

# Divača – Koper 2nd track – risks and options

Dejan Makovšek, Richard Bullock, Jürgen Sorgenfrei

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## Outline

1. ITF tasks and objectives of this presentation
2. The Port of Koper, demand risk, and the capacity of the existing rail connection
3. Is the 2<sup>nd</sup> track cost estimate the right one
4. Delivery options of the 2nd track and PPP
5. Value for money
6. Conclusions



## **ITF tasks and objectives of this presentation**

The terms of reference:

- Risk assessment: Broad analysis of upside and downside risks facing the project (focus on demand and construction/delivery).
- PPP/financing alternatives: Review of available options, conditions for their feasibility, recommendations for the next steps.

This presentation - what is the view on:

- Construction risk/cost of the 2<sup>nd</sup> track investment.
- Design/operations options for the new track/possibilities on the existing infrastructure.
- Demand and the competitive position of the Port of Koper.
- Evaluation criteria and the choice of the preferred solution.

The full background analysis will be presented in the final report.

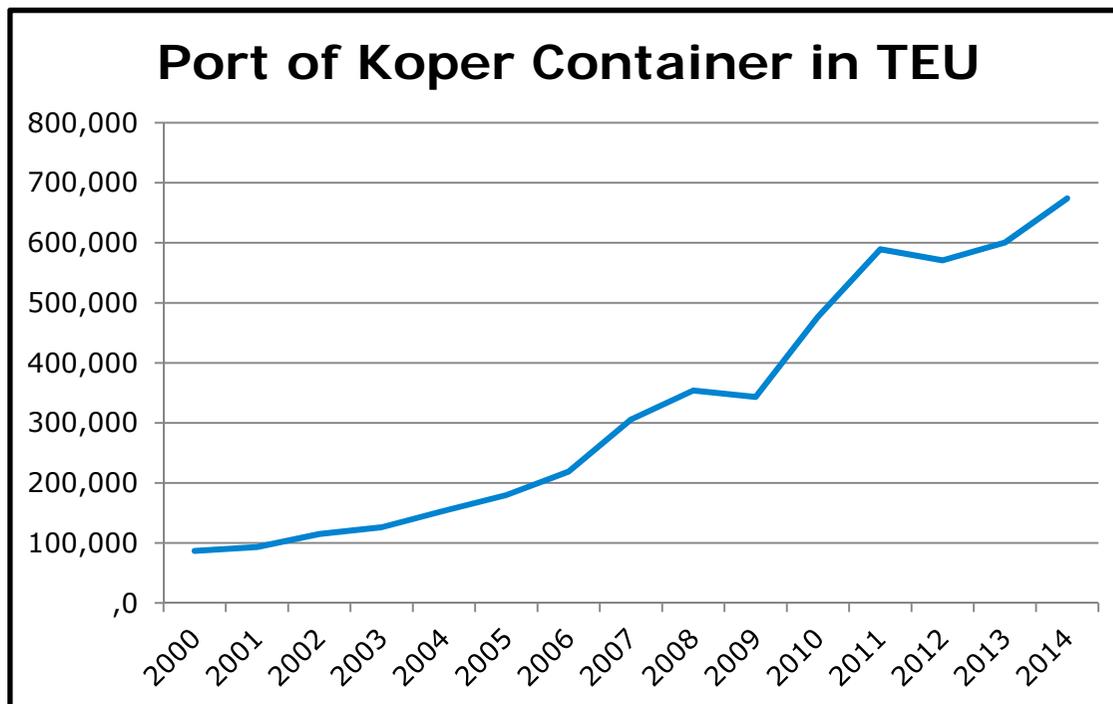


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## Container Business in Koper has grown faster than total cargo for the last 10 years



Total cargo:  
CAGR 2004 – 2014 =  
+ 4.3 % p.a.

Containers only:  
CAGR 2004 – 2014 =  
+ 16.0 % p.a.

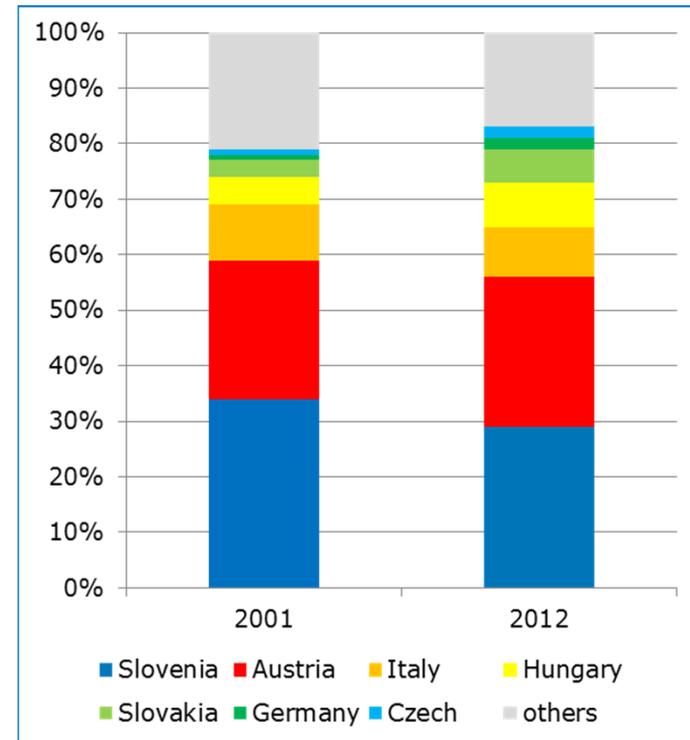
Koper has been able  
to increase volumes in  
container trade

The deep water  
access is a real  
advantage for Koper



## Over 50% of Koper's traffic has always been from Slovenia and Austria

- This has been the case for over a decade
- Hungary and Slovakia now represent a larger part of the business – at the expense of Italy and 'others' (e.g. Balkans).
- There is a similar pattern in container movements – Austria and Slovenia comprise about 50% of the port throughput, followed by Hungary and Slovakia (a further 35%).

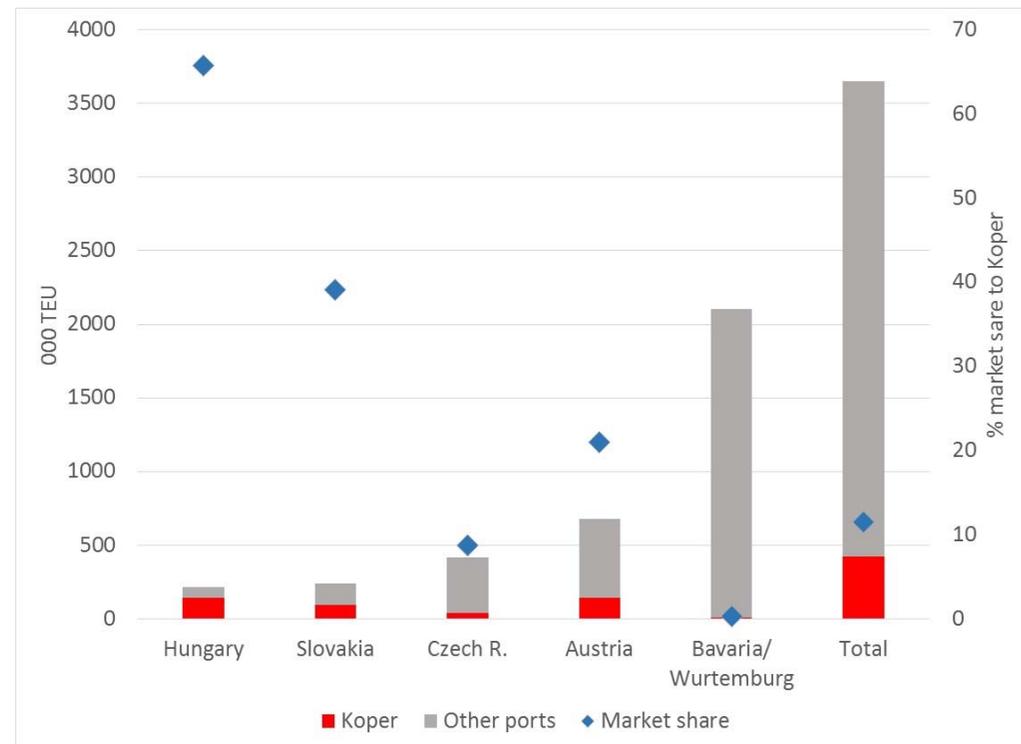


Hinterland shares in % of total throughput



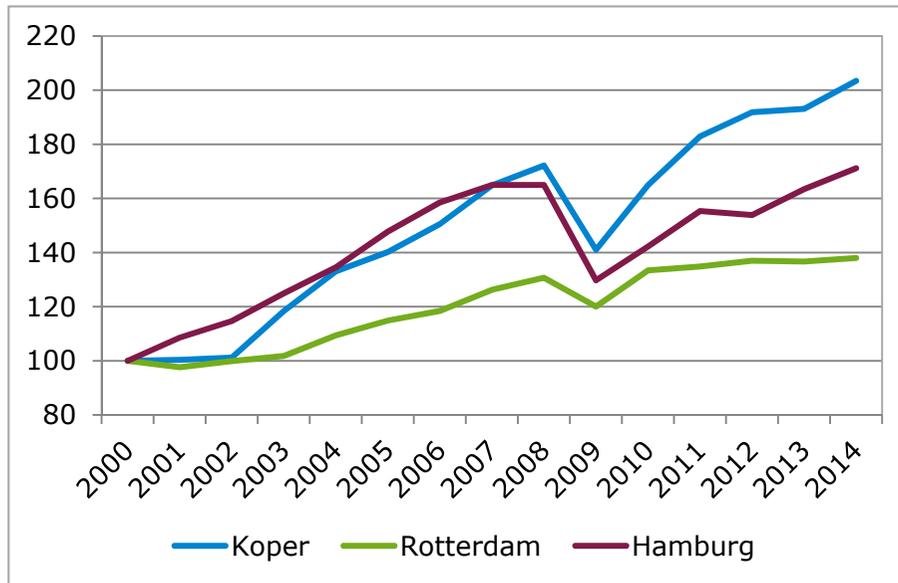
## Koper still only has a relatively minor share of the container market in Central Europe

- Koper has a large market share in Hungary and a reasonable share of the Slovak container market.
- However, it still only has about 20% of the Austrian market and very low shares in Czech and Bavaria/Wurtemberg.
- The estimated total market in the Koper hinterland market (excluding Slovenia) in 2014 was 3.65 mill TEU, of which Luka Koper handled 12%.
- This percentage has not changed significantly in the last five years.

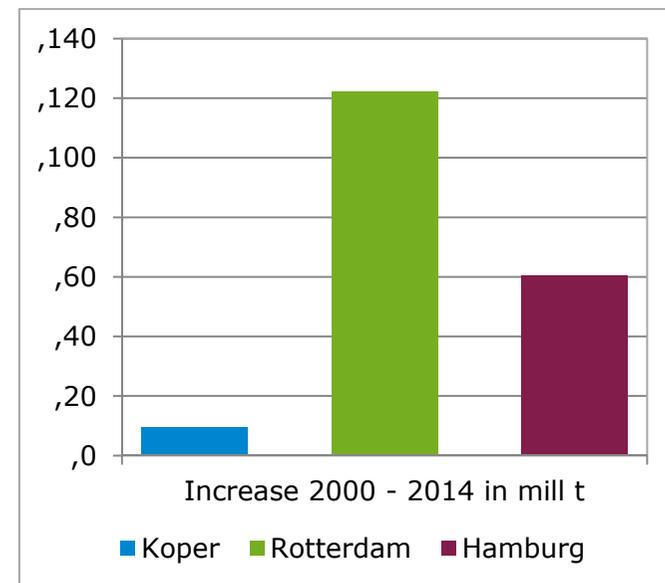


## As a result, although it has grown fast, its growth in absolute terms has been dwarfed by those of Rotterdam and Hamburg

Growth of total cargo throughput; 2000 = 100



Port of Koper has been a fast growing port, with growth rates higher than North Sea Ports, but ...



... volumes are still much lower; majority of cargo heading north.



# Future growth will not automatically fall to Koper

- The biggest potential in long haul trade is in container business
- If Koper only grows 'with the market', its volume in 2030 in these markets will not exceed 750,000 TEU
- With local cargo of about 350,000 TEU the total throughput will be about 1.1 mill. TEU

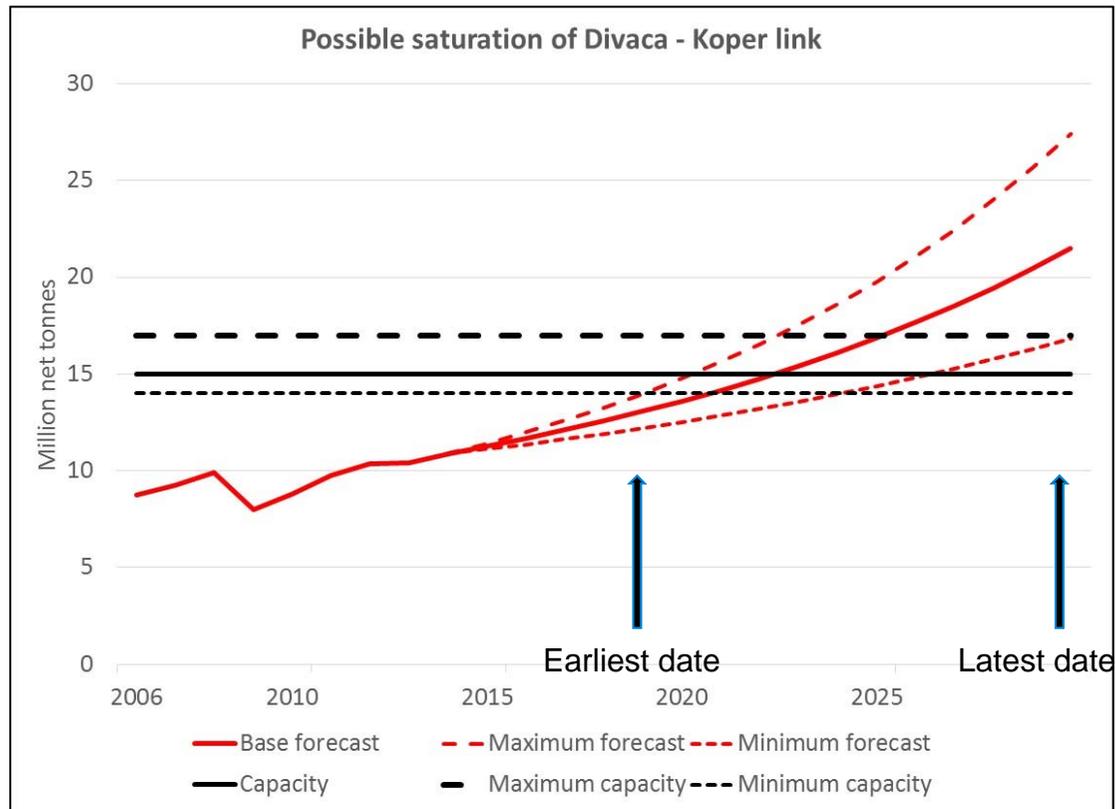
Country	Year	2014 in 1,000 TEU	2030 in 1,000 TEU
Austria		677	1,213
Hungary		216	375
Czech R.		414	812
Slovakia		238	456
Germ. south		2,105	3,693
Total relev. M.		3,650	6,549

- But nearly all NAPA ports (plus Ravenna) serve the same hinterland. Competition will increase e.g. Venice intends to expand the container business in the near future (new terminal), there are plans for significant investment in the rail link to Rijeka, and there will be open access on the Croatian network

**The port would need to be commercialized and a hinterland development strategy created to ensure a higher market share for Koper.**



## The existing rail line is approaching capacity



### Assumptions

- Container growth ranges from 6% p.a. to 10% p.a.
- Other freight growth ranges from 0% to 2% p.a.
- Line capacity of about 40 trains/day from Koper
- Line operational for 8000 hours p.a.
- Average train size ex Koper from 900 net tonnes to 1050 net tonnes
- 69% of traffic on line from Koper
- **Line capacity 15 +/- m tonnes**

**Saturation could occur between 2018 and 2028, depending on traffic growth rate and operational capacity – most likely is 2023**



## Demand will also be affected by supply constraints and cost recovery measures

If Koper experiences a shortage of rail capacity:

- 10 - 15 % additional traffic will remain at Koper, but move to road.
- The remainder (85-90%) will move to Rijeka/Trieste and almost certainly move by rail **(This is also what was assumed in the feasibility study evaluation)**.

If rail charges are raised to recover part of the cost of the 2nd track:

- Throughput at the port will be affected.
  - The elasticity is likely to be at least -1, i.e. an increase of 10% in total rail charges will reduce rail cargo volume by at least 10%.
  - Some of this diverted traffic (we estimate 20-25%) will remain at Koper and move by road.
  - The remainder (75-80%) will move to other ports and move by rail.
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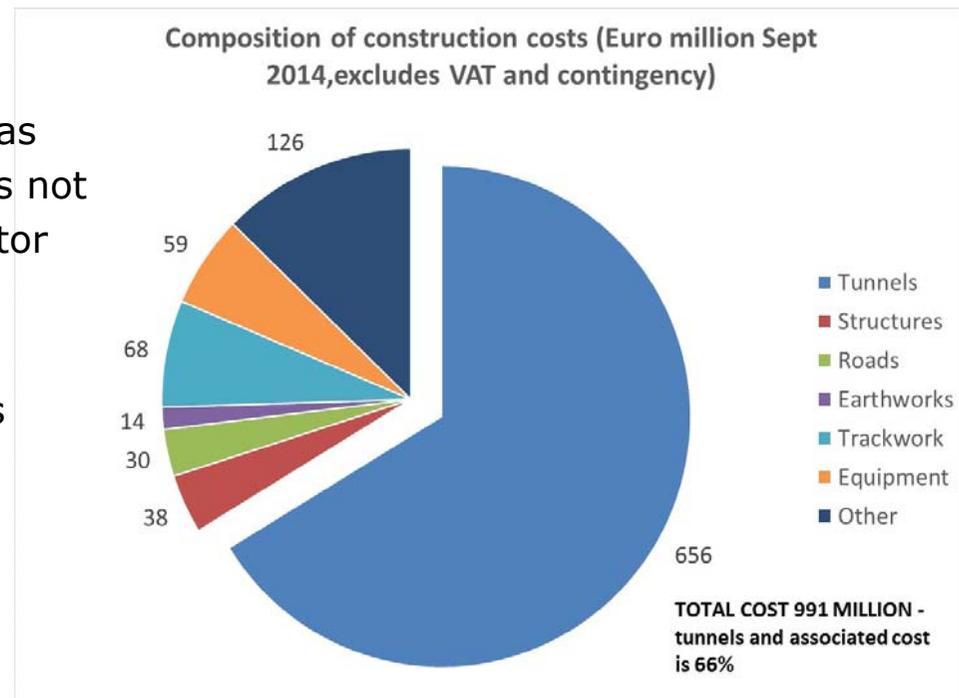


## The cost of the 2<sup>nd</sup> line is currently estimated at EUR 1.1 billion

Includes 7 % contingency but excludes VAT.

It is not possible to say with a high level of confidence, whether the estimate is fine, too low or too high, because:

- The base prices have been sourced from the motorway programme experiences and are now also very old;
- The prices used have been brought forward by Consumer Prices Index (as required by law), that generally does not properly reflect the construction sector dynamics;
- The estimate does not include a systematic and detailed risk analysis (the current contingency is judgemental).



## There may be potential for simplifying the design with consequent cost savings

The current design for the tunnel is based on TEN-T standards

- This includes provision of passenger services and a maximum speed of 160 km/h.
  - The track design also appears to be designed to provide a cant consistent with this speed.
  - There will only be a very limited number, if any, of passenger trains capable of travelling at this speed
  - The passenger demand for these rail services on the corridor is low
    - This standard should be reviewed to provide a design more suited to by far the predominant usage, which will be for 1750 tonne freight trains travelling from Koper towards Divača.
    - Greater potential cost savings are probably available if the tunnel is used only by freight trains. Passenger trains would continue to use the existing line.
    - The fire safety arrangements will then only have to deal with a two or three person freight crew rather than up to 1000 passengers. This may have implications for the dimensions of the proposed service tunnel, which is currently over 60% of the size of the main tube.
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## Our assessment of options considered 4 outcomes

We considered four key decisions:

- Timing of implementation (when would the 2<sup>nd</sup> track be delivered)
- Is demand risk transferred (relevant for accounting treatment, growth)
- Is financial cost recovery maximized (where can we recover the cost of investment – 2<sup>nd</sup> track only, port also; maximization of the revenue base)
- Is construction risk transferred (relevant for project cost, risk of cost overruns)

These decisions influence 4 outcomes:

- Port growth
  - Bankability
  - EUROSTAT treatment
  - Environmental impacts
- } Affect public spending

**EU grants will not be affected by these decisions.**



## 6 Options were assessed against this criteria – 3 were selected for further analysis

No.	Option	Explanation
1	Traditional procurement	The 2 <sup>nd</sup> track is procured traditionally and financed through the state budget
2	Procurement/financing through an existing infra manager	The 2 <sup>nd</sup> track is procured and financed through an existing large infra manager against its own balance sheet (e.g. DARS )
3	Availability-based PPP (for the 2 <sup>nd</sup> track)	The 2 <sup>nd</sup> track is concessioned and the state pays annual charges for availability
4	Demand-based PPP on the 2 <sup>nd</sup> track	The 2 <sup>nd</sup> track alone is concessioned with the demand risk borne by the private party
5	Demand-based PPP (for the 2 <sup>nd</sup> track and Port )	The 2 <sup>nd</sup> track and the port are concessioned with demand risk borne by the private party
6	Demand- based PPP (port, excluding 2 <sup>nd</sup> track, which will be built traditionally)	The port is concessioned without the 2 <sup>nd</sup> track, with demand risk borne by the private party



# Option 1

Criteria	Traditional procurement
<b>Decisions</b>	(relative to other options)
Implementation timing	Very fast (start +1 year)
Demand risk transfer	None (state)
Financial cost recovery potential	Low
Construction risk transfer	Medium
<b>Outcomes</b>	
Public spending	Very high (public borrowing)
Port growth (relative)	Low (organic, limited growth incentives)
Bankability	n/a
Eurostat treatment	On balance sheet
Environmental impact	Very low

## Option 3

Criteria	Availability based PPP options (on the 2 <sup>nd</sup> track)
<b>Decisions</b>	(relative to other options)
Implementation timing	Medium (start +3 years)
Demand risk transfer	None (remains with the state)
Financial cost recovery	Low (demand can't be managed)
Construction risk transfer	High (shared)
<b>Outcomes</b>	
Public spending	High (current spending)
Port growth	Low (organic only, limited growth incentives)
Bankability	Very high
Eurostat treatment	Off-balance sheet (with high probability)
Environmental impact	Medium

## Option 5

Criteria	Demand based PPP (port, including 2 <sup>nd</sup> track)
<b>Decisions</b>	(relative to other options)
Implementation timing	Slow (start +4 years)
Demand risk transfer	High (shared)
Financial cost recovery	Medium
Construction risk transfer	High (shared)
<b>Outcomes</b>	
Public spending	Low (min revenue guarantee, grant)
Port growth	High
Bankability	Medium
Eurostat treatment	Complicated
Environmental impact	Medium

# In summary the three preferred options have different financial and timing implications

Options	Decisions				Outcomes				
	Timing	Demand risk transfer	Cost recovery	Constr. risk transfer	Public spending	Port growth	Eurostat	Bankability	Env. impact
1 Traditional procurement								-	
3 Availability-based PPP option (on the 2 <sup>nd</sup> track)									
5 Demand-based PPP (port, including 2 <sup>nd</sup> track)									
	Performs poorly				Performs excellently				

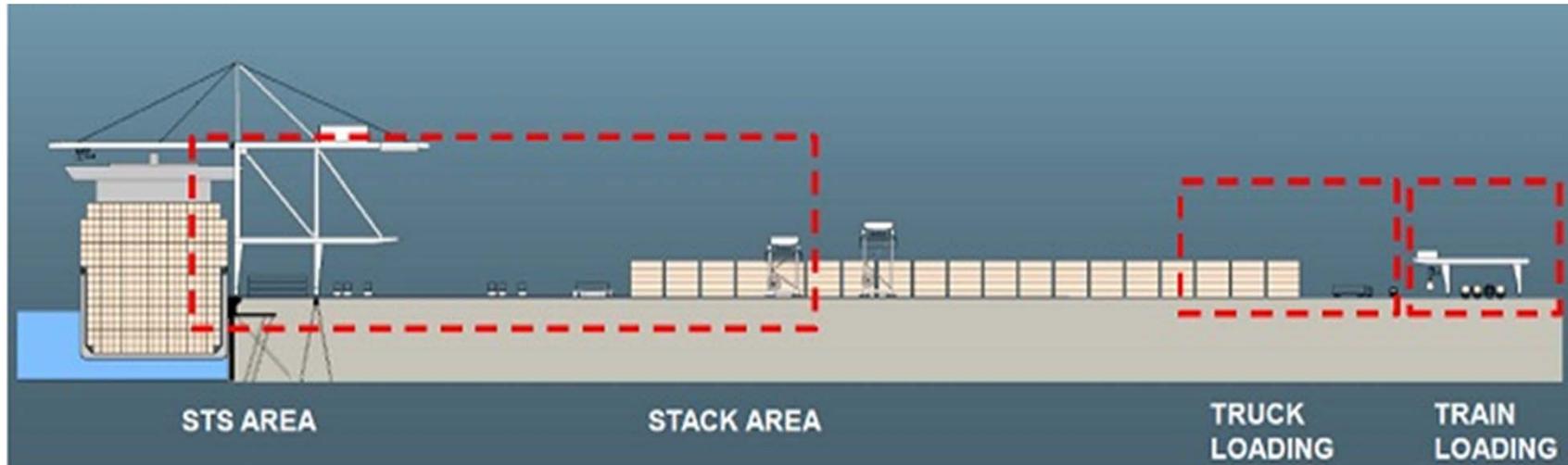
If timing is a critical determinant, option 1 would be the only choice, regardless of other weaknesses. But is this the case?



## Time can be bought (and financing cost reduced) by constructing an off-port terminal

- Off-port terminals are in common use in many ports around the world
  - In the case of Koper, a terminal could be established in the Divača - Sežana region which would act as the railhead for traffic (principally containers) which wish to move by rail but for which capacity is not available on the existing line
  - These would be transferred to and from the port by road using the existing expressways
  - This would require a site of some 12 -15 ha – sufficient to operate as a relay terminal until 2030 on our base forecast and could be expanded if needed
  - The indicative cost of the terminal would be at most Euro 50 million, but probably less
  - The net cost for the transfer of a container at the off-port terminal will add some EUR 80 per container. With the medium growth projection, the total throughput in 2030 will be about 60 % bigger than today. At that time about 1/8 of all container traffic would have to move through the off-port terminal, adding some EUR 10 million to the port's operating cost
  - This cost would have to be absorbed through other port operations – requiring an improvement in efficiency or resulting in a reduction of the port's profit.
- 

## Container Terminal operations require multiple moves



- in STS Ship-to-shore area only terminal equipment is allowed; containers are moved in stacking area
- Depending on yard operation system a few re-stackings are necessary; i.e. in order to prepare the export stock for quick operation in right sequence
- Truck and rail operations for loading and unloading require an additional handling
- The off-port terminal is just an extension of the yard operation to a remote facility

## The off-port terminal is just an on-off-facility

- The off-port terminal will just have a relay function
- No cargo operations like seaworthy packaging, labelling, re-stowing, etc. shall take place at the off-port terminal
- Only FCL Full Container Load operations



**None of the options involving the 2<sup>nd</sup> track alone is financially feasible, given the financial constraints of the state.**

**Combining the port and the second track together will probably improve the economic outcome of the investment.**

**But the 2<sup>nd</sup> track is still not financeable, without significant involvement by the state!**

**Would it be economically justified?**

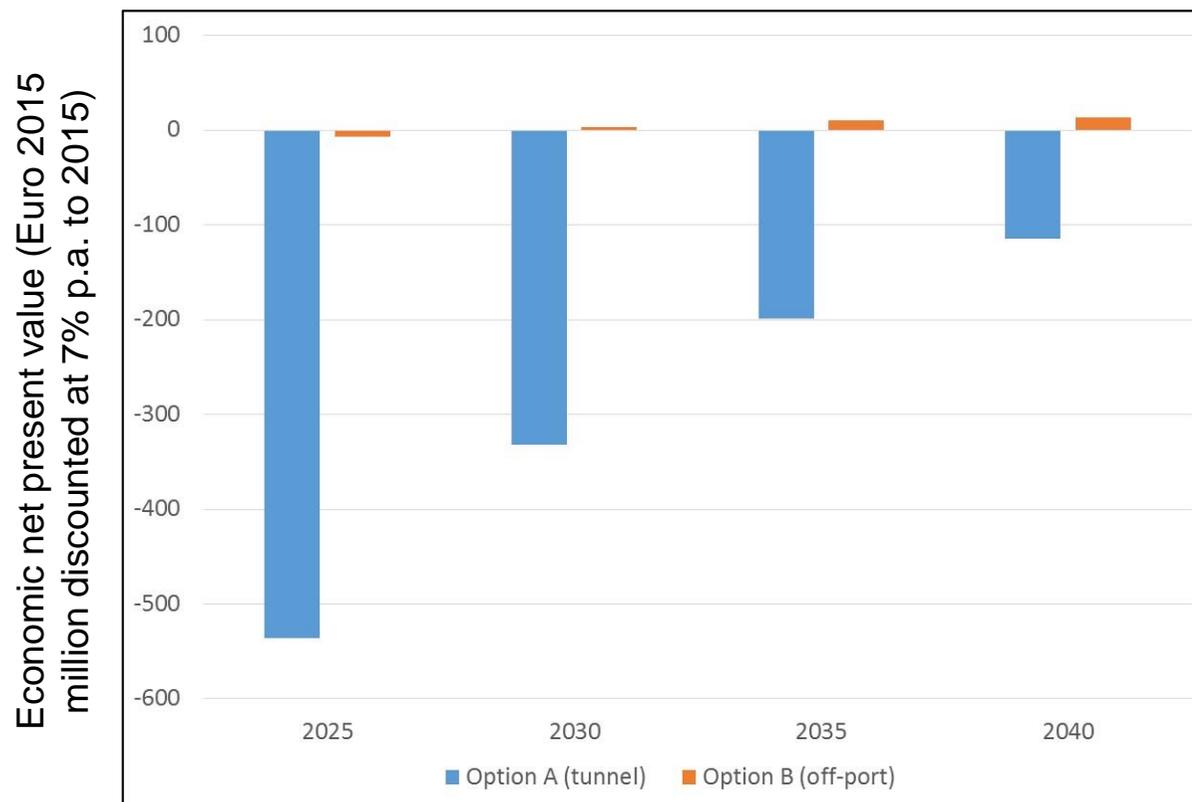


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## Economic analysis shows the off-port terminal is much better value than the tunnel



- Indicative NPV at 7% discount rate shows the tunnel at -Euro 536 million and the off-port terminal at Euro -7 million
- The further the project is deferred the better the NPV as the cost is progressively discounted.
- The terminal is economically warranted by about 2030

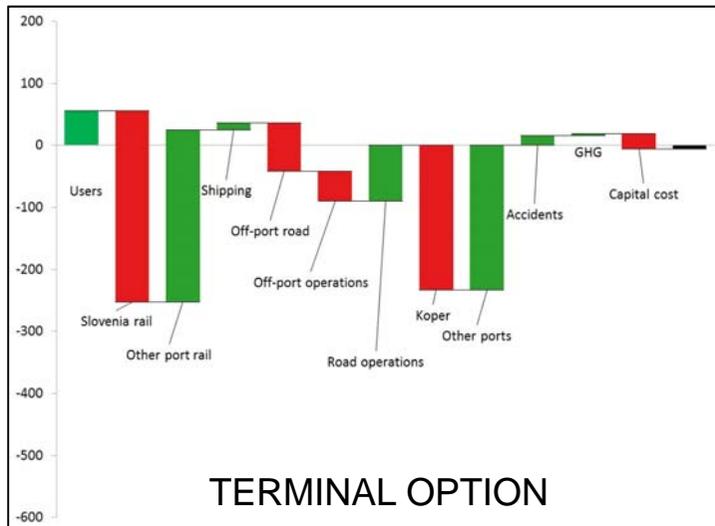
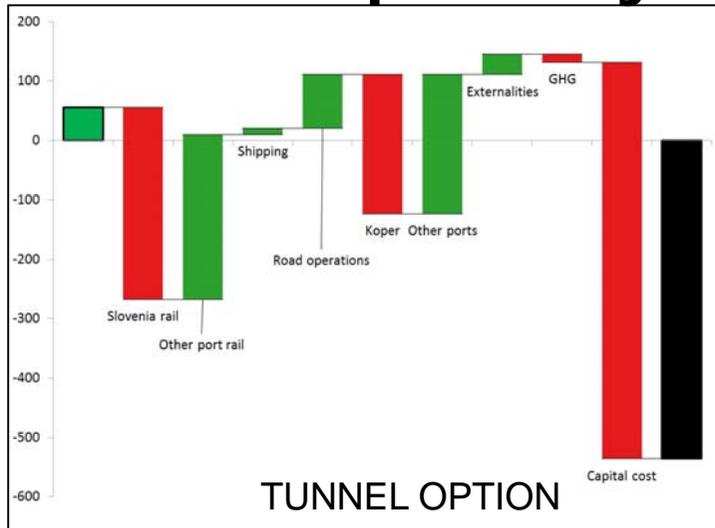
Note : excludes any potential multiplier effects

Economic analysis compares the two options against the case in which nothing is constructed and traffic diverts to road or other ports



# The tunnel analysis is dominated by the capex – the terminal option by the extra operating costs

Economic net present value (Euro 2015 million discounted at 7% p.a. to 2015 – opening date 2025)

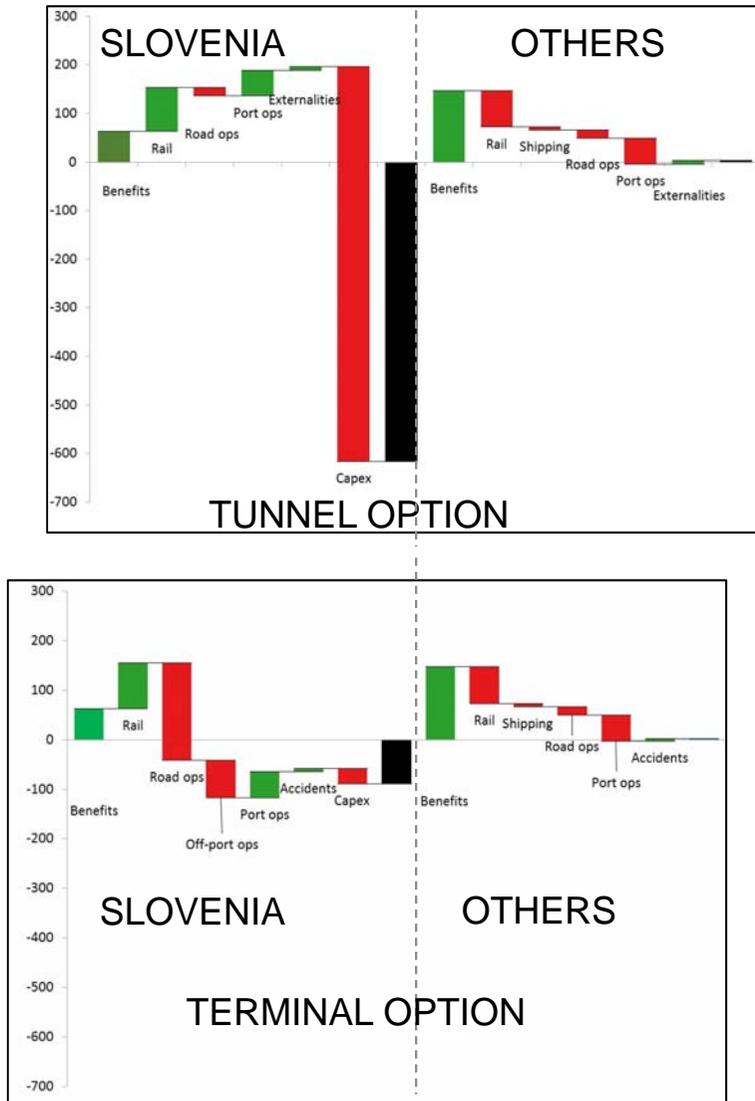


- Many costs and benefits are approximately equal and opposite from an overall viewpoint e.g. the increase in Koper port operating costs balances the savings in other port operating costs.
- But the tunnel capital cost is five times the net change in costs and externalities.
- And the (small) net operating savings in the off-port terminal option are negated by the capital cost of the terminal



# Both options impose net financial costs on Slovenia whilst other countries receive financial benefits

Financial net present value (Euro 2015 million discounted at 4% p.a. to 2015 – opening date 2025)



- AS in the economic analysis, in the financial analysis many costs and benefits are approximately equal and opposite from an overall viewpoint e.g. the increase in Koper port operating costs balances the savings in other port operating costs.
- But whilst operating costs approximately balance out for non-Slovenian users, the capital cost falls entirely on Slovenia.
- And there are no significant operating surpluses for Slovenian rail operators (whether TOCs or infrastructure authorities) to counterbalance the capex.



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## Key conclusions (I)

### Demand and track capacity

- The potential demand will grow, but this will not automatically be captured by the Port of Koper, as competition will increase.
- If the demand is captured by the port, the existing track capacity will be exceeded somewhere between 2018 and 2028.
- The precise date will depend on the extent to which the Port of Koper can realize the demand potential and the scope for increasing the existing track capacity without significantly impacting the environment.

### Project cost and design

- The design standards and estimated cost should be reviewed. Significant savings are possible through changing standards in the tunnel, but they do not fundamentally change the economic viability of the 2<sup>nd</sup> track investment.



## Key conclusions (II)

### Financing options

- Two traditional financing options and 4 PPP options have been assessed.
- The most promising is a combined PPP of the 2<sup>nd</sup> track and the port, with the aim of maximizing the port revenue base.
- However, none of the 6 options for the 2<sup>nd</sup> track is likely to achieve full financial cost recovery or be viable without government support.

### Economic aspects:

- Although building the 2<sup>nd</sup> track now solves the port's hinterland capacity constraints, it imposes a large burden on the taxpayer and is subject to a significant demand risk exposure (leading to the investment not being repaid).
- The greatest Value for Money comes from an off-port intermodal terminal at Divača, which postpones the need for the 2<sup>nd</sup> track.



## Key conclusions (III)

### Economic aspects (continued):

- Improving the economic value of any port hinterland connection will require the maximisation of port growth; in most ports this has required changes in the traditional port management model in order to commercialize its operations.
- An economically sensible approach would be to construct an off-port terminal. The 2<sup>nd</sup> track can be built in the future, as needed, when its financial viability will have improved in line with continued port growth.



**Thank you for your attention!**

