

Rencontre pour la  
défense du chemin de  
fer de Cerdagne

**PUIGCERDÀ**

Trobada en defensa  
del ferrocarril de  
la Cerdanya



International railway nodes between Catalonia, Languedoc – Roussillon and Midy-Pyrénées  
Ricard Riol Jurado

## International railway nodes between CAT – LR – MP

### 1. Previous meetings

Public transport associations from north and south of Pyrenees are compromised with the free mobility of citizens in the European Union

**September 2010:** Festa del Tren a Portbou

**March 2012:** IX EPF Assembly. Focus on FR-ES connections

**July 2013:** Meeting at Vilafranca de Conflent. Start of alliance.

**December 2013:** Inauguration of international HSL service.

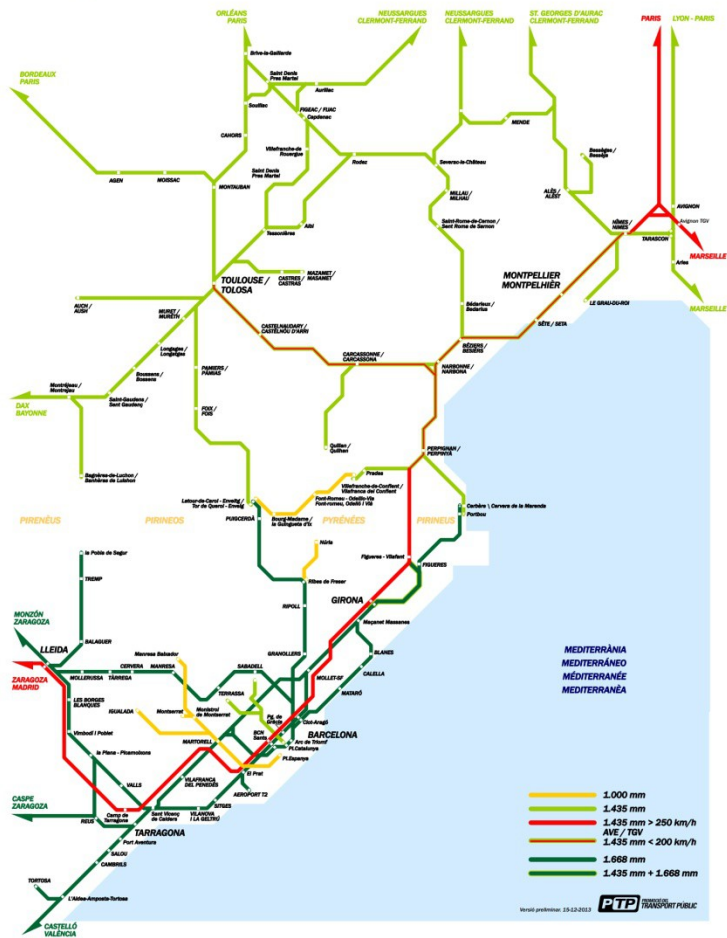
**July 2014:** Work meeting at Figueres.



# International railway nodes between CAT – LR – MP

## 2. Regional trains in the cross-border section

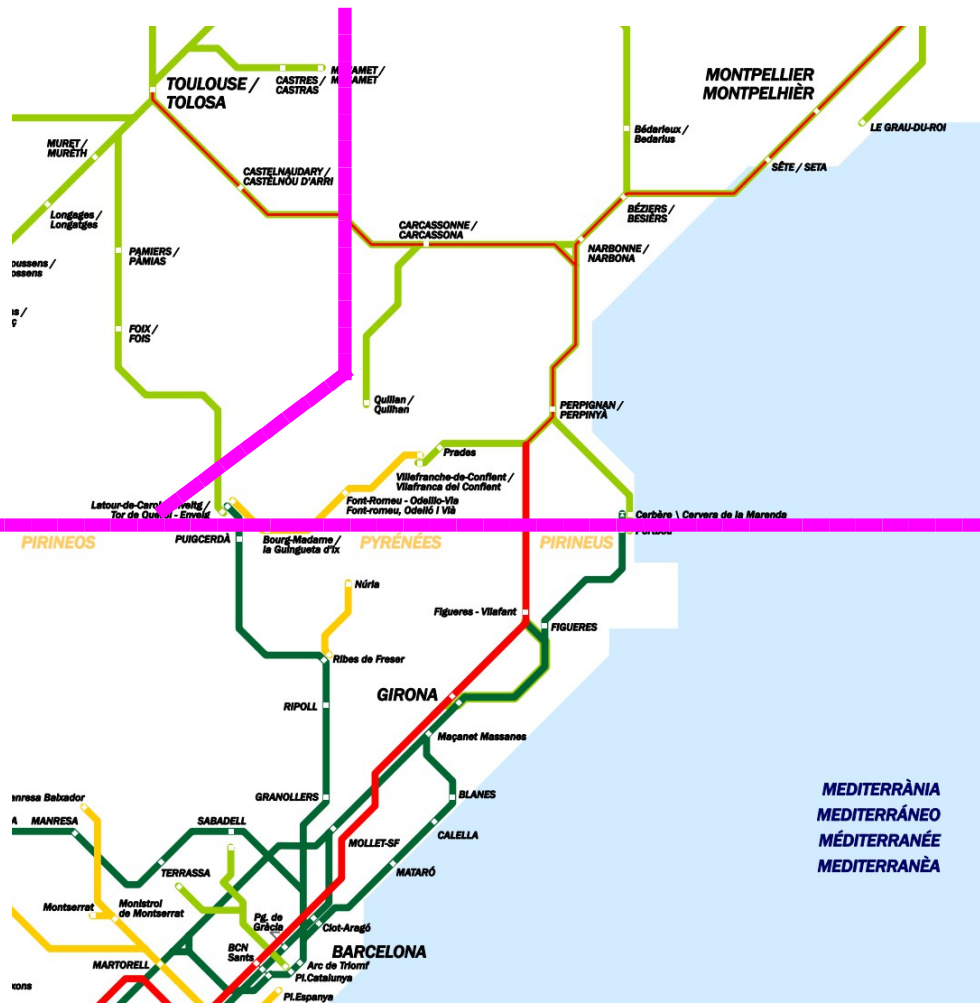
Euroregió Pirineus Mediterrània      Eurorégion Pyrénées-Méditerranée  
 Euroregión Pirineos Mediterráneo      Euroregion Pirenèus-Mediterranèa



MEDITERRÀNIA  
 MEDITERRÀNICO  
 MÉDITERRANÉE  
 MEDITERRANÈA

# International railway nodes between CAT – LR – MP

## 2. Regional trains in the cross-border section



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M DITERRAN E  
MEDITERRAN A



Generalitat de Catalunya  
Departament de Territori  
i Sostenibilitat

## International railway nodes between CAT – LR – MP

### 2. Regional trains in the cross-border section

#### From State Railways conceptualization to the Region administration and development






- **1986.** SNCF develops TER service, including the TER Languedoc-Rousillon and the TER Midi-Pyrénées
- **2000.** A law of solidarity and urban renovation (SRU) proposes the transference of competencies of transport to the Conseil Régional (Regional Council).
- **2002.** Regions Council become AOT: Authority of Organisation of Transport, and manage\* the TER services instead of the State. SNCF is the only one operator that can provide the service to the regions.

- **1987-1988** Rente develops some Regional services with old self-propelled long distance trains
- **1992.** Renfe inaugurates the Catalunya Exprés network, covering main relations within Mediterranean Corridor and Lleida
- **2006.** The new Statute of Autonomy of Catalonia propose the transference of regional and commuter trains from the State to this region.
- **2010.** Generalitat de Catalunya manages the Barcelona's commuter trains, operated by Renfe.
- **2011.** Generalitat de Catalunya manages the Catalonia's regional trains, operated by Renfe.

Until this moment, in both cases the railway operator is a State company under a regional government, that mainly manages fares, timetables, inspections and financial conditions. The use of the rolling stock is a negotiation between regional government and the State company.

## International railway nodes between CAT – LR – MP

### 2. Regional trains in the cross-border section

Year 2011	 Languedoc – Rousillon	 Midi-Pyrénées	 Serveis regionals Catalunya (1)
	Km of network	1.474	1.485
Number of stations	132	146	127
Trains per day	236	356	105
Million Train-km per year	7,1	9,5	
Buses per day	53	80	
Average daily demand	20.000	30.000	33.458
Yearly demand	7.300.000	11.000.000	11.100.000
Fraction of national regional demand	2,7% of France	4,2% of France	42% of Spain
Yearly million Passenger-km	523		984,3 (2008)
Budget (2)	117 M€ (2009)	156,57 M€ (2009)	14'8 (3) M€
Parc mòbil		88 (estimated)	56

(1) Barcelona's commuter trains not included, with 476 km of lines

(2) Cost of service payed with subventions. In France it also includes some infraestructure maintenance

(3) Only operative costs

# International railway nodes between CAT – LR – MP

## 3. Problems to solve

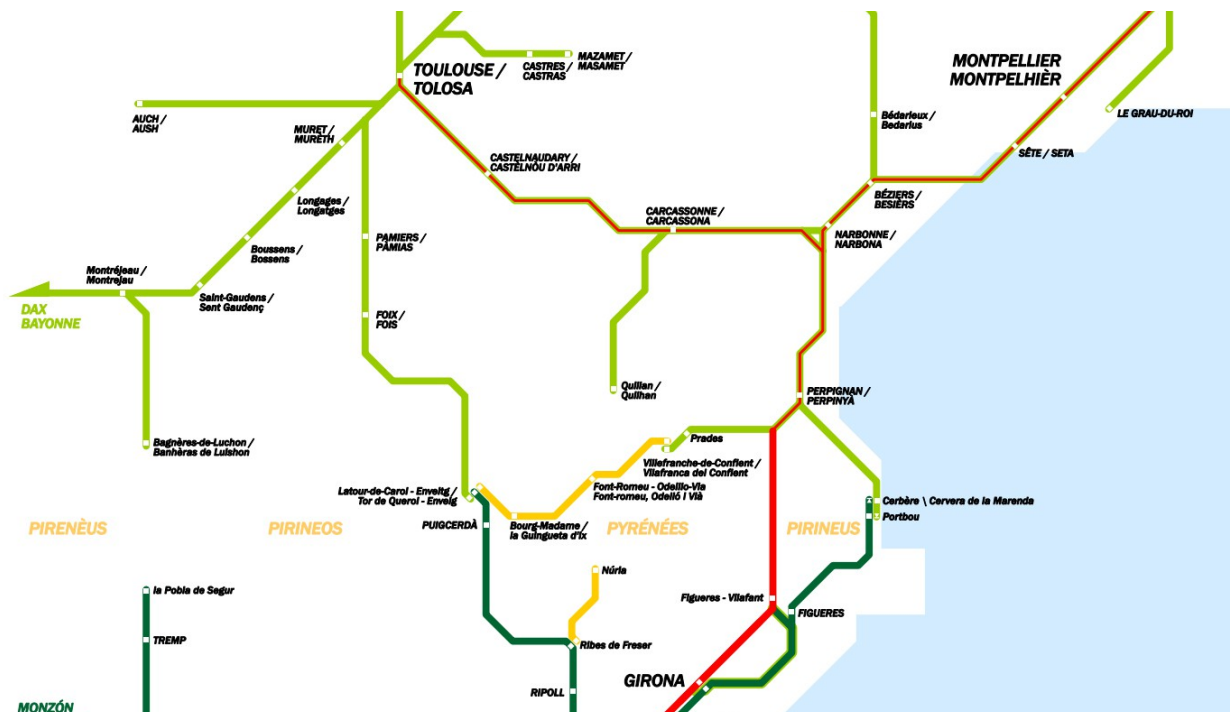
Connections

Information

Ticketing

Comfort

Financing



## International railway nodes between CAT – LR – MP

### 3. Problems to solve

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Financing

### THREE STRATEGIES / TERMS TO HAVE IN CONSIDERATION

1

- **Coordination of several punctual trains.** Currently it difficult the coordination between Renfe and SNCF.
- Lots of trains could cross borders but they don't do it. Adding only one more station crossing the border, with current timetables, more transfers could be guaranteed
- Too much timetables exceptions in SNCF. Different timetables for spring-summer and autumn-winter in the case of Renfe
- Passport controls delay trains and do impossible the connections

2

- **Enable a cadence timetable in one or both sides.** If one operator establishes high frequency and cadence it would be easier to transfer considering the timetables of the other side. The best option would be cadence in both sides to reduce time transfer and maximize the possibilities of transfer.

3

- **Direct trains across the border.** Two options can be considered:
  - Automatic gauge change trains, like the Talgo or CAF Alvia
  - Implementation of Standard gauge in Iberian side



# International railway nodes between CAT – LR – MP

## 3. Problems to solve

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**Timetable - Tickets**

from:

to:

date:

time:

Departure  
 Arrival

**Search**

**DB BAHN** Inicio | Contacto | Preguntas frecuentes | España

**Precios y ofertas** Descubra Alemania Reservas y horarios Servicios Trenes **Mi Bahn**

Búsqueda Selección Billete y opciones Pago Compra Confirmación

### Centro de información de viajes

**Trayecto**

Salida\*  Estación/Parada  Código postal/lugar, n° de la calle  Punto de interés  
 ★

Destino\*  Estación/Parada  Código postal/lugar, n° de la calle  Punto de interés

-> Indicar las paradas intermedias

Viaje sencillo  Viaje de ida y de vuelta

**Fecha y hora**

Viaje de ida\*    Salida  Llegada

**Datos para el enlace**

Medio de transporte  Todos  Todos sin ICE  sólo transporte de cercanías -> Selección ampliada de medios de transporte

Tiempo para el transbordo

preferir enlaces rápidos

**Pasajeros**

adultos niños 6-14 años niños 0-5 años.

1 adulto

**preguntas frecuentes**

- > ¿Qué consejos pueden darse acerca de la información sobre horarios?
- > ¿Por qué se indica en algunas relaciones "La información sobre precios no es posible"?
- > ¿Puedo combinar un precio normal y un precio rebajado?

# International railway nodes between CAT – LR – MP

## 3. Problems to solve

Connections

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**Precios y ofertas** **Descubra Alemania** **Reservas y horarios** **Servicios** **Trenes** **Mi Bahn**

Búsqueda Selección **Billete y opciones** Pago Compra Confirmación

Sus datos sobre el viaje

Viaje de ida de:  a:  Do, 05.10.14 22:40 salida Llegada Actualizar

Pasajeros 1 pasajero (Edad: - Años), 2ª clase

preguntas frecuentes

- ¿Qué significa asociación a un tren determinado?
- ¿Por qué no encuentro mi billete del consorcio en bahn.de?
- ¿Dónde puedo encontrar City-Ticket o City mobil?

Seleccione una conexión

Sus opciones de viaje de ida - Selección  Visualización de impresión

Estación/parada	Fecha	Hora	Duración	Transbordos	Productos	Precio para todos los pasajeros*
↑ Anterior						
<input type="checkbox"/> Girona <input type="checkbox"/> Font-Romeu-Odeillo-Via	Lu, 06.10.14	de 19:06	15:24	2	TGV, RE, BUS	Rige la tarifa del extranjero
	Ma, 07.10.14	a 10:30				→ Escoger la vuelta para este viaje de ida
<input type="checkbox"/> Girona <input type="checkbox"/> Font-Romeu-Odeillo-Via	Ma, 07.10.14	de 19:06	15:24	2	TGV, RE, BUS	Rige la tarifa del extranjero
	Mi, 08.10.14	a 10:30				→ Escoger la vuelta para este viaje de ida
<input type="checkbox"/> Girona <input type="checkbox"/> Font-Romeu-Odeillo-Via	Mi, 08.10.14	de 19:06	15:24	2	TGV, RE, BUS	Rige la tarifa del extranjero
	Ju, 09.10.14	a 10:30				→ Escoger la vuelta para este viaje de ida



### El test de movilidad medioambiental de la DB

Haga una comparación medioambiental de su viaje.

Sus opciones de viaje de ida [Modificar las preconfiguraciones para ferrocarril, avión o automóvil](#) Visualización de impresión

Punto de salida: Girona Destino: Font-Romeu-Odeillo-Via Enlace: 1 2 3 Fecha: Lu, 06.10.14 Hora de: 19:06 horas



\*: referido a la mezcla energética utilizada por el tren

## International railway nodes between CAT – LR – MP

### 3. Problems to solve

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Information

**Ticketing**

Comfort

Financing



- Not standardized fare for each km
- Not harmonised fares between long distance and regional trains in Spain
- Different criteria for social protection (for example limits of age for young and old people)
- Different concept of recurrency (10 trips, one week, one month...)
- Different treatment of travel groups

## International railway nodes between CAT – LR – MP

### 3. Problems to solve

Connections

Information

Ticketing

**Comfort**

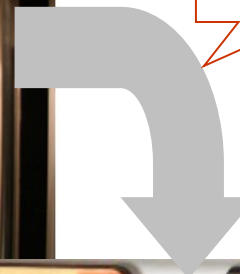
Financing



SNCF



RENFE. Commuter train.



Last agreements between Generalitat de Catalunya and Renfe State Operator allowed to improve the seats of trains running at R3 international line between Tor de Querol and Barcelona.

## International railway nodes between CAT – LR – MP

### 3. Problems to solve

Connections

Information

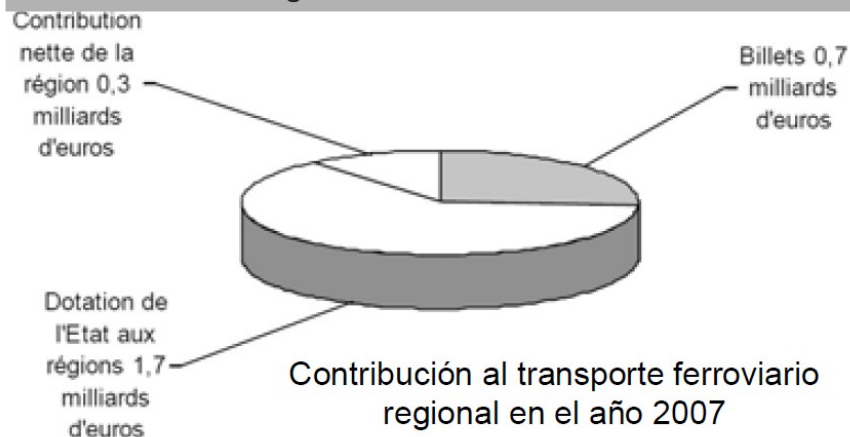
Ticketing

Comfort

**Financing**



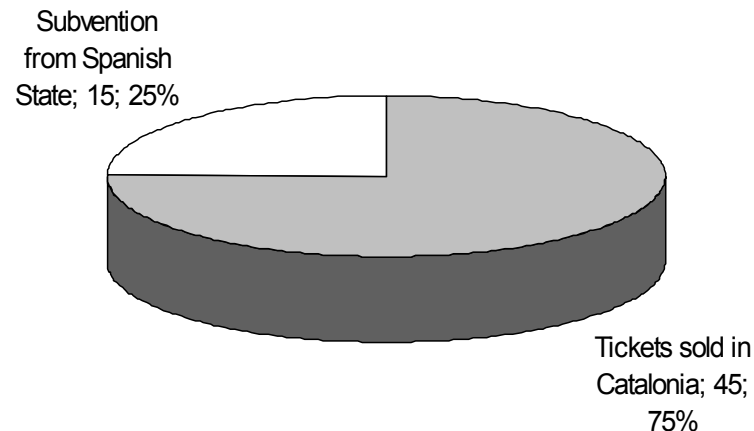
#### Regional trains in France



Source: unknown



#### Regional trains in Catalonia



Aproximately figures in million €. Year 2011. Source: Renfe 2012 Yearbook.

In both cases the State is providing the main economical sources to the regional service, with a growing participation of Regional Governments in order to extend the service and to applicate other improvements.

The subvention condicions are very different in Spain and France: 25-35% in front of 60-75%

## International railway nodes between CAT – LR – MP

### 3. Problems to solve

#### Connections

#### Information

#### Ticketing

#### Comfort

#### Financing

- Renfe: Occupation coincident with the European average : 121 passenger train.
- Renfe: Better production train-kilometers per employee across the Union : 5,470 miles, almost twice the average: 2,940 kilometers per worker.
- Renfe: The offer rail service is subsidized 66% less than in the whole of the European Union , with an average grant of 5.75 Euros per train kilometer compared to 16.74 Euros per train-kilometer average.

	Oferta ferroviaria de trenes-kilómetro.	Demanda ferroviaria de viajeros- Millones de viajeros-kilómetro	Personal. Incluyendo mercancías.	Subvenciones públicas en servicio y mantenimiento de vías. En millones de Euros	Ocupación media. Número de viajeros.	Miles de trenes-kilómetro por trabajador	Subvención en Euros por tren-kilómetro	Subvención en Euros por viajero-km
Austria	96.667	7.403	43.484	1.900	77	2,22	19,66	0,26
Bélgica	81.375	8.913	36.810	2.666	110	2,21	32,76	0,30
Bulgaria	24.181	2.264	33.269	121	94	0,73	5,00	0,05
República Checa	120.924	6.324	56.951	407	52	2,12	3,37	0,06
Alemania	687.179	76.909	177.500	13.234	112	3,87	19,26	0,17
Dinamarca	57.667	5.983	11.447	1.125	104	5,04	19,51	0,19
Estonia	2.650	245	1.972	16	92	1,34	6,04	0,07
Grecia	18.318	1.599	6.856	397	87	2,67	21,67	0,25
<b>España</b>	<b>177.212</b>	<b>21.461</b>	<b>32.398</b>	<b>1.019</b>	<b>121</b>	<b>5,47</b>	<b>5,75</b>	<b>0,05</b>
Finlandia	35.079	3.940	10.109	461	112	3,47	13,14	0,12
Francia	408.850	77.000	159.265	10.326	188	2,57	25,26	0,13
Hungría	88.393	7.923	22.249	815	90	3,97	9,22	0,10
Irlanda	13.666	1.876	4.906	728	137	2,79	53,27	0,39
Italia	282.826	44.707	93.611	8.000	158	3,02	28,29	0,18
Lituania	5.432	235	10.717	9	43	0,51	1,66	0,04
Luxemburgo	6.134	246	2.993	411	40	2,05	67,00	1,67
Letonia	5.862	865	13.520	50	148	0,43	8,53	0,06
Holanda	110.820	15.895	27.383	1.943	143	4,05	17,53	0,12
Polonia	122.917	19.628	121.663	277	160	1,01	2,25	0,01
Portugal	31.603	4.085	7.742	84	129	4,08	2,66	0,02
Rumania	231.000	6.805	64.567	553	29	3,58	2,39	0,08
Suecia	44.100	10.462	0	1.113	237	-	5,24	0,11
Eslovenia	11.673	713	8.010	153	61	1,46	13,11	0,21
Eslovaquia	31.319	2.077	34.060	286	66	0,92	9,13	0,14
Reino Unido	455.234	51.348	89.638	6.650	113	5,08	14,61	0,13
<b>Promedio</b>	<b>126.043</b>	<b>15.156</b>	<b>42.845</b>	<b>2.110</b>	<b>120</b>	<b>2,94</b>	<b>16,74</b>	<b>0,14</b>

Source:

Report for the European Commission: [http://www.parlament.gv.at/PAKT/EU/XXIV/EU/10/49/EU\\_104980/imfname\\_10391682.pdf](http://www.parlament.gv.at/PAKT/EU/XXIV/EU/10/49/EU_104980/imfname_10391682.pdf)

## International railway nodes between CAT – LR – MP

### 3. Problems to solve

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€/tren-km	Operative cost	Subsidy	Economic coberty with tickets
Alsace	16,03	9,18	42,73%
Aquitaine	19,54	14,51	25,74%
Auvergne	17,99	14,13	21,46%
Bourgogne	19,81	13,59	31,40%
Bretagne	17,56	11,84	32,57%
Centre	22,65	15,56	31,30%
Champagne – Ardenne	21,27	15,34	27,88%
Franche – Comté	20,56	16,53	19,60%
Languedoc – Rousillon	22,73	15,82	30,40%
Limousin	16,92	14,49	14,36%
Lorraine	19,66	15,17	22,84%
Midi-Pyrénées	22,79	17,03	25,27%
Basse – Normandie	20,39	15,96	21,73%
Haute – Normandie	21,28	15,93	25,14%
Nord Pas-de-Calais	21,06	10,77	48,86%
Pays de la Loire	14,31	7,63	46,68%
Picardie	23,47	11,25	52,07%
Poitou – Charentes	19,78	15,14	23,46%
PACA	25,87	18,39	28,91%
Rhône - Alpes	22,19	14,81	33,26%
<b>Media</b>	<b>20,72</b>	<b>12,83</b>	<b>38,08%</b>

Source:  
La Vie du Rail

# International railway nodes between CAT – LR – MP

## 3. Problems to solve

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ANNEX 1. ÒRGANS DE COOPERACIÓ OFICIAL TRANSFRONTERERA AL NORD I AL SUD DELS PIRINEUS

Òrgan	EURODISTRICTE D'ESPAI CATALÀ TRANSFRONTERER	EUROREGIÓ PIRINEUS MEDITERRÀNIA	COMUNITAT DE TREBALL DELS PIRINEUS
Àmbit territorial	<p>NUTS-3: Província – Département</p>	<p>NUTS-2: Comunitat Autònoma - Région</p>	<p>NUTS-2: Comunitat Autònoma - Région</p>
Administracions membres	Ajuntament de Figueres, Ajuntament de Girona, Ajuntament de Prada de Conflent, Associació Catalana de Municipis i Comarques, Comunitat d'Aglomeració Perpinyà-Mediterrània, Comunitat de Comunes Albera-Costa Vermella, Comunitat de Comunes de l'Alt Vallespir, Comunitat de Comunes del Vallespir, Consell General dels Pirineus Orientals, Consell Comarcal de l'Alt Empordà, Consell Comarcal del Baix Empordà, Consell Comarcal de la Cerdanya, Consell Comarcal de la Garrotxa, Consell Comarcal del Pla de l'Estany, Consell Comarcal del Ripollès, Diputació de Girona, Federació de Municipis de Catalunya, Generalitat de Catalunya, Parc Natural Regional dels Pirineus Catalans, País Pirineus-Mediterrània.	Région Midi-Pyrénées, Région Languedoc-Roussillon, Gobierno Vasco / Eusko Jauralitzza, Gobierno de Navarra / Nafarroako Gobernua, Generalitat de Catalunya i el Govern de les Illes Balears.	Région Aquitaine, Région Midi-Pyrénées, Région Languedoc-Roussillon, Gobierno Vasco / Eusko Jauralitzza, Govern d'Andorra, Gobierno de Navarra / Nafarroako Gobernua, Gobierno de Aragón i Generalitat de Catalunya
Observacions	L'any 2009 va elaborar un estudi sobre transports a banda i banda de la frontera. El Consell General de Pyrénées-Orientales té les <b>competències sobre el servei de bus regional</b> del Departament.	Presidències rotatòries entre administracions membres. Aragó va deixar de ser membre l'any 2006. Tant la Generalitat de Catalunya com les regions Midi-Pyrénées i Languedoc-Roussillon tenen <b>competències sobre els serveis ferroviaris prestats sobre la xarxa estatal espanyola i francesa en els seus àmbits territorials</b> . Les <b>competències sobre el servei d'autobús regional</b> és de la Generalitat de Catalunya al sud, i dels Departaments al nord dels Pirineus.	Presidències rotatòries entre administracions membres. L'objectiu és el desenvolupament i preservació del massís dels Pirineus. Es desenvolupa en 4 comissions: infraestructures i comunicacions; formació i desenvolupament tecnològic; cultura, joventut i esports; i desenvolupament sostenible. Gestiona el POCTEFA (Programa Operatiu de Cooperació Territorial Espanya, França, Andorra). Més informació a <a href="http://www.poctefa.eu">www.poctefa.eu</a>
WEB	<a href="http://www.eurodistricte.cat">http://www.eurodistricte.cat</a>	<a href="http://www.euroregio.eu/">http://www.euroregio.eu/</a>	<a href="http://www.ctp.org/">http://www.ctp.org/</a>

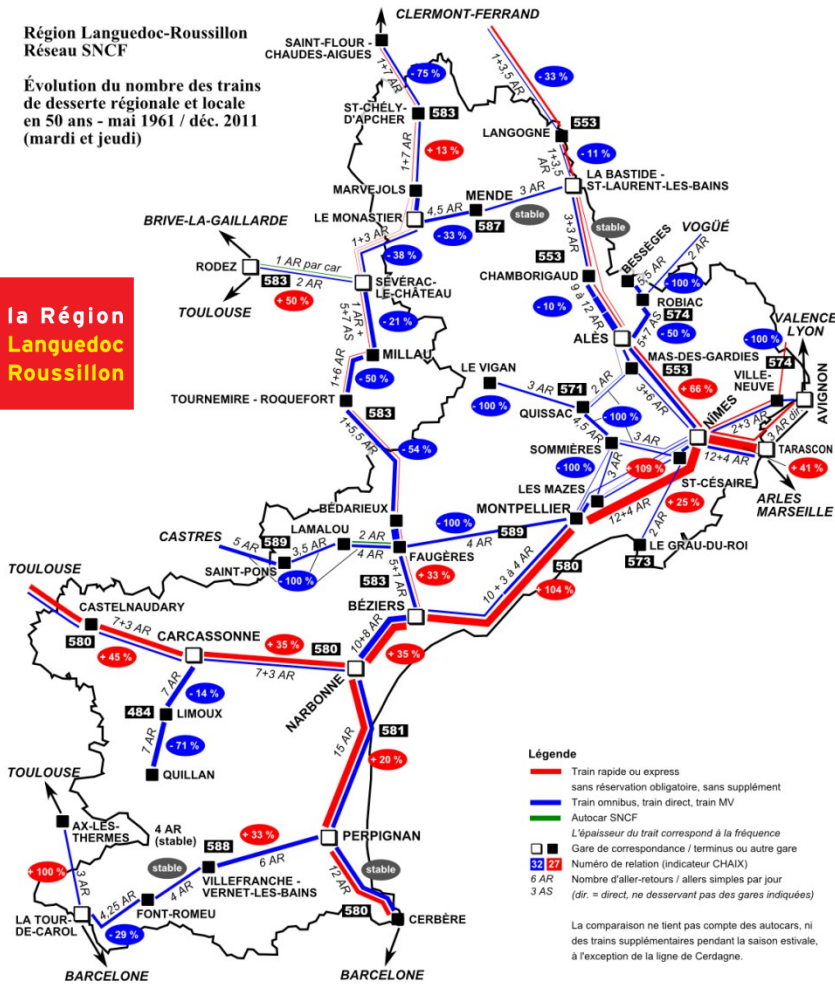


# International railway nodes between CAT – LR – MP

## 4.1 Opportunities: nearest managing of rail services

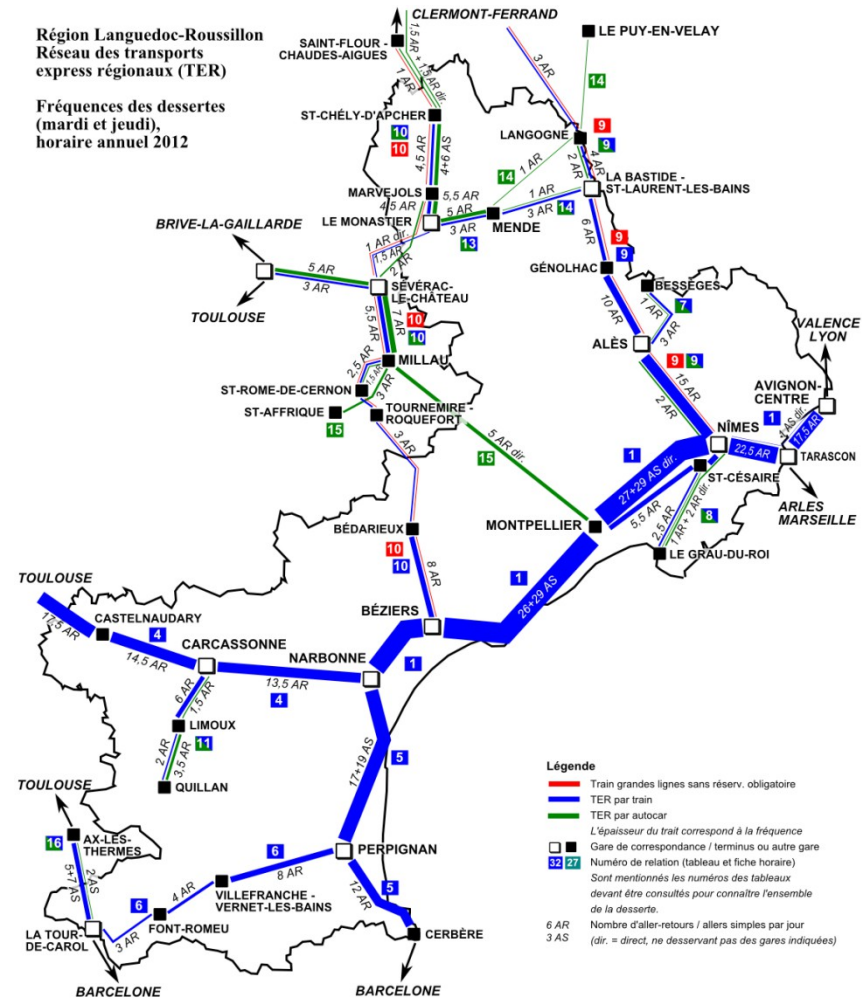
Région Languedoc-Roussillon  
Réseau SNCF

Évolution du nombre des trains de desserte régionale et locale en 50 ans - mai 1961 / déc. 2011 (mardi et jeudi)



Région Languedoc-Roussillon  
Réseau des transports express régionaux (TER)

Fréquences des dessertes (mardi et jeudi), horaire annuel 2012



## International railway nodes between CAT – LR – MP

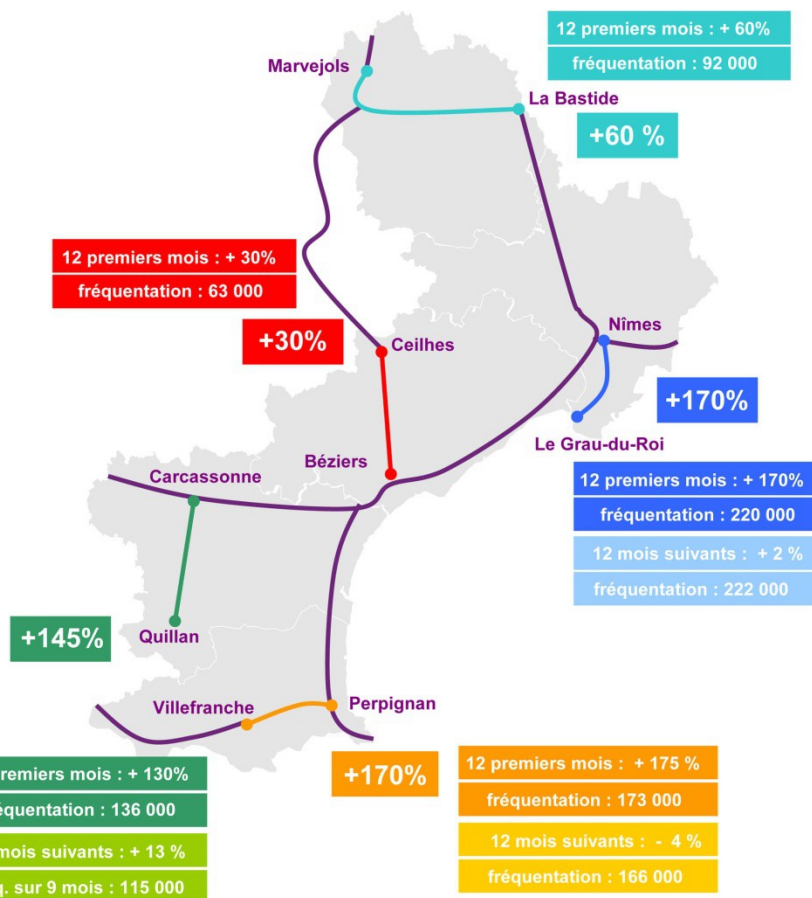
### 4.1 Opportunities: nearest managing of rail services



Nîmes - Le Gran du Roi	07/2011
Béziers - Bédarieux	12/2012
La Bastide - Marvejols	06/2012
Carcassonne - Quillan	03/2012
Perpignan - Villefranche	12/2011

**•200 000 voyages / an avant l'application du nouveau tarif  
695 000 après**

- + 145 % de fréquentation entre Carcassonne et Quillan
- + 170 % de fréquentation entre Nîmes et Le Grau du Roi
- + 170 % de fréquentation entre Villefranche et Perpignan
- + 30 % entre Ceilhes et Béziers
- + 60 % entre Marvejols et La Bastide



# International railway nodes between CAT – LR – MP

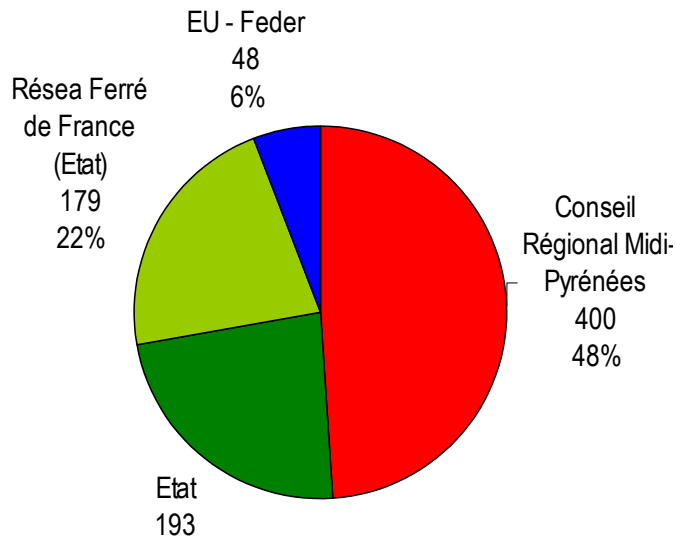
## 4.1 Opportunities: nearest managing of rail services



**Objectives:** To duplicate passengers

**Works:** 550 km of renewed tracks, 25 km of duplicated track, 250 km of signaling modernization, 20 modernized bridges, and increasing of capacity in Toulouse Matabiau Station

**Investment:** 820 M€



	2002	2012
Trains	150 dessertes/jour	348 dessertes/jour
TER	5 millions de voyages/an	11,8 millions de voyages/an
Autocars	53 liaisons/jour 4 300 000 km parcourus 2,1 millions de voyages/an	53 liaisons/jour 6 458 120 km parcourus 1,2 millions de voyages/an

## International railway nodes between CAT – LR – MP

### 4.1 Opportunities: nearest managing of rail services



Generalitat de Catalunya  
**Departament de Territori  
 i Sostenibilitat**

**Increasing services:** For first time from 1992, new scheduled trains in Tarragona and Girona areas. Improvements in lines R3 (Puigcerdà – BCN) and others. New half-direct trains in R3 and R4 lines

**Enlarging fare integration:** All the regional trains are integrated in the common fare system for bus and train in Tarragona.



**Rodalies de  
 Girona**

**Rodalies del  
 Camp de  
 Tarragona**

## International railway nodes between CAT – LR – MP

### 4.2 Opportunities: synergies between regional trains and HST



#### Definitively opened standard gauge and fast connection through Pyrenees

**80s:** First attempt to connect Barcelona with France, under the liderage of Ferrocarrils de la Generalitat de Catalunya (FGC)

**1990:** FGC concluded the feasibility study and project of the new HSL. Spanish Government rejects to prioritize this internacional connection due to the prority of radial projects from Madrid

**1995:** Generalitat de Catalunya concludes the land reserves in order to make easier the construction of the line, competence of the State

**1996:** HSL Barcelona – France is aproved by the State but as an extension of radial project Madrid – Barcelona.

**2008:** Inauguration of the HSL Madrid – Barcelona

**2011:** Inauguration of the international HSL section between Perpignan and Figueres

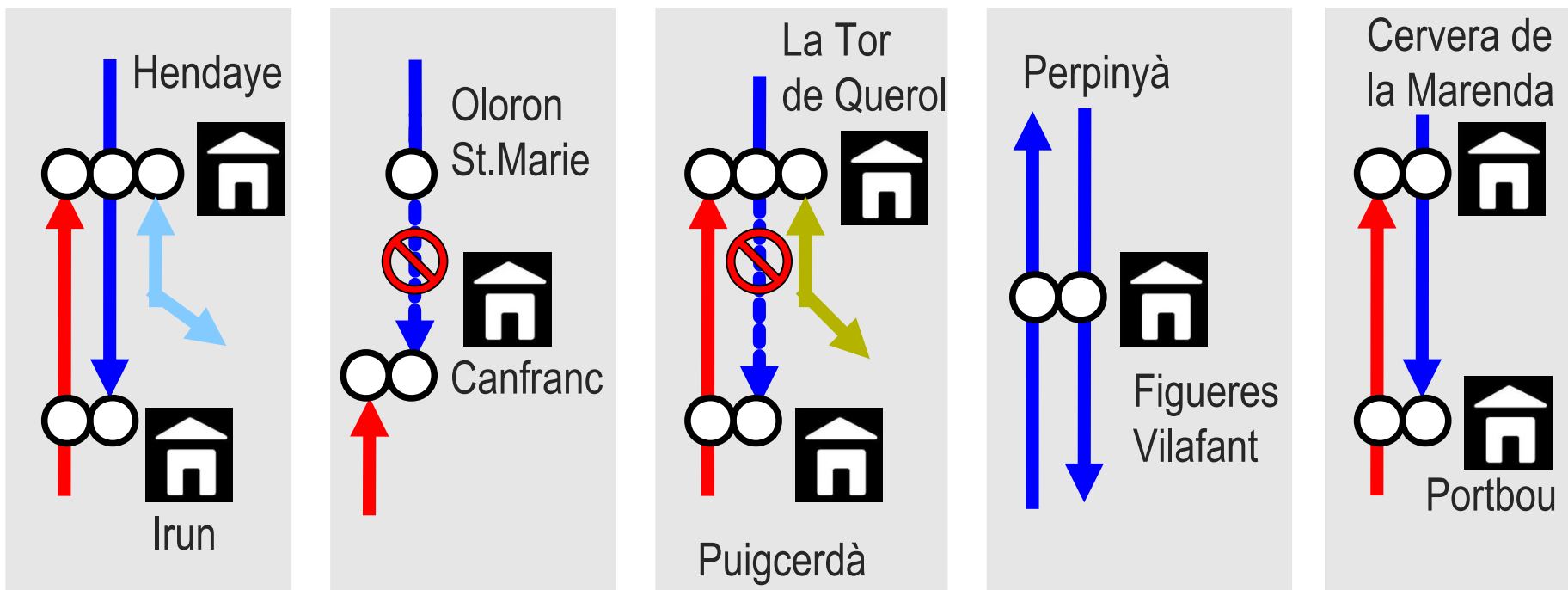
**2012:** Inauguration of the HSL Barcelona - Figueres

**2013:** First direct services, operated by Renfe and SNCF

## International railway nodes between CAT – LR – MP

### 4.3 Opportunities: optimize the transfer border stations

#### A strange reciprocity at border stations

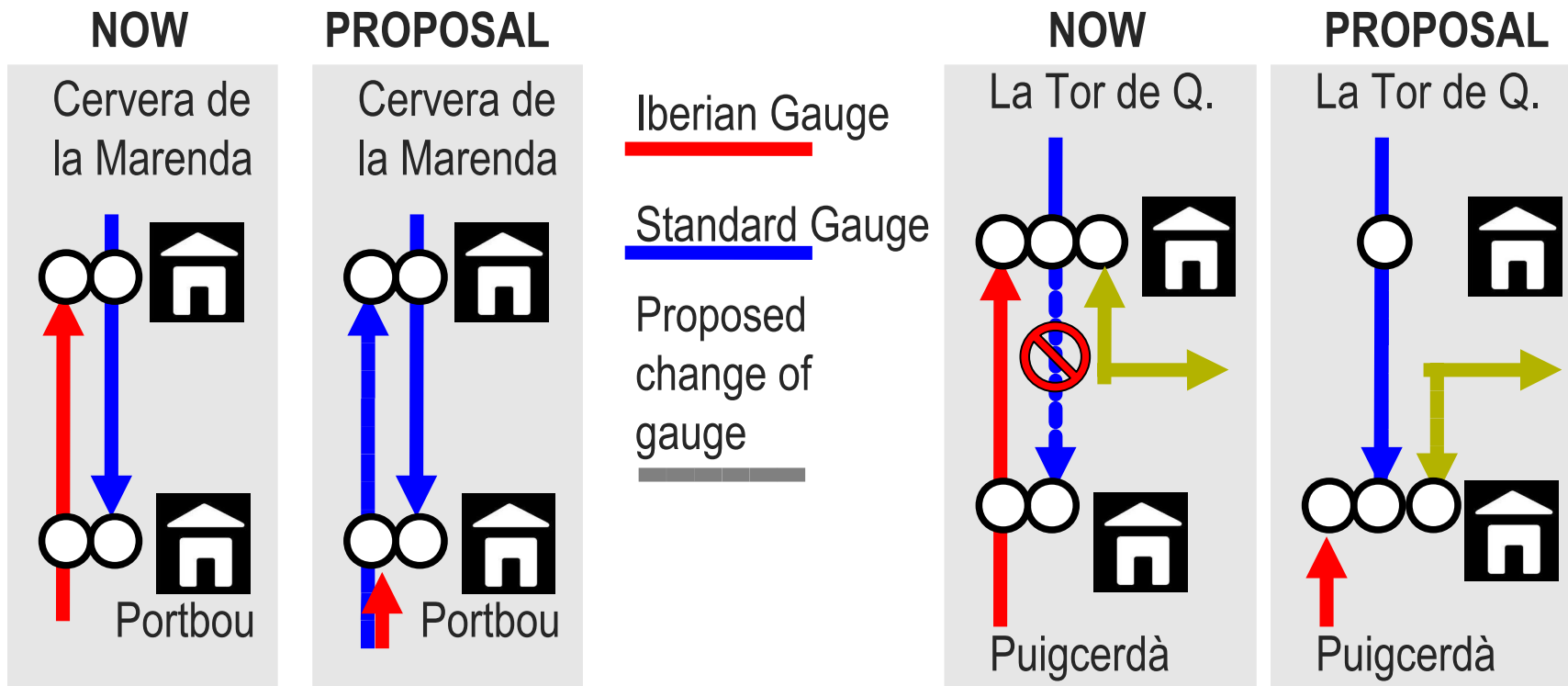


— Iberian Gauge  
— Standard Gauge  
- - - - - Closed connection

— Metric Gauge (Train Jaune SNCF)  
— Metric Gauge (Topo. EuskoTren)

## International railway nodes between CAT – LR – MP

### 4.3 Opportunities: to optimize the transfer border stations



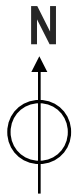
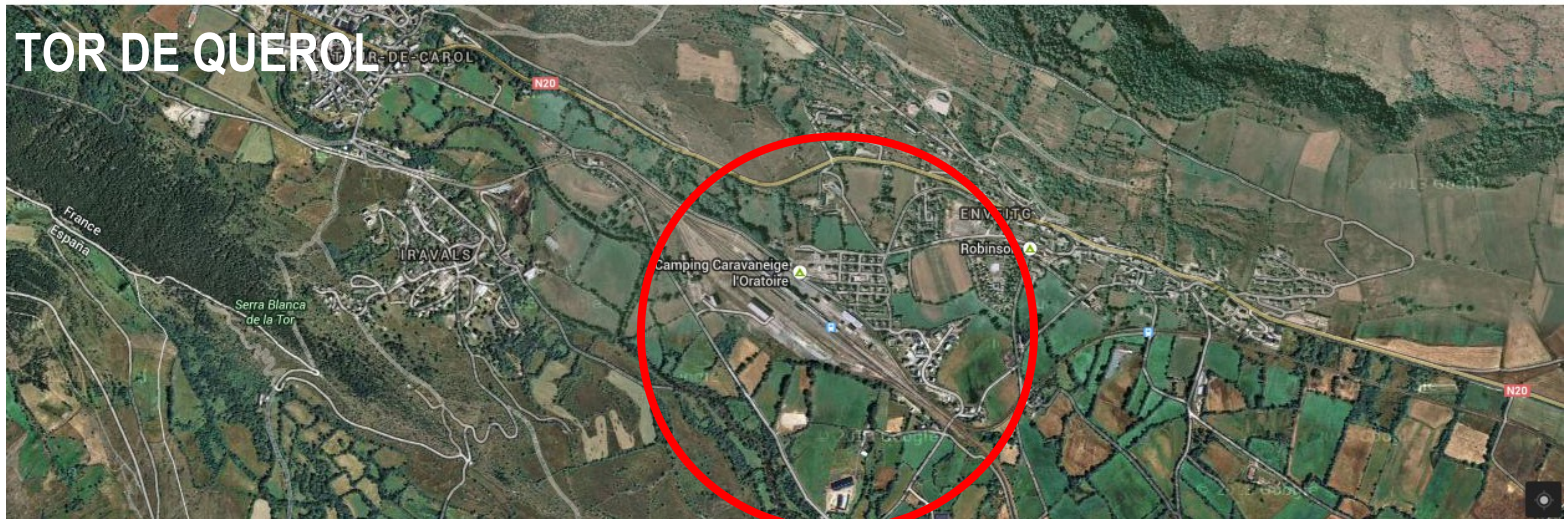
- Double stop
- Standard gauge between Cervera de la Marenda and Portbou and Girona

- Centralization of interchanges at Puigcerdà
- Metric gauge instead of Iberian gauge between la Tor de Q. and Puigcerdà

## International railway nodes between CAT – LR – MP

### 4.3 Opportunities: to optimize the transfer border stations

#### TOR DE QUEROL



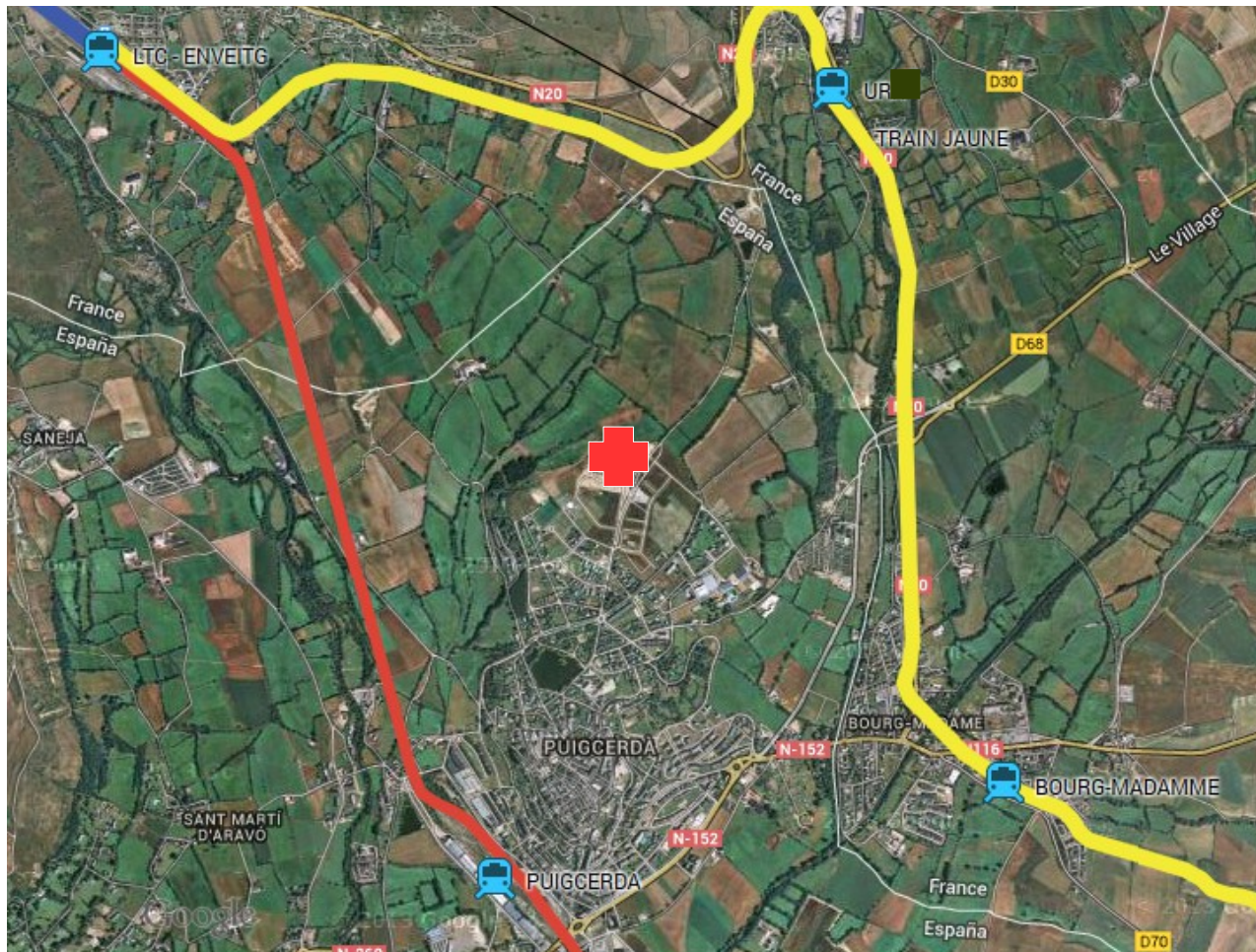
#### PUIGCERDÀ





## International railway nodes between CAT – LR – MP

### 4.4 Opportunities: taking profit of new cross-border hospital



#### Current situation

##### **SNCF TOULOUSE LINE**

Standard gauge: 1.435 mm

##### **TRAIN JAUNE**

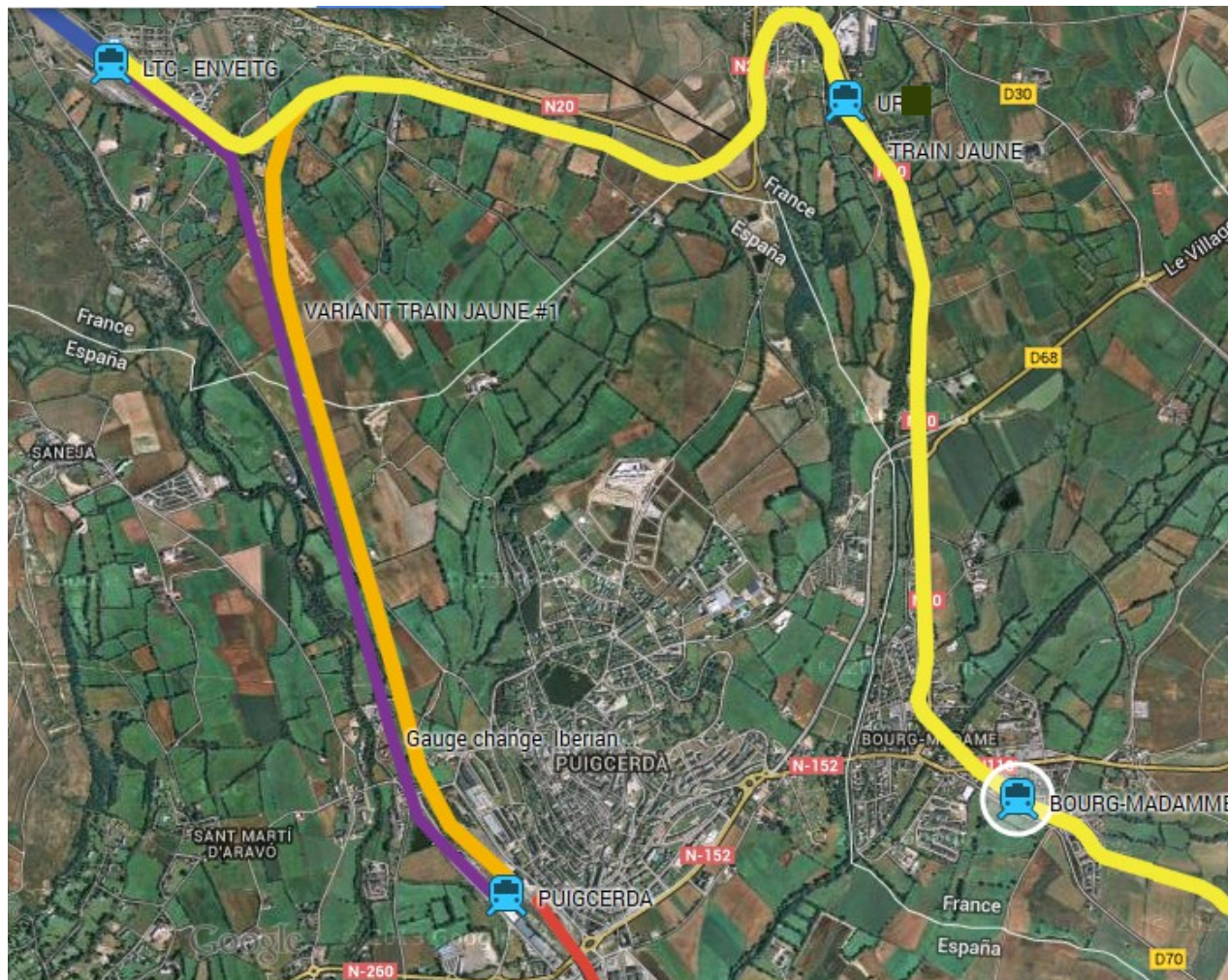
Standard gauge: 1.000 mm

##### **RENFE BCN LINE**

Iberian gauge: 1.668 mm

## International railway nodes between CAT – LR – MP

### 4.4 Opportunities: taking profit of new cross-border hospital



#### Proposal #1

##### SNCF TOULOUSE LINE

Extension of this standard line to Puigcerdà changing the gauge of current Iberian Renfe line through 3,7 km

##### TRAIN JAUNE

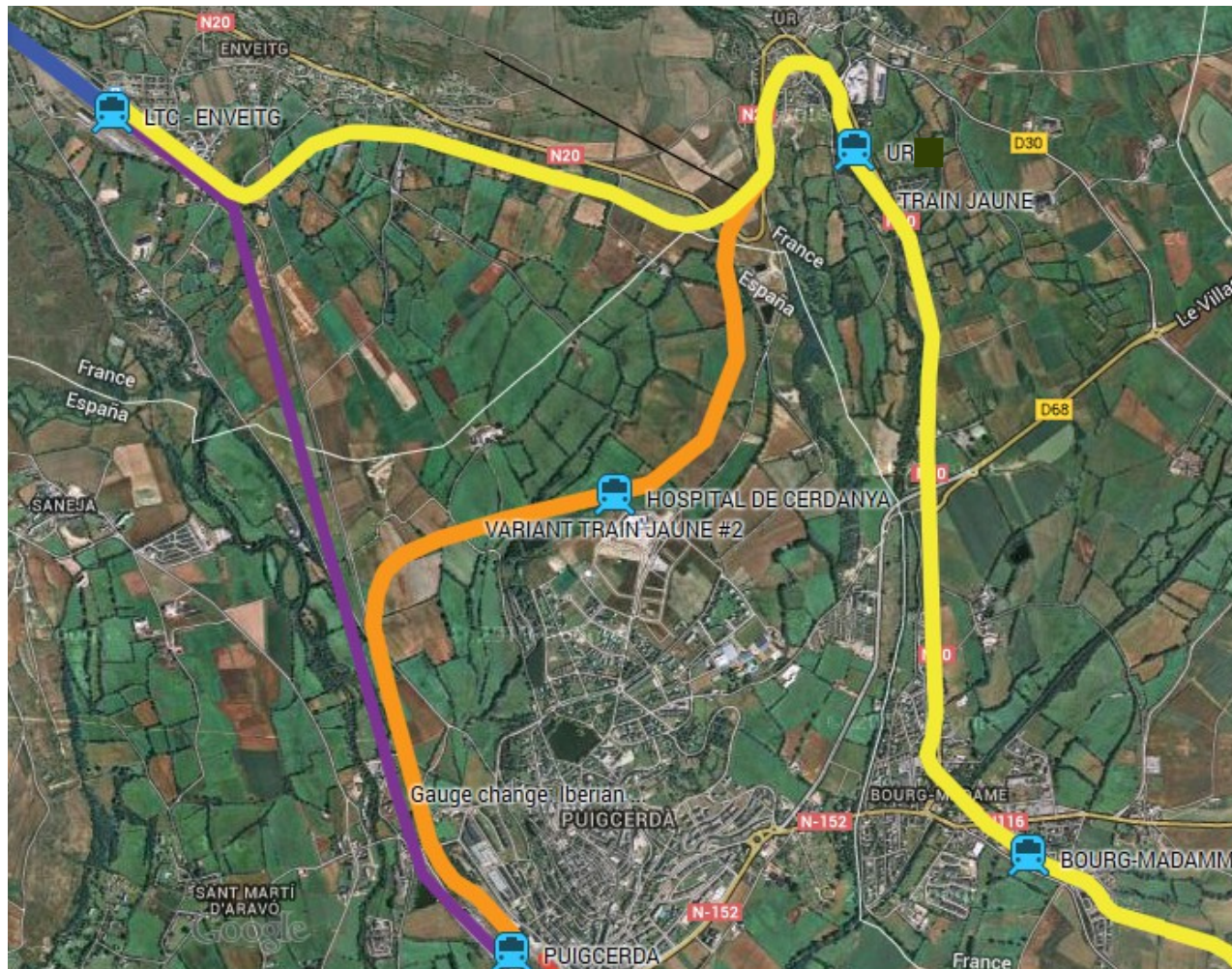
Variant of 3,4 km which 0,5 first km would be new and 2,9 km using the current not-in-service standard line

##### RENFE BCN LINE

New end at Puigcerdà

## International railway nodes between CAT – LR – MP

### 4.4 Opportunities: taking profit of new cross-border hospital



#### Proposal #2

##### SNCF TOULOUSE LINE

Extension of this standard line to Puigcerdà changing the gauge of current Iberian Renfe line through 3,7 km

##### TRAIN JAUNE

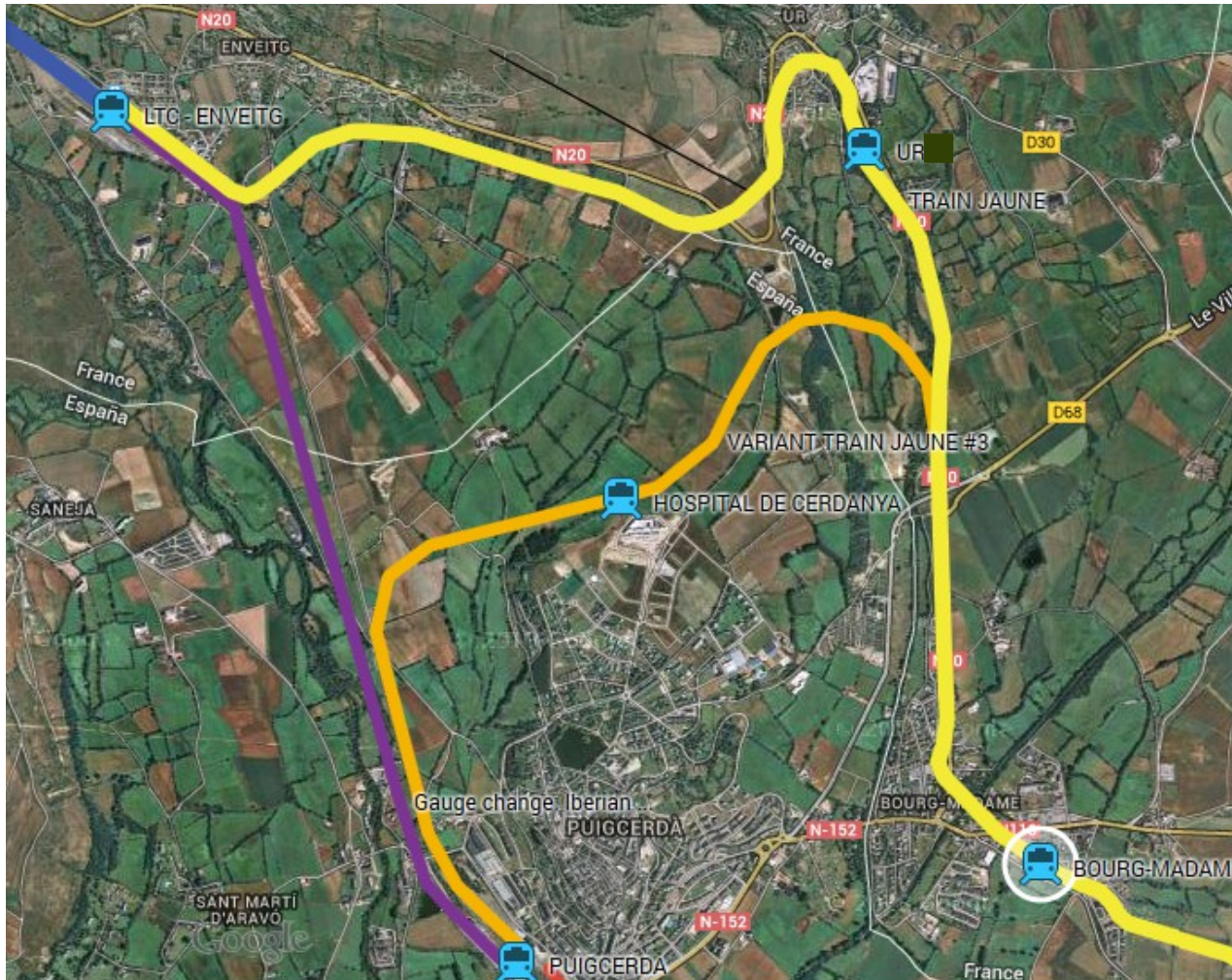
Variant of 4,3 km which 2,7 first km would be new and 1,4 km using the current not-in-service standard line

##### RENFE BCN LINE

New end at Puigcerdà

## International railway nodes between CAT – LR – MP

### 4.4 Opportunities: taking profit of new cross-border hospital



### Proposal #3

#### SNCF TOLOUSE LINE

Extension of this standard line to Puigcerdà changing the gauge of current Iberian Renfe line through 3,7 km

#### TRAIN JAUNE

Variant of 4,5 km which 3,1 first km would be new and 1,4 km using the current not-in-service standard line

#### RENFE BCN LINE

New end at Puigcerdà

## International railway nodes between CAT – LR – MP

### 4.4 Opportunities: the experience of FGC



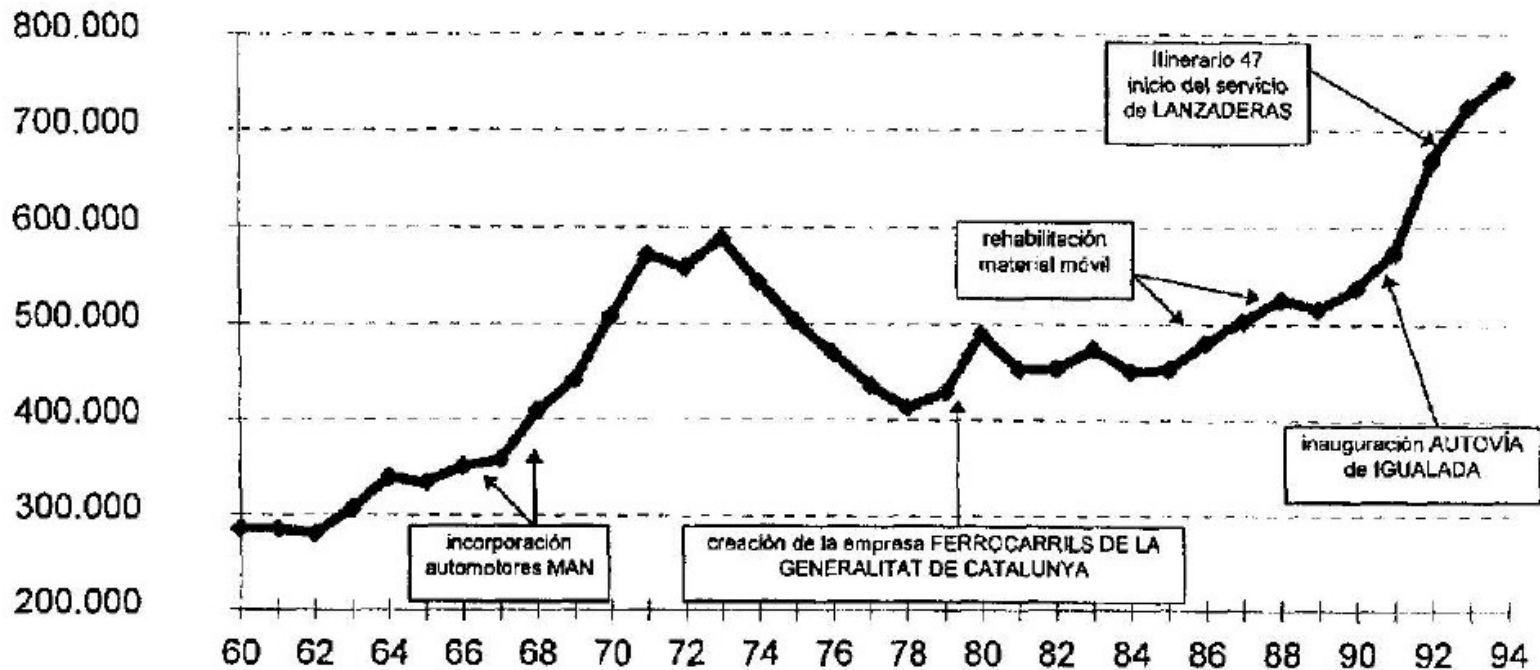
- Línia amenaçada de tancament per FEVE
- Gestió de servei i d'infraestructura transferida
- Línia de dèbil "trànsit"

- Model "low cost" en uns inicis
- Electrificació
- Ampliació i millora del servei. Cada 2 hores, cada hora, cada 30 minuts

## International railway nodes between CAT – LR – MP

### 4.4 Opportunities: the experience of FGC

#### Evolution of passengers in Martorell – Igualada FGC brach



Source: "Ejemplo de explotación de débil tráfico: La línea Martorell – Igualada de los FGC."  
 Universidad de la Coruña. Fundación de la Ingeniería Civil de Galicia. Miquel Llevat

## International railway nodes between CAT – LR – MP

### 4.4 Opportunities: the experience of FGC



Low commercial development and few trains >  
Less passengers >  
> Higher economic problems



Source: Josep M. Farré – Railpictures.net



Success model in railway low cost operation and sky and mountain promotion.



Source: Valldenuria.cat

## International railway nodes between CAT – LR – MP

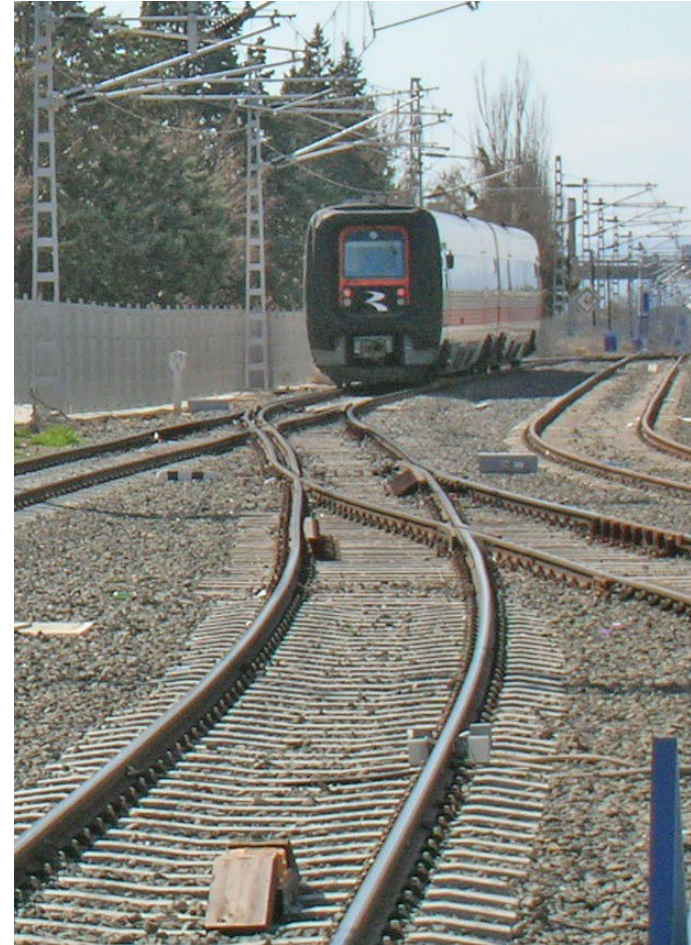
### 4.5 Opportunities: to take profit of technologies





## International railway nodes between CAT – LR – MP

### 4.5 Opportunities: to take profit of technologies



## International railway nodes between CAT – LR – MP

### 4.5 Opportunities: to take profit of technologies



## International railway nodes between CAT – LR – MP

### 4.5 Opportunities: to take profit of technologies



Source: Flickr - The STB

## International railway nodes between CAT – LR – MP

### 4.5 Opportunities: to take profit of technologies

In front of absence of infrastructure, two countries are able to connect their railways by ferry...

Why can't we ensure more direct connections when the rail infrastructure is continuous?



## International railway nodes between CAT – LR – MP



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