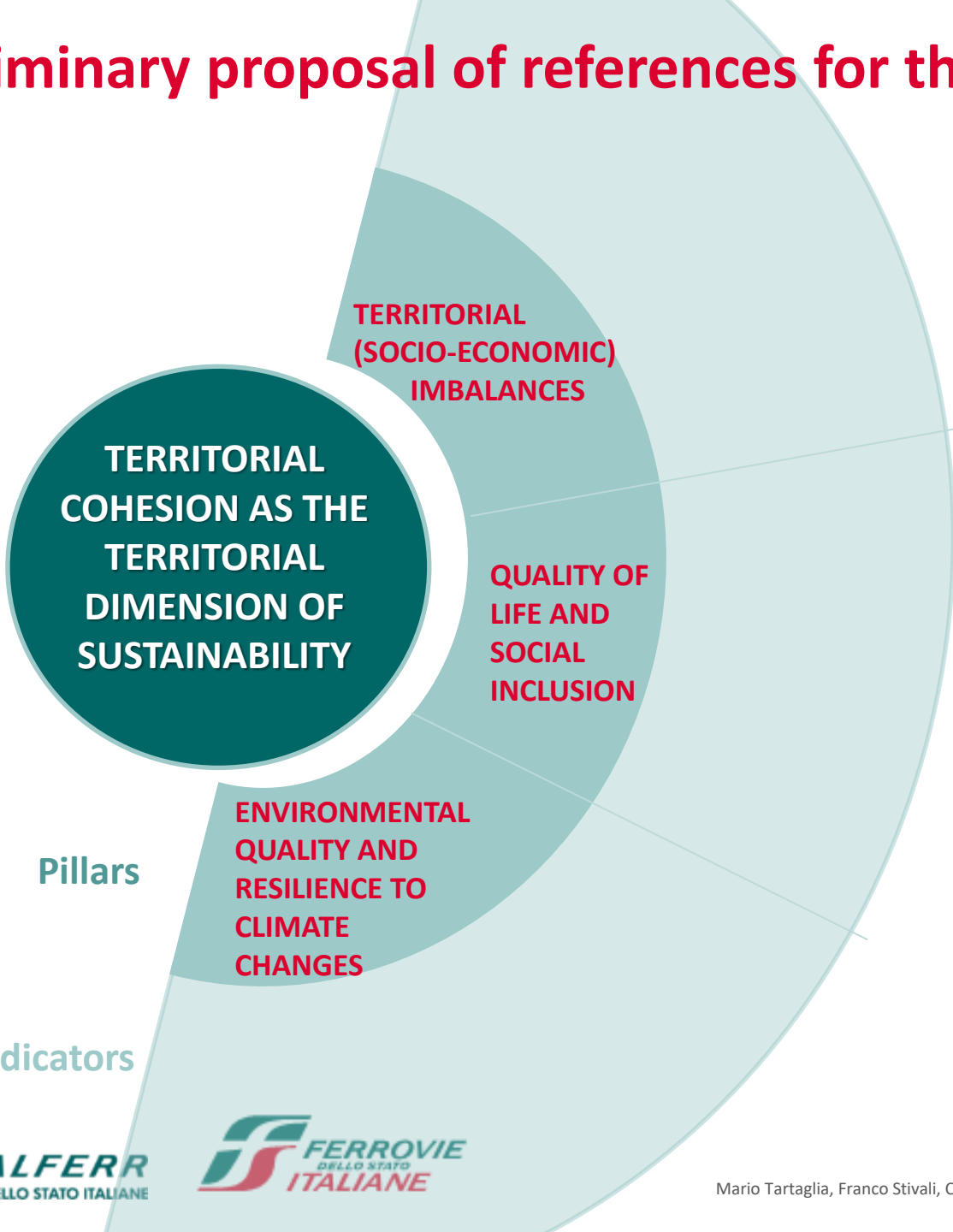


Natural World



Climate and Resilience

3. Preliminary proposal of references for the HSR TIA



TERRITORIAL FEATURES AND BENCHMARKS

The TIA must be, on the one hand, consistent with a solid definition of territorial cohesion - and therefore solid from a theoretical point of view - and, on the other hand, sufficiently operational and easy to use (Camagni)

3. Preliminary proposal of references for the HSR TIA

SUSTAINABILITY REPORT (MIMS, 2021)	STEMA DETERMINANTS (Prezioso, 2018)	TEQUILA COHESION (Camagni, 2006)	PROPOSED INDICATORS	COHESION OBJECTIVES 2021/2027	ENVISION	
REDUCTION OF TERRITORIAL IMBALANCES	SUSTAINABLE GROWTH	Territorial Efficiency	Railway infrastructure safety (reduction of interference)	OP1	QUALITY OF LIFE	
			External accessibility (to national and international infrastructure nodes)	OP3		
			Infrastructural equipment	OP3		
			Regional internal connectivity	OP3		
	INCLUSIVE GROWTH		Territorial Identity	Safety of people (reduction of accidents)	OP1	LEADERSHIP
				Expense for work purposes	OP1	
				Expense for tourism purposes	OP1	
PROMOTION OF SOCIAL INCLUSION AND IMPROVEMENT OF THE QUALITY OF LIFE	INCLUSIVE GROWTH	Territorial Identity	Accessibility and enhancement of historical-cultural and naturalistic heritage	OP3	QUALITY OF LIFE	
			Development of sustainable and resilient territorial visions in compliance with local planning frameworks	OP5		
			Territorial leadership and stakeholder engagement	OP5		LEADERSHIP
	SUSTAINABLE GROWTH	Territorial Quality	Increase in spaces for collective use	OP4	QUALITY OF LIFE	
			Accessibility to urban and metropolitan services	OP4		
			Mitigation of the effects on climate change	OP2	CLIMATE AND RESILIENCE	
REDUCTION OF POLLUTION, MITIGATION AND ADAPTATION TO CLIMATE CHANGE AND TRANSITION TOWARDS A CIRCULAR ECONOMY	SUSTAINABLE GROWTH	Territorial Quality	Air quality	OP2	RESOURCES ALLOCATIONS	
			Use of renewable energies	OP2		
			Saving and reusing resources	OP2	NATURAL WORLD	

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