

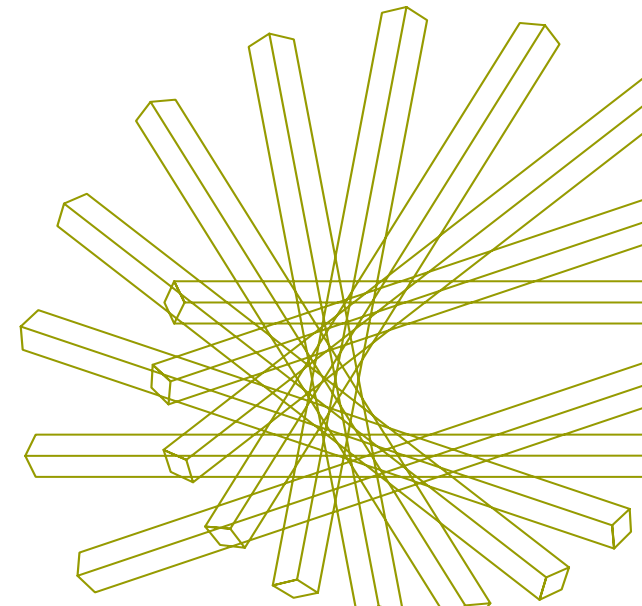


# High-Speed Rail: Madrid-Barcelona-Figueres

*A Megaproject case study compiled by*

Rafaela Alfalla-Luque and Carmen Medina-López

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# MEGAPROJECT Case Study

Case compiled by: Rafaela Alfalla-Luque and Carmen Medina-López

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## Basic Project Information (I)

Project Title	High-Speed Rail (HSR) in Spain. A case study: HSR Madrid-Barcelona-Figueres (French frontier)
Location	Spain
Purpose	To strengthen the connection between two main cities in Spain (Madrid and Barcelona) and to improve the connections with France and Europe. To develop a safe, efficient and sustainable high speed railway system
Scope	To improve the connection between the two biggest cities in Spain, the interoperability of the high-speed network, as well as the connectivity within different areas of the Spanish territory and between Spain and Europe. Integrated with Trans-European Transport Network (TEN-T) (Mediterranean Corridor)
Total Project Value	Total investment : 14,267 million euros [1, 7]
Project Status (i.e.. initiation, planning, construction, operation, dismantling)	Operation. The line Madrid-Barcelona-Figueres (French frontier) is operating since January 8, 2013, after some partial opening sections (see section 4) [1, 17] The first journey of a UIC-gauge freight train on high-speed line took place on 21 <sup>st</sup> December 2010. [1]
Contractual Framework (e.g. fixed price, cost-plus etc.)	Public project. The construction was divided in several sections (concessions). Figueres (Spain) – Perpignan (France) section was constructed by a Franco-Spanish consortium under concession. The operation is done by an stated-owned company (Renfe Operator)

# Basic Project Information (II)

Relevant  
Physical  
Dimensions  
(e.g. height,  
width, volume,  
length)

- Length: Madrid-Barcelona-Figueres (French frontier): 804 Km
- Operating speed: The track is designed for speeds of up to 350 km/h in nearly 86% of the route, although Renfe Operator runs commercial services at 310 km/h.
- International gauge, compatible signalling system, standard electrification
- Minimum 7000 m radius bends on the general track
- Ramps under 2.5%
- Maximum 140 mm slope
- Junctions suitable for 350 km/h
- Track gauge 1,435 mm
- Catenary electrification: 2 x 25 kv, 50 Hz
- Signalling systems : ATP, ERTMS/ETCS system levels 1 and 2, LZB, ETCS and ASFA
- High-capacity, open multi-service fibre optic telecommunications network providing support for the other systems.
- Monitoring and safety system: fallen objects detection, hot boxes, weather stations, video surveillance, intruder detection, etc.
- Central Regulation System aimed at optimising global line operation.
- 255 viaducts and bridges, total length 58 km [3]
- 83 tunnels, total length 86 km [3]
- 10 stations from Madrid to Figueres

An exclusive feature of this line is the design for mixed passenger and freight traffic (between the Barcelona Port and the connection with France). There is a possibility of establishing new services with arrival or departure at intermodal centres in France and other European countries.

Trains technical data:

- Train length 200 m
- Voltage 25 kV / 50 Hz
- Traction power 8,800 kW
- Brake systems Regenerative, rheostatic, pneumatic
- Number of axles 32 (16 driven)
- Wheel arrangement Bo'Bo'+2'2'+Bo'Bo'+2'2'+2'2'+ Bo'Bo'+2'2'+Bo'Bo'
- Number of bogies 16
- Max. axle load 17 t
- Number of railway carriages per train 8 (1 Club, 2 First Class, 1 Restaurant, 4 Second Class)
- Number of seats 405 (38 / 103 / 264) (Club /First Class / Second Class)
- Operating temperature range -20°C to +50°C

[1]

# High-speed train lines in Spain at 31/12/2014

[http://www.adifaltavelocidad.es/es\\_ES/infraestructuras/lineas\\_de\\_alta\\_velocidad/lineas\\_de\\_alta\\_velocidad.shtml](http://www.adifaltavelocidad.es/es_ES/infraestructuras/lineas_de_alta_velocidad/lineas_de_alta_velocidad.shtml)



## Madrid-Barcelona-Figueres (Frech frontier) HSR line:



# MEGAPROJECT Internal Stakeholder Identification

(Stakeholders with a direct legally sanctioned relationship with the project)

		Stakeholder Category	Case-Study	Comments <small>(e.g. maturity, previous experiences of stakeholders, skills, influence on project)</small>
Internal	Supply-Side	Client	In 1993 the client was <b>RENFE</b> Currently, the infrastructure belongs to <b>ADIF AV</b> and the operationalization is managed by <b>RENFE OPERATOR</b> . RENFE, ADIF AV and RENFE OPERATOR are state-owned companies controlled by the Ministry of Development ( <i>Ministerio de Fomento</i> ). [1 ]	
		Financiers	Has been encouraged and financially supported by : [1 ] <ul style="list-style-type: none"> <li>Spanish Government</li> <li>EU Cohesion Fund: 3,358 million euros</li> <li>TEN-T (Trans-European Transport Network) Funds : 81.5 million euros (2000-2006 : 70.9 million euros; 2007-2013: 10.6 million euros)</li> <li>European Investment Bank (EIB): 2,500 million euros (loans) [<i>EIB website</i>]</li> </ul>	
		Sponsors	Spanish Government	
		Client's Customers	General public (passengers: tourists, professionals,...) and freight operators	
		Client's Owners	In January 2005 the Railway Sector Law extinguished <b>RENFE</b> company (Spanish National Railways Company, created in 1941). This company was divided into two companies: 1) <b>Renfe Operator</b> , that operates the trains, and 2) <b>ADIF</b> , that manages the infrastructure. In December 2013 ADIF was divided into two companies ( <i>Real Decreto 15/2013</i> ): 1) <b>ADIF AV</b> , responsible for the construction and administration of the HSR infrastructure and 2) <b>ADIF</b> , responsible for traditional train infrastructure. All of them are state-owned companies controlled by the Ministry of Development ( <i>Ministerio de Fomento</i> ).	
		Other internal supply-side categories (please specify)	Category	Case-Study

# MEGAPROJECT Internal Stakeholder Identification

(Stakeholders with a direct legally sanctioned relationship with the project)

	Stakeholder Category	Case-Study	Comments
Internal	<b>Demand-Side</b> <b>Principal Contractor</b>	The contracting system chose to increase the number of contractors. Construction phase HSR Madrid-Barcelona: 2,095 main contracts, 38 additional works contracts, and 9 emergency works contracts. All the major construction companies were involved in the project (see the next two pages). [3,7,26] Trains: Siemens, Talgo [26] Signalling: Ansaldo, Cobra [26] Technical assistance: many different engineering firms in the country [26] Sections: More than 40 companies worked in about 100 sections [3] 9 companies have built between 2 and 7 sections (Acciona, Corsan-Corviam, Ferrovial Agroman, Vias, Dragados, OHL, Constructora Hispánica, and Coprosa) [3] 13 companies have participated in temporary companies that have done between 13 and 3 sections (Rubau, Sacyr, FCC Construcción, Scrinser, Aldesa, Cavosa, Dragados, Tecsca, Vias, Constructora Hispánica, Ferrovial Agroman, Copasa and Comsa) [3]	
	<b>First Tier Contractors</b>	Among others: Alsthom and CAF: Siemens signed an agreement with Alsthom and CAF for manufacturing the ICE-3 trains. They produced around the twenty-five percent of the machining of the trains produced by Siemens [25] HKL: it has leased equipment of different tonnage to the contractors [27] Redalsa: lanes and elastic fasteners [28]	
	<b>Second Tier Consultants</b>		
	<b>Professional Services Providers</b>	Construction phase: KPMG [15], Sener [14], TYPSA [19] Operational phase: Steer Davies Gleave [13]	
	<b>Other internal supply-side categories</b> ( please specify)	Category	Case-Study
	Ballast suppliers: Ofitas de San Felices, Piedras y Derivados S.A., Canteras La Ponderosa, Cuarcitas del Mediterráneo y Benito Arnó e Hijos [26]		

## Principal Contractors (1/2):

The contracting system chose to increase the number of contractors.

[3]

PLATFORM CONSTRUCTION SECTIONS	KM	AWARDED COMPANY	MONTH	BUDGET
FUENTES DE EBRO-PINA DE EBRO (II-B)	4,29	VIAS	20	40 098 289
PINA DE EBRO-LA ALMODA (III)	21,16	AZVI / SACYR / ELSAN	24	26 170 136
LA ALMODA-CANDASNOS (IV)	23,50	DRAGADOS / TECSA	28	34 150 652
CANDASNOS-BALLOBAR (V)	20,63	ACCIONA	33	38 756 426
BALLOBAR-ZAIDÍN (V-1)	0,98	FERNANDEZ CONSTRUCTOR / TECSA	20	8 254 143
ZAIDÍN-ALCARRÁS (VI)	16,11	DYC / VIAS	24	38 831 061
ALCARRÁS-LLEIDA (VII)	16,15	CASTILLEJOS / FERROVIAL	24	19 719 574
ACCESOS A LLEIDA	12,41	COPASA / RUBAU	15	31 065 867
<b>SALIDA RAF LLEIDA *</b>	<b>5,23</b>			
LLEIDA-ARTESA DE LLEIDA (I)	13,10	OHL	24	73 587 382
ARTESA DE LLEIDA-JUNEDA (II-A)	10,52	CORSAN-CORVIAM	20	34 243 773
JUNEDA-L'ALBÍ (II-B)	11,84	CONS. HISPANICA / COPISA	18	28 164 690
L'ALBÍ-TARRÉS (III-A)	9,31	FERROVIAL AGROMAN	24	64 012 895
TARRÉS-L'ESPLUGA DE FRANCOLÍ (III-B)	8,47	SACYR	24	51 342 571
L'ESPLUGA DE FRANCOLÍ-MONTBLANC (IV-A)	8,04	SORIGUE / ALDESA / RUBAU	21	39 983 191
MONTBLANC- LA RIBA (IV-B)	5,26	FCC CONS. / COMSA	28	63 419 446
LA RIBA-EL MILÁ (V)	8,01	DRAGADOS CONS. / TECSA	24	52 112 176
EL MILÁ-EL CATLLAR (VI)	12,10	ACCIONA	18	75 607 920
EL CATLLAR-LA NOU DE GAIÁ (VII-A)	6,43	COPCISA	21	18 929 045
LA NOU DE GAIÁ-LA RODA DE BARÁ (VII-B)	5,33	PLODER / OSSA	21	25 221 520
RODA DE BARÁ (VIII-A)	3,56	SACYR / CAVOSA	22	43 237 353
RODA DE BARÁ-EL VENDRELL (VIII-B)	1,94	ACCIONA	26	35 788 262
EL VENDRELL- (VIII-C)	1,32	OHL	21	17 620 954
EL VENDRELL-BELLVEY DEL PENEDÈS (IX-A)	5,85	FCC CONS. / CONVENSA	18	39 294 810
BELLVEY DEL PENEDÈS-L'ARBOÇ (IX-B)	8,13	DRAGADOS / TECSA	14	35 563 092
L'ARBOÇ-OLÉRDOLA (IX-C)	6,21	COMSA	17	38 139 549
OLÉRDOLA-AVINYONET DEL PENEDÈS (X-A)	6,52	DRAGADOS / VIAS	22	37 459 815
AVINYONET DEL PENEDÈS-SANT SADURNÍ D'ANOIA (X-B)	6,35	ALDESA / TABLEROS Y PUENTES	17	34 865 428
SANT SADURNÍ D'ANOIA-SUBIRATS (XI-A)	2,57	ALDESA / TABLEROS Y PUENTES	19	28 137 950
SUBIRATS-GELIDA (XI-B)	3,69	DRAGADOS	15	26 685 370
GELIDA-SANT LLORENÇ D'HORTONS	3,04	BRUEZ Y FERNANDEZ	14	18 230 460
SANT LLORENÇ D'HORTONS-SANT ESTEVES SESROVIRE	2,95	OHL	13	35 038 236
SANT ESTEVES SESROVIRE-MARTORELL	1,20	CONSTRUCTORA HISPANICA	14	20 407 142
MARTORELL-RIO LLOBREGAT	1,11	FCC CONS. / CONVENSA	11	7 325 592
RIO LLOBREGAT-COSTA BLANCA	1,10	COPCISA	13	11 224 886
COSTA BLANCA-CONEXIÓ VALLÈS	1,48	COPCISA	13	14 194 839
CONEXIÓ VALLÈS-CASTELLBISBAL	3,30	COPASA	14	18 342 878
CASTELLBISBAL-EL PAPIOL	3,05	DRAGADOS / VIAS	12	46 297 682
EL PAPIOL-SANT VICENÇ DELS HORTS	3,00	FERROVIAL AGROMAN	14	48 521 585
SANT VICENÇ DELS HORTS- SANTA COLOMA DE CERVELLÓ	5,64	SACYR / SCRINSER	14	44 655 806
SANTA COLOMA DE CERVELLÓ-SANT JOAN DESPÍ	0,98	COPROSA	14	23 185 084

Note: Comma (,) as a decimal point;  
Period (.) as a thousands separator

## Principal Contractors (2/2):

The contracting system chose to increase the number of contractors.

[3]

PLATFORM CONSTRUCTION SECTIONS	KM	AWARDED COMPANY	MONTH	BUDGET
SANT JOAN DESPÍ-HOSPITALET DE LLOBREGAT	3,80	RUBAU	14	22 048 287
HOSPITALET DE LLOBREGAT-CAN TUNIS	2,10	FCC CONS. / COMSA	13	72 085 032
SANT JOAN DESPÍ-SANT BOI DE LLOBREGAT	4,10	ACCIONA	19	76 489 294
SANT BOI DE LLOBREGAT-HOSPITALET DE LLOBREGAT	3,70	CORSAN-CORVIAM	22	168 427 642
HOSPITALET DE LLOBREGAT-LA TORRASSA	2,70	OHL / GUINOVARTE & OSHA	20	107 625 515
LA TORRASSA-SANTS	2,06	SACYR / SCRINER / CAVOSA	23	91 568 069
ESTACIÓN DE SANTS *	1,00			
TRAMO: SANTS-LA SAGRERA	5,60	SACYR	35	179 333 418
LA SAGRERA-NUDO DE LA TRINIDAD. SECTOR SAGRERA	1,70	CORSAN-CORVIAM	28	177 424 875
LA SAGRERA-NUDO DE LA TRINIDAD. SECTOR SANT ANDREU	2,60	ACCIONA / COPCISA	19	67 945 883
NUDO DE LA TRINIDAD-MONTCADA I REIXAC	4,75	CORSAN-CORVIAM / VIAS / COPASA	24	127 632 245
MONTCADA I REIXAC-MOLLET DEL VALLÈS	6,13	CONSTRUCTORA SAN JOSÉ	20	36 196 164
MOLLET DEL VALLÈS-MONTORNÈS DEL VALLÈS	3,40	CASTILLEJOS / FERROVIAL AGROMAN	30	105 462 541
MONTORNÈS DEL VALLÈS-LA ROCA DEL VALLÈS	10,28	ALDESA / CONSTRUCCIONES PAI	19	61 789 510
LA ROCA DEL VALLÈS-LLINARS DEL VALLÈS	9,57	CONSTRUCTORA HISPANICA	18	44 034 179
LLINARS DEL VALLÈS-SANT CELONÍ	4,76	SACYR / CAVOSA / SCRINER	21	37 805 158
SANT CELONÍ-RIELLS I VIABREA	7,51	AZVI / COPCISA	20	37 956 769
RIELLS I VIABREA-MASSANES	8,97	FERROVIAL AGROMAN	22	34 460 738
MASSANES-MAÇANET DE LA SELVA	5,18	SACYR / CAVOSA / SCRINER	20	31 920 760
MAÇANET DE LA SELVA-SILS	5,66	CONS. HISPANICA / AZARBE OBRAS Y SERV.	18	26 655 799
SILS-RIUDELLOTS DE LA SELVA	7,27	SACYR / SCRINER	19	24 064 606
RIUDELLOTS DE LA SELVA-C/ JOAN TORRÓ	8,03	ACCIONA	17	74 513 280
C/ JOAN TORRÓ-ROTONDA MAS GRI	0,57	CORSAN-CORVIAM	15	19 031 297
TÚNELES URBANOS Y ESTACIÓN DE GIRONA	3,64	FCC CONS. / DRAGADOS / COPIA / TECSA	30	278 629 970
SARRIÀ DEL TER- SANT JULIÀ DE RAMIS	4,97	AZVI / COALVI	28	82 418 607
SANT JULIÀ DE RAMIS-CORNELLÀ DEL TERRI	3,30	COPROSA	18	46 016 207
CORNELLÀ DEL TERRI-VILADEMULS	7,10	SACYR / CAVOSA / SCRINER	17	93 252 190
VILADEMULS-PONTÓS	5,66	FCC CONS. / SERVIA CANTÓ	19	85 075 734
PONTÓS-BORRASSÀ	7,20	SANDO	20	27 373 923
BORRASSÀ-FIGUERES	7,49	SACYR / CAVOSA / SCRINER	20	77 039 873
CONEXIÓ INTERNACIONAL *				
	<b>Subtotal</b>	<b>797,89</b>		<b>5 104 845 322</b>
	<b>TOTAL</b>	<b>804,12</b>		

Note: Comma (,) as a decimal point;  
Period (.) as a thousands separator



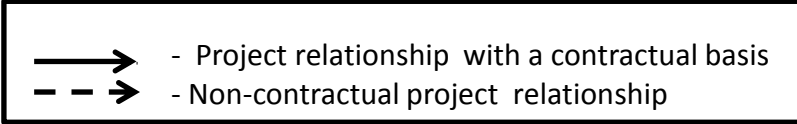
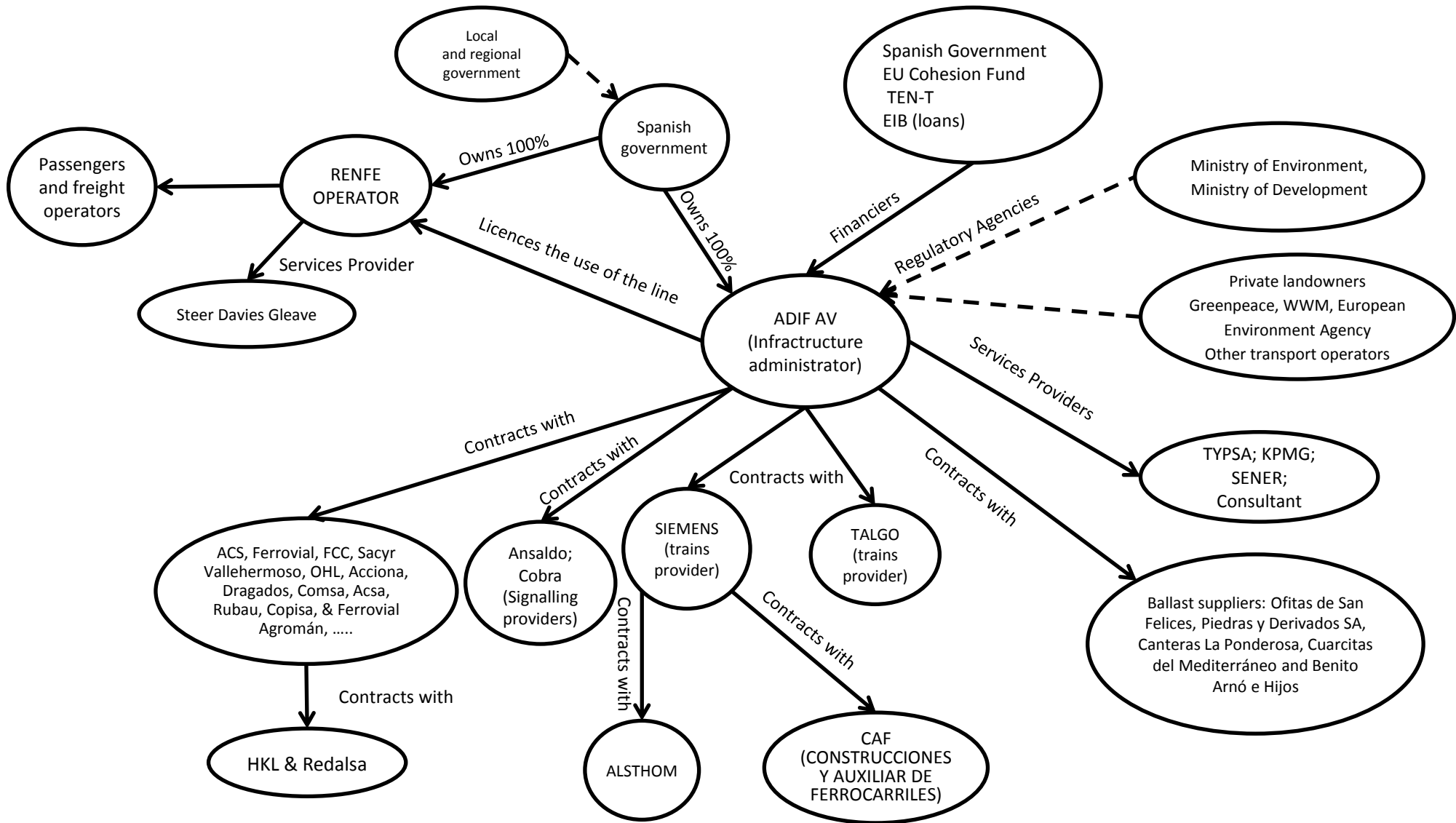
# MEGAPROJECT External Stakeholder Identification

(Stakeholders with a direct interest in the project but with no legal contract)

		Stakeholder Category	Case-Study		Comments (e.g. maturity, previous experiences of stakeholders, skills, influence on project)	
External	Public	Regulatory Agencies	Ministry of Development ( <i>Ministerio de Fomento</i> ) Ministry of Environment ( <i>Ministerio de Medio Ambiente</i> )			
		Local Government	Regional Government of the regions of Madrid, Castilla-La Mancha, Aragón and Cataluña. Local Government of the cities with HSR stations			
		National Government	Spanish Government			
		Other internal supply-side categories ( please specify)	<b>Category</b>	<b>Case-study</b>		
		Tourism associations				
		Industry & service associations				
	Private	Local residents	Local Associations Citizens of the involved cities			
		Local Landowners	Private landowners			
		Environmentalists	Greenpeace, WWF, European Environment Agency			
		Conservationists				
		Archaeologists				
		Other External Private stakeholders (please specify)	<b>Category</b>	<b>Case study</b>		
			Other transport operators			
Universities and Technological Centres						
Press & Media						
Opinion makers: placement of news and opinion articles by companies interested in the project						
	Political Opinion					

# MEGAPROJECT Stakeholder Relationship Maps

Repeat this map for as many project phases as you require



# MEGAPROJECT External Stakeholder Attitude Analysis

External Stakeholder	External Stakeholder's Attitude to this Project	External Stakeholder's Influence on project	Impact of Project on External Stakeholder	Phase of Project of Greatest Interest (initiation, planning, construction, operation, dismantling)
Tourism board	Highly Favourable. The HSR has a high impact on travel distribution and modal choice.	General ability to lobby government	High. Contributes to achieving its overall aims	Operation
EU Commission	Highly Favourable. HSR is considered as a new form of European integration	General ability to lobby government	Contributes to achieving its overall aims	Initiation, Planning, Construction & Operation
Others transport operators: air transport , conventional railways and road transport	Worried about the effects	Limited	The introduction of the HSR line reduced the airport traffic. The route Madrid-Barcelona was in 2007 the world's busiest passenger air route with 971 scheduled flights per week (both directions). In 2009 about 50% of the journeys were by HSR. Airport traffic was reduced.[6]	Operation
Industry & Services Associations	Highly Favourable. Commercial reasons	Medium	High	Operation
Greenpeace, WWF, European Environment Agency	Worried about the effects	Ability to lobby Government	Contributes to achieving its overall aims	Initiation, Planning, Construction & Operation
Private landowners	Worried about the lost of the land	Limited	Lost of the land	Planning & Construction
Local authorities of the cities with HSR stations	Highly Favourable.	Medium	High	Initiation, Planning, Construction & Operation
Barcelona cultural associations	Worried about the effects	Limited	The construction committee of the Sagrada Familia Church lobbied for a re-routing of the tunnel. It passes within metres of the Church and near UNESCO-recognized <i>Casa Milà</i> , also designed by the acclaimed architect Antonio Gaudí	Planning, Construction & Operation

# MEGAPROJECT Project Management

## Project Organisation

Client Project Team Size & Structure	RENFE / ADIF AV / RENFE OPERATOR : state-owned companies
Contractor Project Team Size and Structure	All the major construction companies were involved in the project (see section 2)
Sub-Contractor Project Team Involvement	Firms of engineering, construction, manufacturing systems and train machines

### Project Tools and Techniques

No information available

Please ✓ if present, x if absent , leave blank if unknown

Life-Cycle Costing Approaches

Project Management Software

Lessons Learnt Transfers

Stakeholder Involvement

Relationship Management Tools

Team Building Tools

Building Information Modelling (BIM)

Project Knowledge Management Tools

Competency framework

Other Tools and Techniques or More Information

A cost benefit analysis was performed.

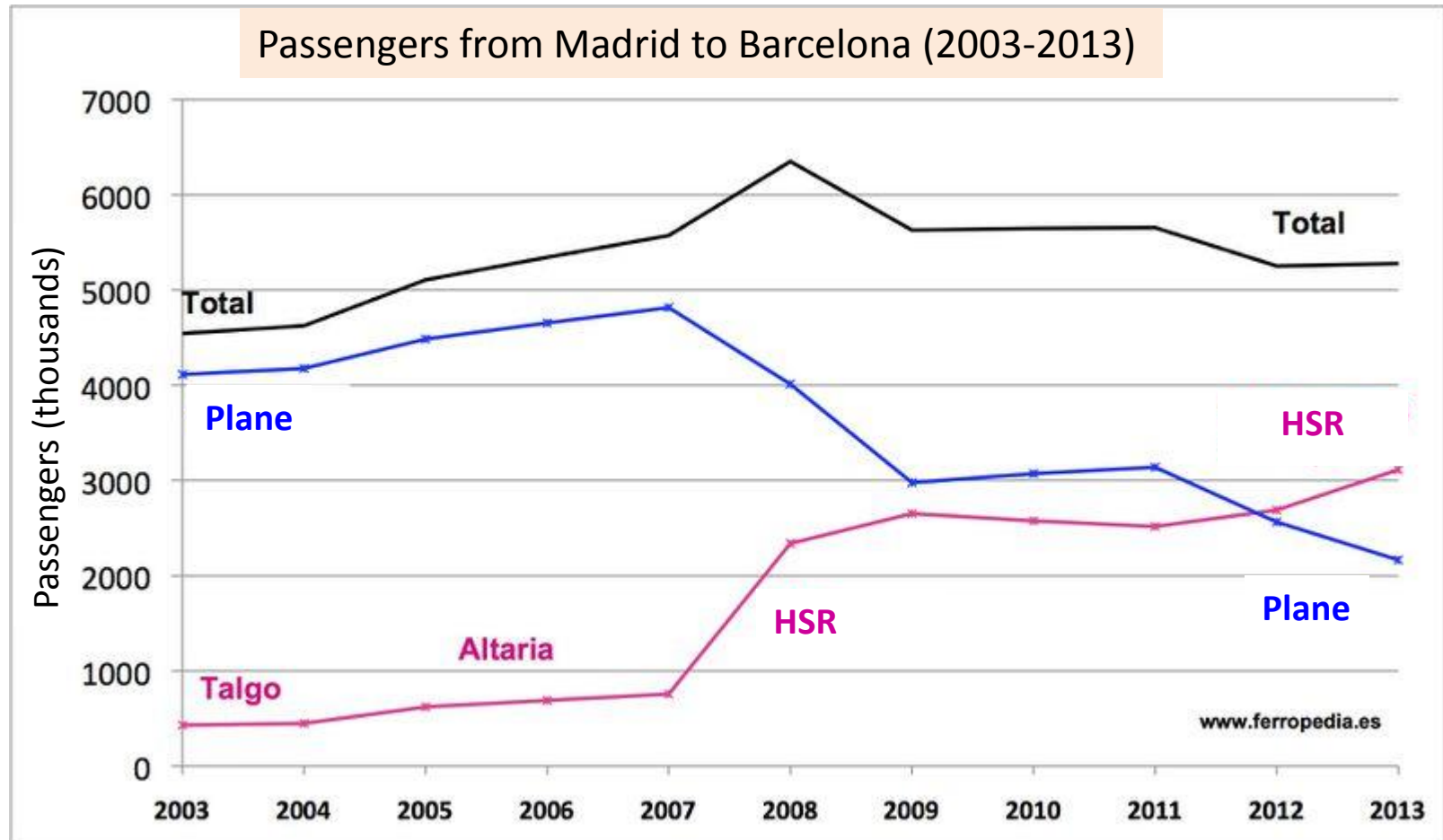
But the final decision was a political decision.

# MEGAPROJECT Project Performance

## Aspects of Performance Concerned with Doing the Project Right

	Original Targets and changes to targets	Actual Achievements Against Targets																				
Performance relating to <b>time</b>	<p>The first section were put out to tender in 1993</p> <p>Start of the construction phase: 1995</p> <p>It was expected that the works were completed in 2009.</p>	<p>The whole line Madrid-Barcelona-Figueres-Perpignan (French frontier) is operating since January 2013, after some partial openings : [1, 17]</p> <p>(a) October, 2003: Madrid-Lleida (443 km);</p> <p>(b) December, 2006: Lleida-Tarragona (108 km);</p> <p>(c) February 20, 2008: Tarragona-Barcelona (98 km). The HSR Madrid-Barcelona line (649km, 2h38m) was inaugurated.</p> <p>(d) December, 2010: Figueres (Spain) - Perpignan (France) (44.4 km: 19.8 Km in Spain and 24.6 Km in France)</p> <p>(e) December 21, 2010: corridor for freight traffic (between the Port of Barcelona and the connection with France).</p> <p>(f) January 8, 2013: Barcelona-Figueres (131 km)</p> <p>Divergence : 4 years</p>																				
Performance relating to <b>cost</b>	<p>Planned budget:</p> <ul style="list-style-type: none"> <li>• HSR Madrid-Barcelona: 6,823 million euros [7]</li> <li>• HSR Barcelona-Figueres: not available</li> <li>• HSR Figueres-Perpignan: 1,100 million euros</li> </ul>	<p>Total final investment : 14,267 million euros [1, 7]</p> <ul style="list-style-type: none"> <li>• HSR Madrid-Barcelona: 8,967 million euros. Divergence: 31.4% [7]</li> <li>• HSR Barcelona-Figueres: 4,200 million euros [1]</li> <li>• HRS Figueres -Perpignan: 1,100 million euros [1]</li> </ul>																				
Performance related to achieving <b>specification</b>	<p>Annual passengers estimated (2011):</p> <ul style="list-style-type: none"> <li>• HSR Madrid-Barcelona (point-to-point): 4 million</li> <li>• Total traffic: 7.8 million</li> </ul>	<ul style="list-style-type: none"> <li>• Time reduction from Madrid to Barcelona: 4 hours and 22 minutes (7 hours with traditional trains and 2h 38 minutes with HSR (direct train)).</li> <li>• Passengers per year (Madrid-Barcelona ) (point-to-point) [8,18]</li> </ul> <table border="1" data-bbox="1052 925 1404 1193"> <thead> <tr> <th>Period</th> <th>Passengers</th> </tr> </thead> <tbody> <tr> <td>2008</td> <td>2,109,943</td> </tr> <tr> <td>2010</td> <td>2,597,435</td> </tr> <tr> <td>2012</td> <td>2,688,615</td> </tr> <tr> <td>2014</td> <td>-</td> </tr> </tbody> </table> <table border="1" data-bbox="1452 925 1804 1193"> <thead> <tr> <th>Period</th> <th>Passengers</th> </tr> </thead> <tbody> <tr> <td>2009</td> <td>2,670,407</td> </tr> <tr> <td>2011</td> <td>2,545,907</td> </tr> <tr> <td>2013</td> <td>-</td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• See next page for a comparison of HSR and plane passengers.</li> </ul>	Period	Passengers	2008	2,109,943	2010	2,597,435	2012	2,688,615	2014	-	Period	Passengers	2009	2,670,407	2011	2,545,907	2013	-		
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Passengers from Madrid to Barcelona (2003-2013)



— Plane  
— Train

Source: [http://www.ferropedia.es/wiki/Tr%C3%A1ficos\\_AVE\\_y\\_LD\\_corredor\\_Barcelona-Madrid](http://www.ferropedia.es/wiki/Tr%C3%A1ficos_AVE_y_LD_corredor_Barcelona-Madrid)

# Aspects of Performance Concerned with Doing the Right Project

Stakeholder or Stakeholder Grouping	Original Aims of Project Involvement and Changes to these Aims	Achievement of these Aims
Tourism associations Industry & Services Associations	To increase the passenger traffic To increase the commercial relationships	<ul style="list-style-type: none"> <li>• Time savings</li> <li>• The Madrid–Barcelona–French Frontier route is one of the most relevant links with Europe. It channels an important flow of tourists toward the South and the East of Spain.</li> <li>• Help to enlarge existing labour markets and integrate consumer and service markets.</li> </ul>
City of Madrid	Madrid mobility enhancements	<ul style="list-style-type: none"> <li>• To improve the connection with Barcelona and Europe</li> <li>• To stimulate the economy</li> </ul>
City of Barcelona	Barcelona mobility enhancements	<ul style="list-style-type: none"> <li>• To improve the connection with Madrid and Europe</li> <li>• To stimulate the economy</li> </ul>
Society	They wanted a safe, fast and clean way of transport.  Improvement of the transport system.	<ul style="list-style-type: none"> <li>• To increase the overall efficiency of the rail system.</li> <li>• To ensure the safety of rail transport.</li> <li>• To improve the connections in the territory.</li> <li>• Reduction in CO2 emissions. For the HSR Madrid-Barcelona section: [6]               <ul style="list-style-type: none"> <li>- The HSR emits 9.2kg per passenger (full load)</li> <li>- The plane emits 50.3 kg per passenger (full load)</li> <li>- The car emits 18.9 kg per passenger (full load)</li> </ul> </li> </ul>

# MEGAPROJECT Project Environment

## Legal and Regulatory Environment

Legal and Regulatory Project Environment (regionally, nationally and Europe wide)	<ul style="list-style-type: none"><li>• The European System of Accounts SEC-95</li><li>• Spanish public contracts law 24/2011</li><li>• <i>Real Decreto</i> 12/2011 develops the legislation of public contracts</li></ul>
Specific Legal and Regulatory events impacting on the project	<ul style="list-style-type: none"><li>• The Infrastructure and Transport Plan of the Spanish Government</li><li>• Law of Railway sector 39/2003 (17 November)</li></ul>

## Political Environment

Political Project Environment	<ul style="list-style-type: none"><li>• Urban planning measures: regulations and incentives to reduce the possible barrier effects of the rail system; the new areas developed allow the location of new economic activities and create positive synergies.</li><li>• Management measures: the implementation of mobility policies to foster the coherent coordination of internal and external passenger flows. [9]</li><li>• Interest in removing regional imbalances and improving communications in the country.</li></ul>
Specific Political Events impacting on the project	None Identified



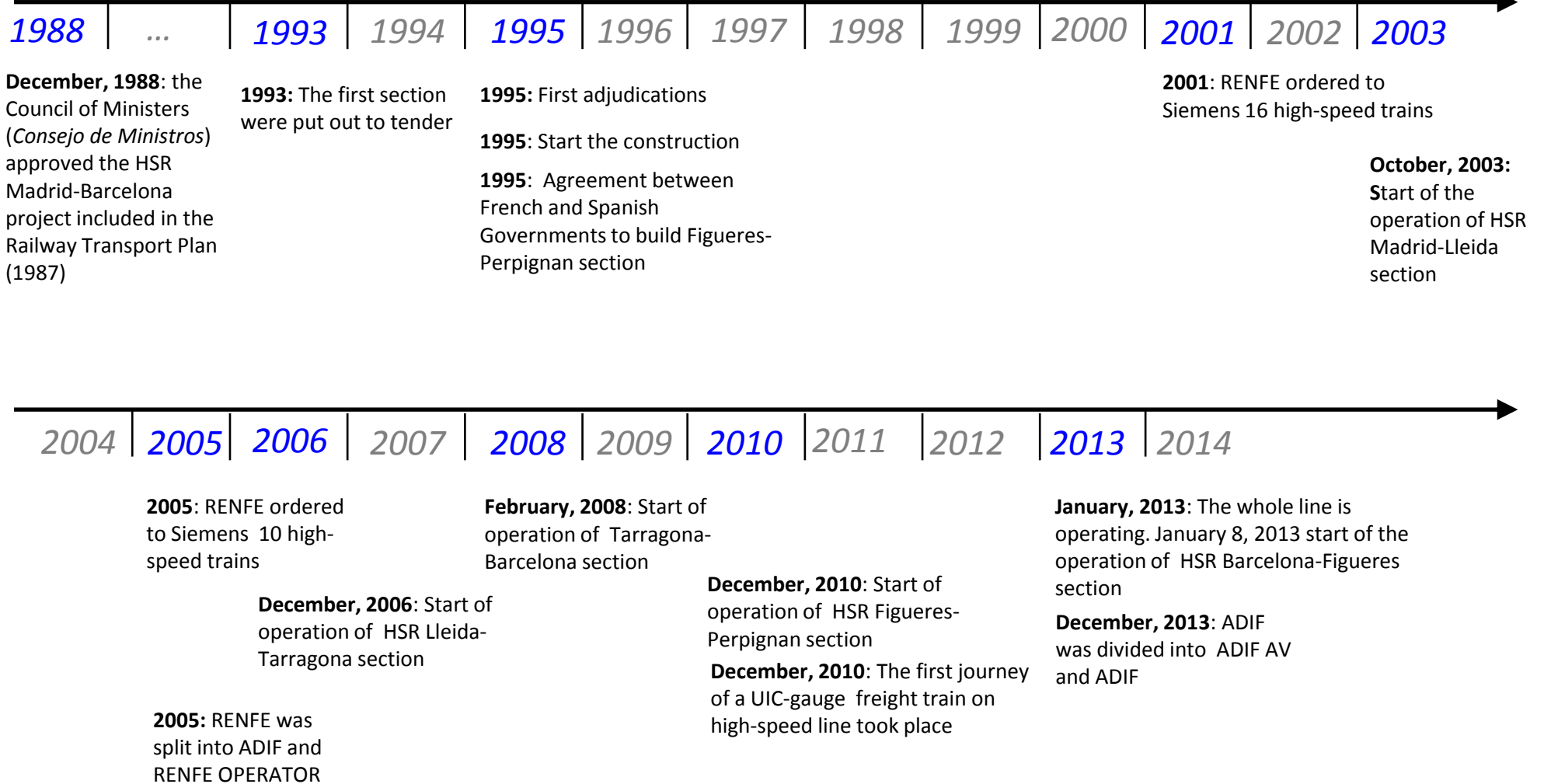
# MEGAPROJECT Project Environment

## Economic Environment

Economic Project Environment	<ul style="list-style-type: none"><li>• Key factor in the territorial integration and connection to Europe</li><li>• Contribution to the development of several Spanish regions.</li><li>• Strategic role in the development of a global metropolitan network in Spain.</li></ul>
Specific Economic Events impacting on the project	<ul style="list-style-type: none"><li>• The crisis started in Spain in 2007 during the construction phase.</li></ul>

# MEGAPROJECT Project Key Events and Activities Timeline

TIME



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