

Loading stations along main transalpine axes: an opportunity for transalpine rail transport?

Federico Cavallaro^{a+b}, Giulia Sommacal^a and Silvio Nocera^b

^a Eurac Research, Institute for Regional Development, Bolzano-Bozen, Italy

^b Università IUAV di Venezia, Venezia, Italy

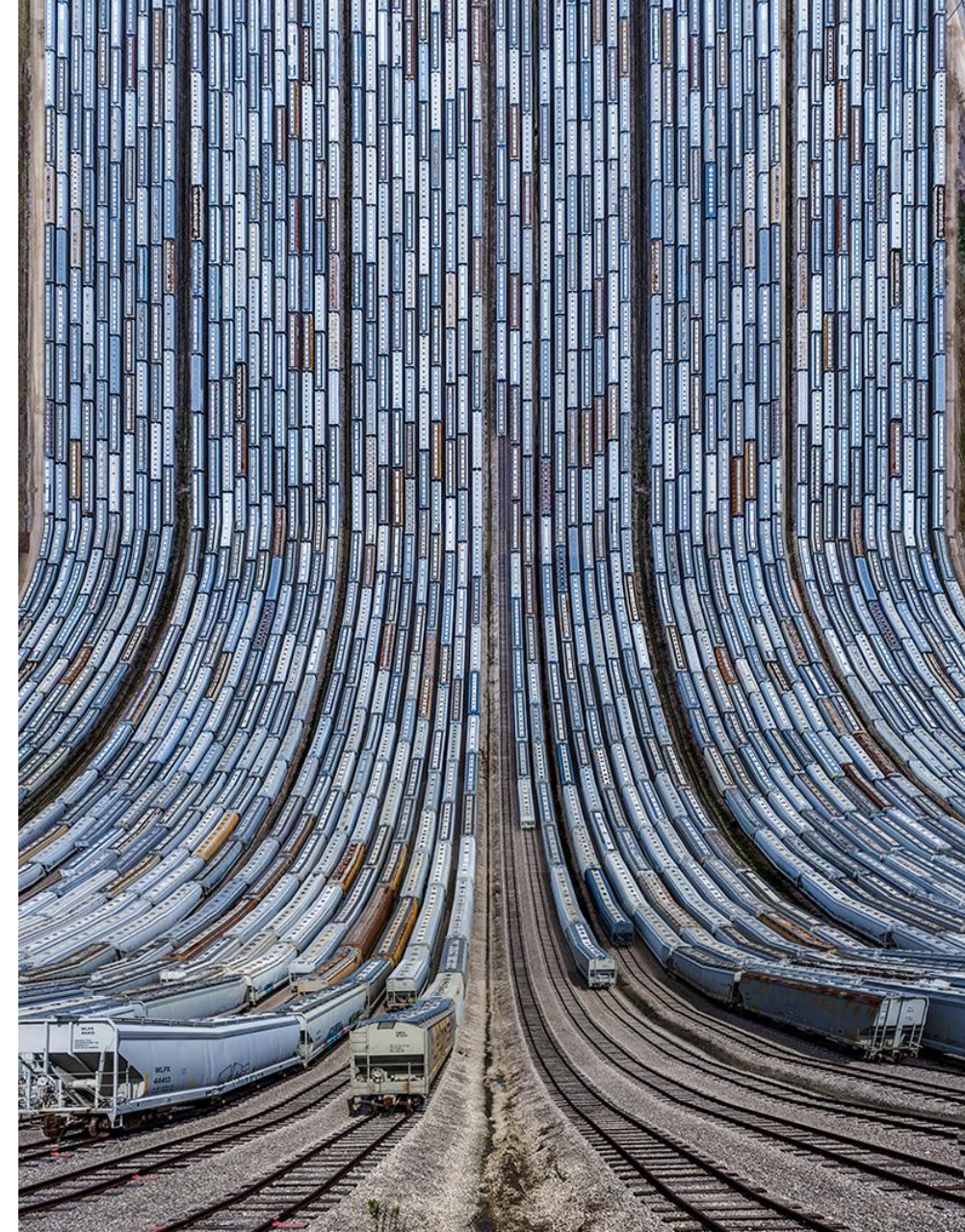
OUTLINE:

■ Introduction: why the Brenner corridor?

■ ■ *Smartlogi*: new intermodal terminals along main transalpine axes?

■ ■ ■ Methodology: a shared approach with local stakeholders

■ ■ ■ ■ Conclusions



Aydın büyüktaş bends brains with dizzyingly distorted views of american landscapes.
Source: www.designboom.com, 2019

TRANSPORT CORRIDORS IN THE ALPS

play a key role for an efficient and sustainable transport of goods and people

The Alps are crossed by:

- **4 main European corridors:** the Baltic-Adriatic, the Rhine-Alpine, the Scandinavian-Mediterranean and the Mediterranean
- **16 main transalpine corridors**, 10 allow a multimodal road/rail connection, while 6 grant only a road connection
- in 2017: **Ventimiglia** (97% road, 3% rail), **Montgenèvre** (100% road), **Mont Cenis/Fréjus** (80% road, 20% rail), **Mont-Blanc** (100% road), **Gr. St. Bernard** (100% road), **Simplon** (7% road, 93% rail), **Gotthard** (39% road, 61% rail), **San Bernardino** (100% road), **Reschen** (100% road), **Brenner** (72% road, 28% rail), **Felbertauern** (100% road), **Tauern** (61% road, 39% rail), **Wechsel** (99% road, 1% rail), **Pyhrn/Schoberpass** (81% road, 19% rail) and **Semmering** (34% road, 66% rail), **Tarvisio*** (68% road, 32% rail).

* year 2014 (only data available)

TEN-T
CORRIDORS



MAIN TRANSALPINE
CORRIDORS



Source: <http://ec.europa.eu/transport>, 2019

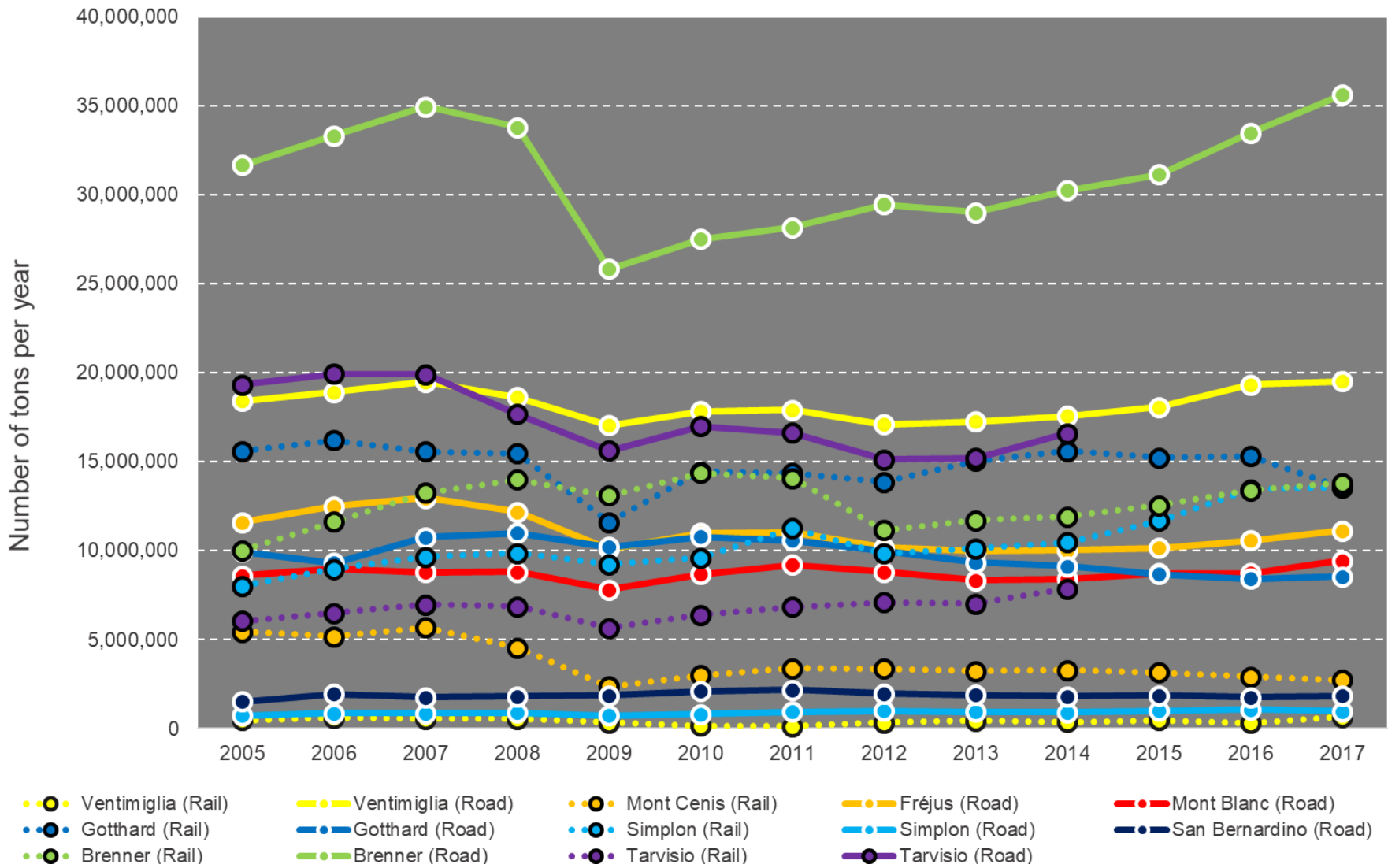


Source: Nocera and Cavallaro, 2016

Number of tons transported per year (2005-2017): Rail and Road

Brenner Corridor:

- in 2017, about 35.6 Mio t (72%) were transported by road and 13.8 Mio t (28%) by rail
- in the years 2013-2017, the total amount of goods transported by road and rail increased by 21.4%

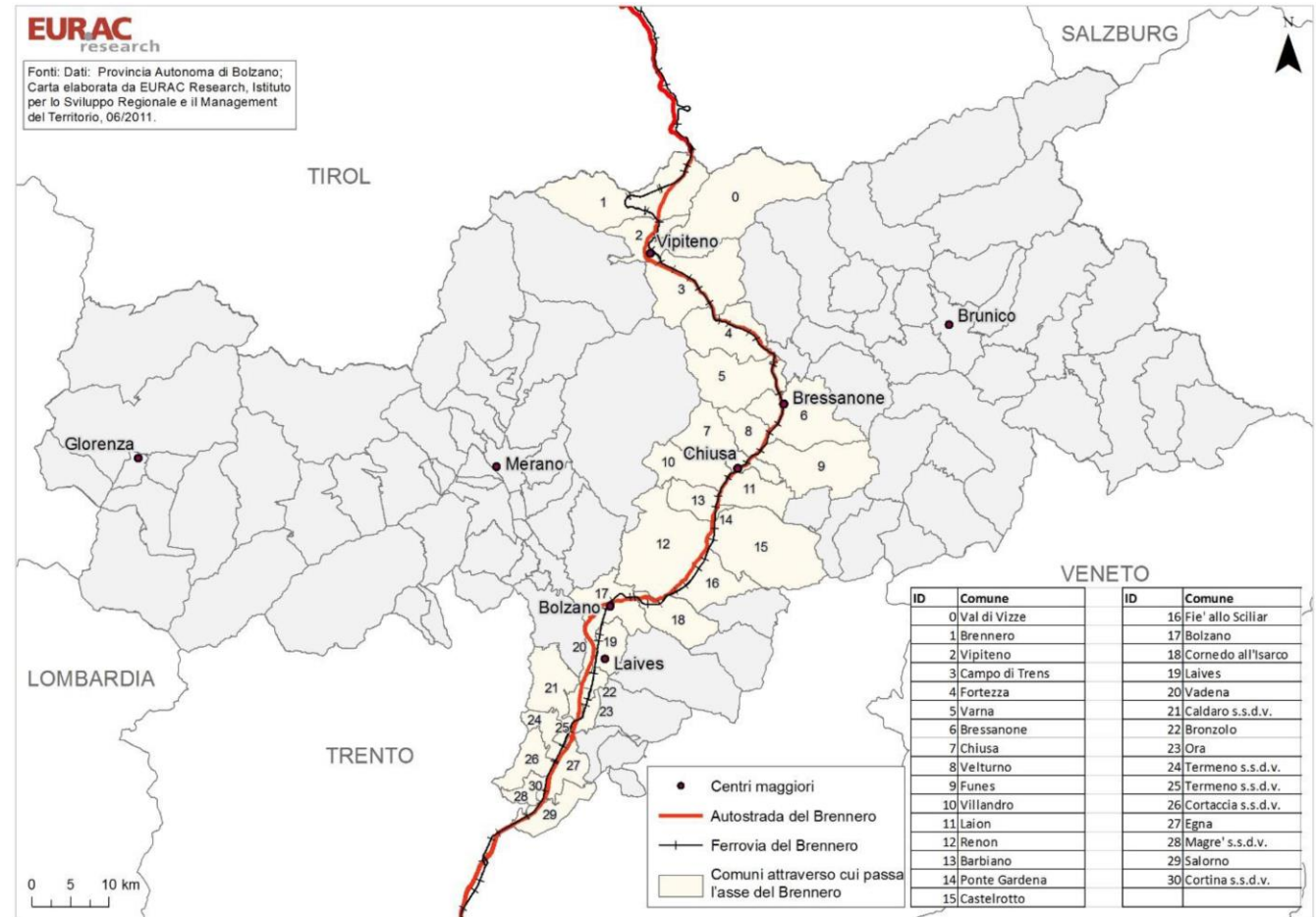


Source: iMonitraf!, 2019

The Brenner corridor: geographical and infrastructural framework

The Brenner corridor is:

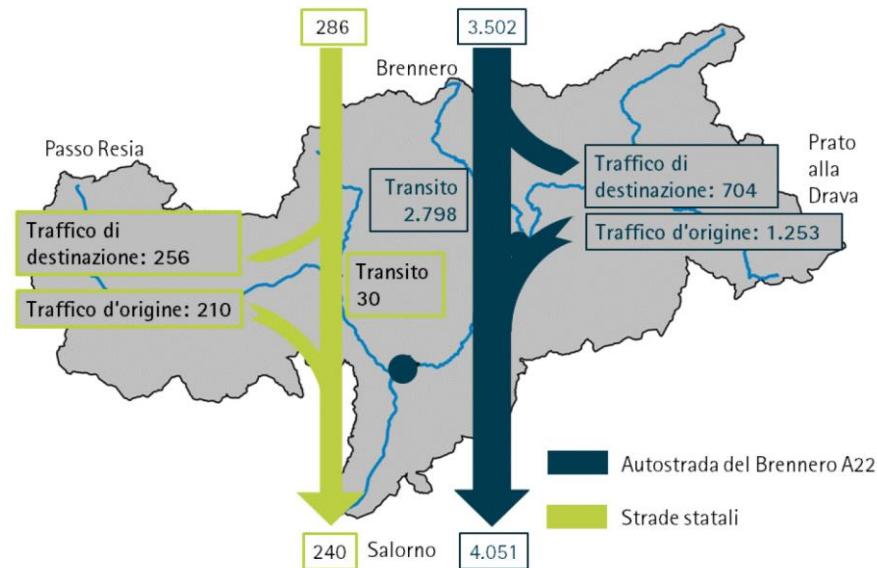
- the **central part of the Munich-Verona corridor**
- the **most important pass on a European level**, considering the average number of freight and passenger vehicles
- composed by the **Brenner railway line** Verona-Brenner (120 km in South Tyrol), the **A22 motorway** Modena-Brenner (116 km in South Tyrol) and the **SS12 state road** (120 km from the Brenner pass to Salorno)



The Brenner corridor
Source: EURAC, 2017

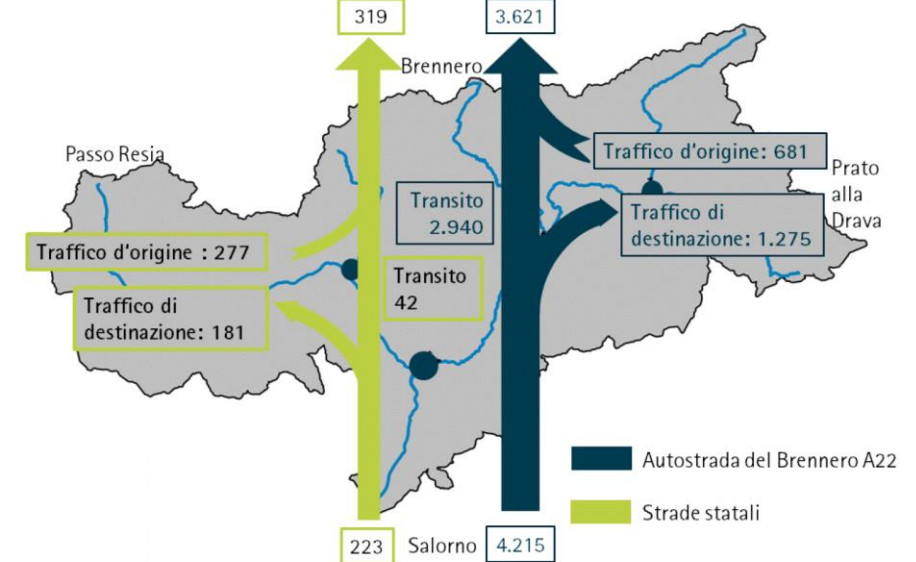
Freight transport along the Brenner corridor: types of transport referred to origin and destination

Numero di mezzi pesanti per giorno lavorativo(a)



(a) Numero di viaggi di mezzi pesanti all'anno / 300 gironi

Numero di mezzi pesanti per giorno lavorativo(a)



(a) Numero di viaggi di mezzi pesanti all'anno / 300 gironi

Source: IRE, 2017

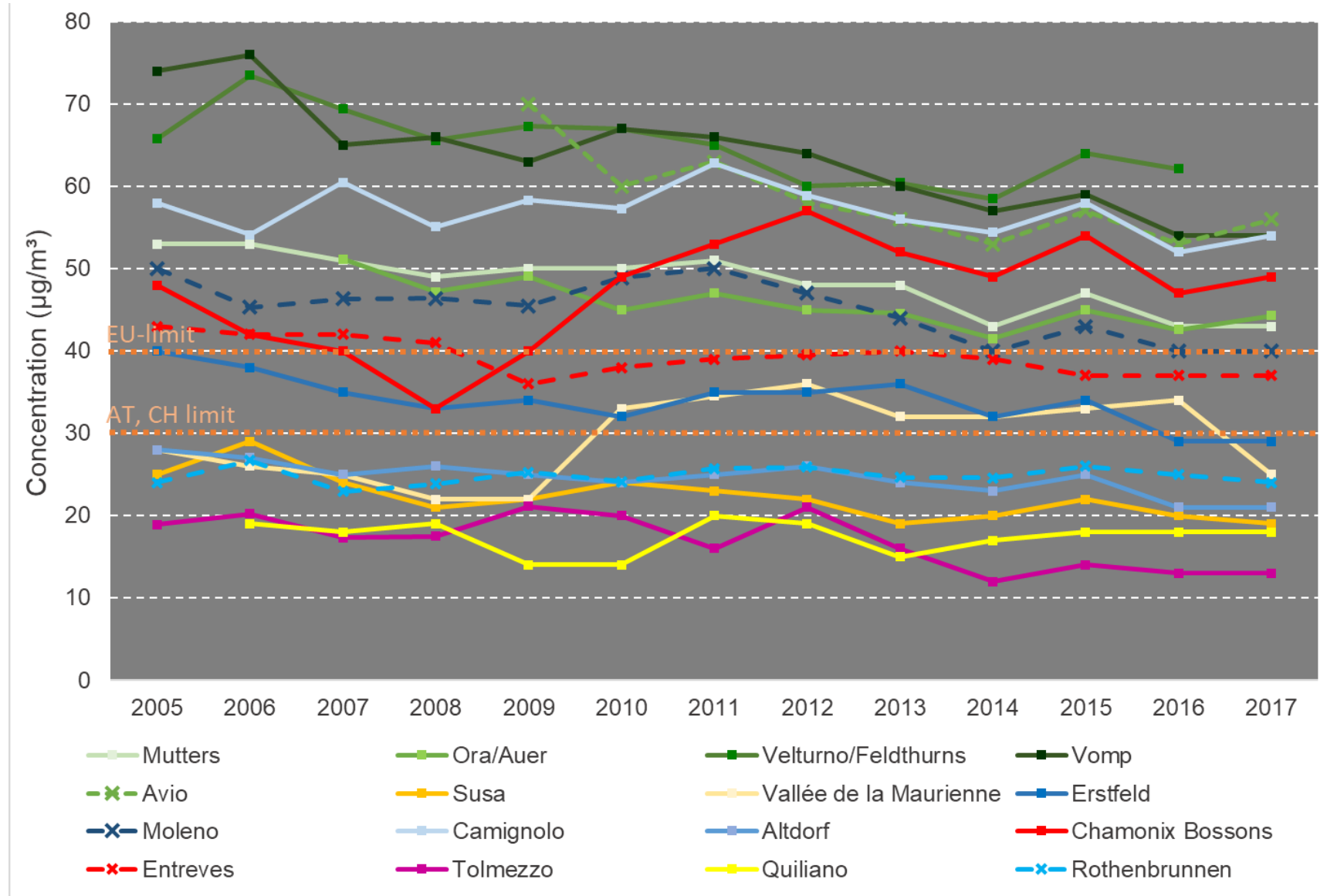
A22 Brenner motorway

North-South direction	% of vehicles	South-North direction	% of vehicles	Total	% of vehicles
Domestic traffic	6.3 %	Domestic traffic	6.0 %	Domestic traffic	6.1 %
Traffic – origin South Tyrol	24.7 %	Traffic – origin South Tyrol	13.0 %	Traffic – origin South Tyrol	18.9 %
Traffic - destination South Tyrol	13.9 %	Traffic - destination South Tyrol	24.5 %	Traffic - destination South Tyrol	19.2 %
Transit traffic	55.1 %	Transit traffic	56.5 %	Transit traffic	55.8 %
Total	100 %	Total	100 %	Total	100 %

NO₂ trend in annual average concentrations (2005-2017)

Brenner Corridor:

- in 2017, along the A22 highway the **highest concentrations of NO₂** (green colour scale) have been registered
- the measurements exceed the limit values imposed by the EU (40 µg/m³), with subsequent economic sanctions



Source: iMonitrafl, 2019

Resolution N.01/2018 of the European Region Tyrol-South Tyrol-Trentino



BRENNER CORRIDOR – FREIGHT TRANSPORT – MODAL SPLIT:



Currently: about 71% by road, 29% by rail



Milestone #1 - 2027: 50% by road, 50% by rail



Milestone #2 - 2035: reverse trend compared
to 2018



HOW CAN WE REACH THESE GOALS?



/Staatsstraße, Schiene), insbesondere auch die Entwicklung der Lärmemissionen von Strasse und Schiene, unter Berücksichtigung des Projektes iMonitraf!, das Ende 2018 auslaufen wird, sowie in enger Abstimmung mit den anderen Institutionen, die entlang der Brennerachse tätig sind, wie EUSALP, BCP und das Forum für den Korridor Scan-Med einzurichten. Auf dieser Grundlage soll eine mögliche Lkw-Obergrenze bis 2020 geprüft werden, damit diese Ziele erreicht werden.

- **Verkehrssicherheit:** Um die Leichtigkeit, Flüssigkeit und Sicherheit im Straßenverkehr zu gewährleisten und die Versorgungssicherheit in den Ländern aufrecht zu erhalten, sind zudem weitere kurzfristige Maßnahmen, wie Kontrollstellen für LKW zur gesetzeskonformen Abwicklung des Verkehrs sowie zur Dosierung des Verkehrs zu nutzen, zu erweitern bzw. zu installieren.

Im Rahmen dessen verpflichtet sich die Europaregion zu gezielten Kontrollen zur Einhaltung der sozialen Standards für LKW-Fahrer, sowie der Wochenendruhezeiten.

Bis 2020 wird zu diesem Zweck auf der südlichen Anfahrt zum Brenner eine LKW-Kontrollstelle, in Anlehnung an die Erfahrungen in Tirol, eingerichtet, um die Verkehrssicherheit zu verbessern.

- **Güterverkehr auf der Schiene:** Der Modal Split, das Verhältnis zwischen Güterverkehr auf der Straße und Güterverkehr auf der Schiene, welcher aktuell bei 71 zu 29 Prozent liegt, ist bis zum Jahr 2027 auf ein ausgeglichenes Verhältnis und bis zum Jahr 2035 in ein umgekehrtes Verhältnis zur Ausgangslage zu bringen.

Dies bedeutet einerseits die konsequente Umsetzung einer neuen Infrastruktur (Brennerbasistunnel und Zulaufstrecken) genauso wie das Setzen verkehrspolitischer Rahmenbedingungen um die Auslastung auf der Schiene bis zur Eröffnung der neuen Infrastruktur maßgeblich zu stärken, auch durch den Ausbau von koordinierten, begleitenden Maßnahmen. Dies beinhaltet zielgerichtete Maßnahmen

all'inquinamento acustico stradale e ferroviario, lungo l'asse del Brennero (autostrada, strade statali, ferrovia), con riferimento anche a quanto ad oggi elaborato dal progetto iMonitraf!, in scadenza alla fine del 2018, e in stretto coordinamento con gli altri organismi attivi sull'asse del Brennero, quali Eusalp, la BCP e il Forum del Corridoio Scan-Med. Su tali presupposti andrà esaminata entro il 2020 l'eventuale introduzione di un limite massimo per il transito dei mezzi pesanti al fine di raggiungere i predetti obiettivi.

- **Sicurezza stradale:** Per garantire l'efficienza, la fluidità e la sicurezza del trasporto su strada nonché la sicurezza degli approvvigionamenti nei territori interessati vanno utilizzate, potenziate o introdotte ulteriori misure a breve termine, come l'istituzione di punti di controllo dei mezzi pesanti per gestire il traffico conformemente alla legge ed eventualmente attivare il contingentamento.

In tale contesto l'Euregio si impegna a effettuare controlli mirati ai fini del rispetto degli standard sociali minimi per i conducenti di mezzi pesanti e dei riposi nei fine settimana.

A tale scopo entro il 2020 sarà istituito in corrispondenza dell'accesso da sud al valico del Brennero un punto di controllo dei mezzi pesanti per migliorare la sicurezza stradale, così come già sperimentato in Tirolo.

- **Trasporto merci su rotaia:** Il modal split, che attualmente è di 71 a 29 per cento, dovrà andare in pareggio entro il 2027 per poi essere invertito rispetto ai valori attuali entro il 2035.

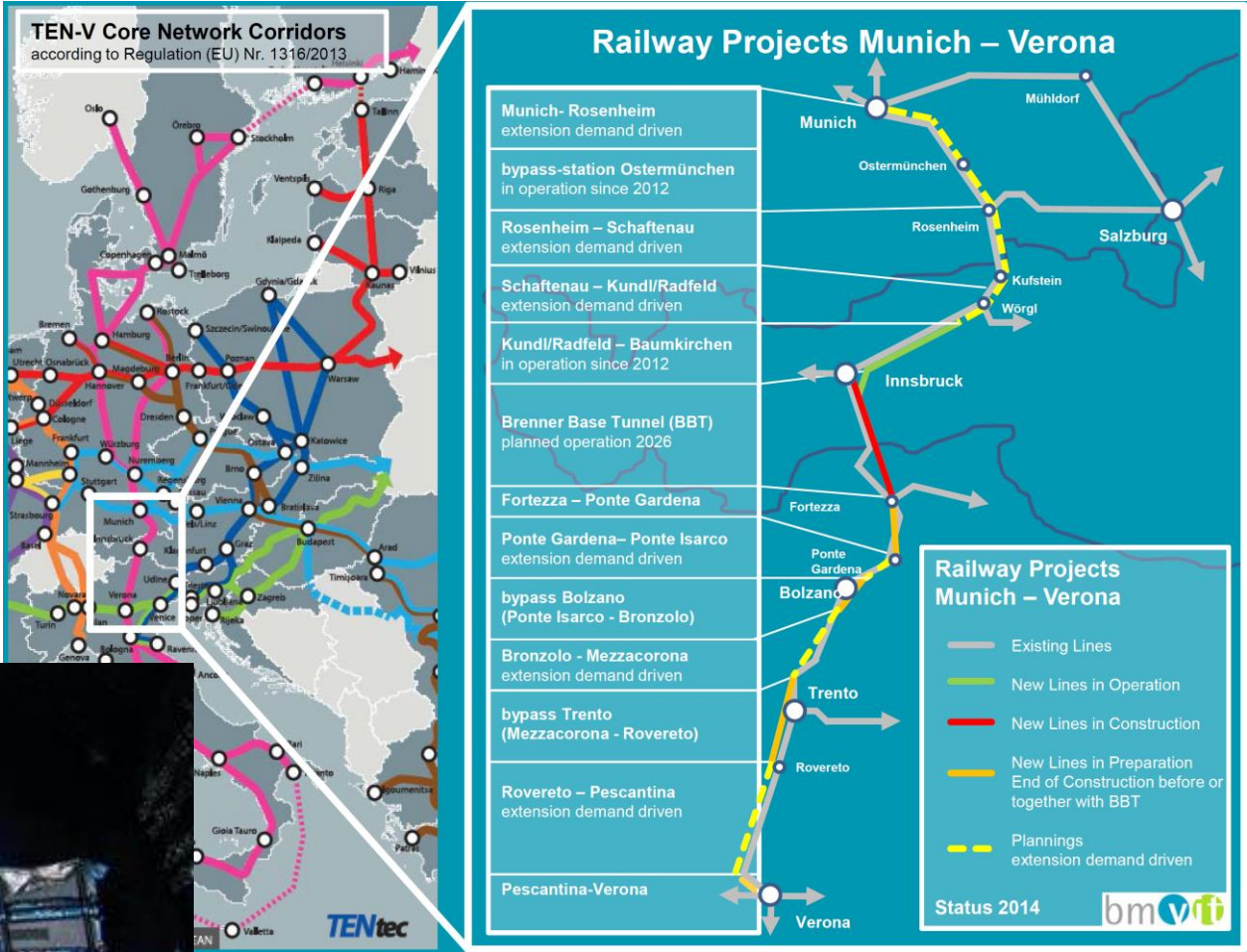
Ciò significa che è necessario da un lato realizzare coerentemente la nuova infrastruttura – il tunnel di base del Brennero e le sue tratte di accesso – e dall'altro mettere in atto politiche complessive in materia di trasporti volte a incrementare massicciamente l'utilizzo della rotaia fino all'entrata in esercizio della nuova infrastruttura, anche con il rafforzamento di misure di accompagnamento coordinate. Ciò

New infrastructure

The new high speed/high capacity Brenner railway line is divided into three sections:

- the Northern access line (Munich-Innsbruck)
- the Brenner Base Tunnel (“BBT”)
- the Southern access line (Fortezza-Verona)

The BBT will connect Innsbruck (Austria) to Franzensfeste/Fortezza (Italy–South Tyrol)



Source: BMVIT, 2014

Nocera and Cavallaro (2014): the tunnel alone is not sufficient for the reduction of road traffic

Source: www.bbt-se.com, 2018

> ARE THE MEASURES LISTED ABOVE ADEQUATE TO REDUCE ROAD FREIGHT TRANSPORT AND ITS NEGATIVE ENVIRONMENTAL AND SOCIAL IMPACTS ALONG THE BRENNER CORRIDOR?



A22 Motorway – road section in South Tyrol

Source:

1) <http://www.altoadige.it>, 2017

2) www.touringclub.it, 2018

3) www.ladige.it, 2019

4) www.lavocedeltrentino.it, 2019

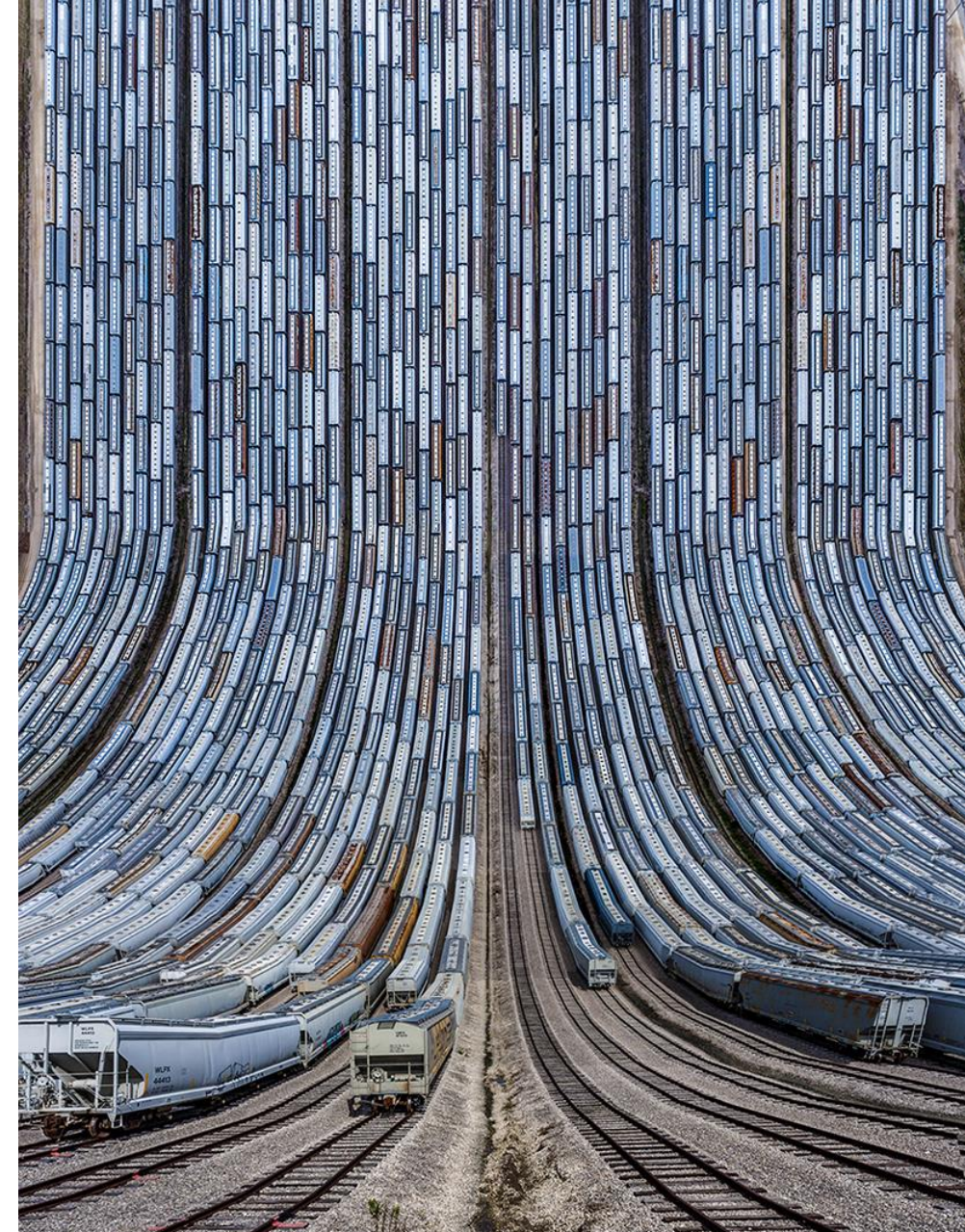
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Source: www.designboom.com, 2019

SMARTLOGI - project



Funding: Italia-Austria

Project duration: 24 months (2018-2019)

General objective: to enhance the operational and institutional cooperation on sustainable multimodal freight transport options, tackling the administrative and technological issues currently hindering additional modal shift from road to rail thus decreasing the impact of freight transport in terms of pollution, GHG emissions and noise

Main goal: to make multimodal transport more competitive and attractive. This will be achieved through a cross-border action plan that will be tested through feasibility studies and joint pilot actions



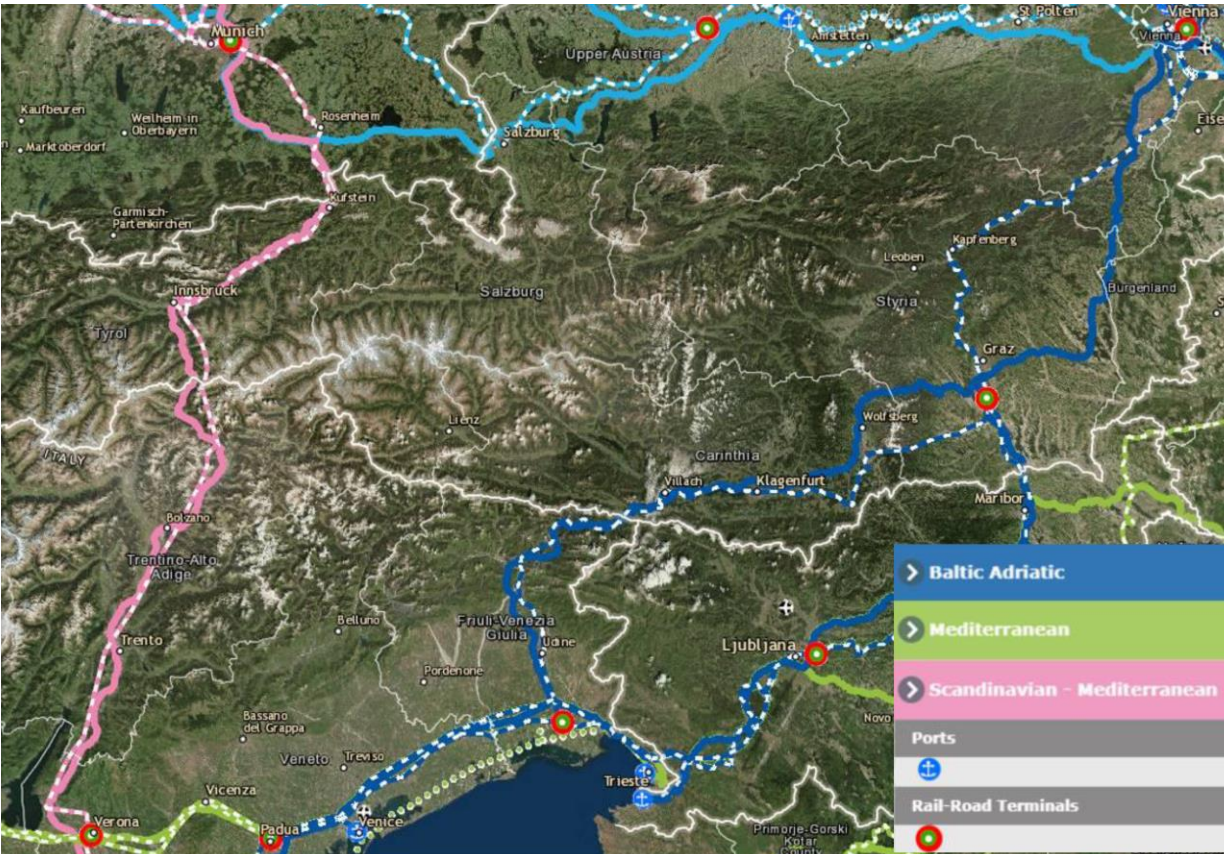
Source: www.alamy.it, 2019



Source: www.freightonrail.org.uk, 2019

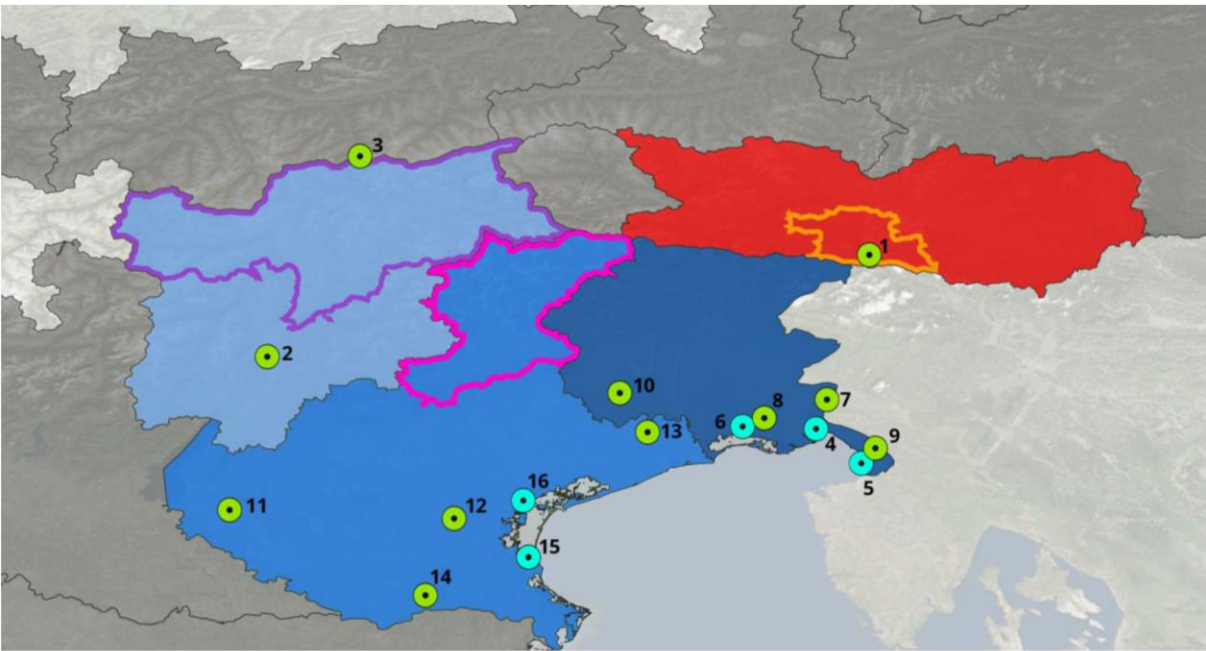
SMARTLOGI - Project Area

TEN-T corridors that cross the project area



Source: <http://ec.europa.eu/transport>, 2019

Intermodal terminals in the project area



N.	Nodi di interscambio	N.	Nodi di interscambio
1	Villaco-Fürnitz	9	Interporto di Trieste
2	Interporto di Trento	10	Interporto-centro ingrosso di Pordenone
3	Terminal ROLA di Brennersee	11	Interporto Quadrante Europa - Verona
4	Porto di Monfalcone	12	Interporto di Padova
5	Porto di Trieste	13	Interporto di Portogruaro
6	Scalo di Porto Nogaro	14	Interporto di Rovigo
7	Autoporto di Gorizia	15	Porto di Chioggia
8	Interporto di Cervignano del Friuli	16	Porto di Venezia

- LCA
- RFVG
- RVE
- RATAA
- VILLACH-LAND
- PBL
- PAB
- CENTRI INTERMODALI
- PORTI

Source: Eurac Research, 2018

CROSS-BORDER ACTION PLAN - SWOT ANALYSIS

Common elements of the project area

- **Infrastructural aspects:** area well crossed by transalpine multimodal corridors and served by ports and intermodal nodes
- **High transport demand:** the Port of Trieste is the first Italian port for maritime and intermodal traffic, the Brenner corridor is the transalpine corridor with the highest amount of goods
- **Reduced accessibility for some territorial areas,** although they are located close to multimodal TEN-T corridors (e.g. province of Belluno)
- **Problems of bottlenecks and last-mile:** the network and the intermodal nodes are not fully integrated and costs to cover the last mile are high
- **Modal split:** high percentage of road freight transport along the Brenner corridor, the Tarvisio corridor and in the province of Belluno
- **Lack of an integrated governance:** problems related to the division of traffic flows or to the decisional processes (e.g. presence of many stakeholders in the Logistik Center Austria Süd)
- Adoption of **different measures in favour of intermodal transport, but poorly integrated**
- **ICT solutions:** underdevelopment of innovative transport technologies (with some exceptions, such as the Port of Trieste and the Sinfomar platform)

Port of Trieste



Logistic network – Veneto region



Intermodal terminal of Trento



Intermodal terminal of Villach Fûrnitz



CROSS-BORDER ACTION PLAN - TOWS MATRIX

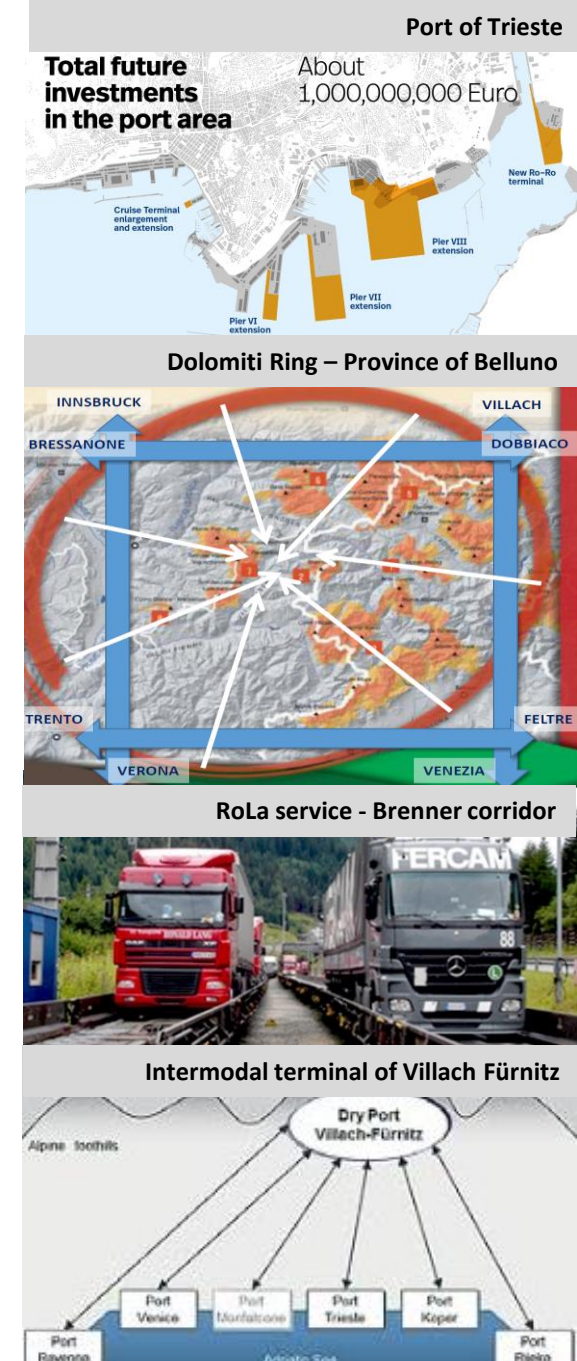
Elements that may have a high impact on the future of the project area

MAIN COMMON MEASURES:

- Reduction of bottlenecks, costs and travel time on rail in order to improve the competitiveness of combined transport (currently disadvantaged if compared to road transport)
- Identification of appropriate calls for proposals and form of financing (both at the political and private levels)
- Sharing and communication of information and strategies
- Key roles of operators to optimize the processes and to increase the infrastructural capacity

MAIN SPECIFIC MEASURES:

- Improvement of the existing rail service to overcome accessibility constraints (Province of Belluno)
- Simplification of administrative procedures (Friuli-Venezia Giulia Region and Land Kaernten)
- Identification and implementation of concrete measures that support multimodal transport and reduce the road component (Autonomous province of Bolzano/Bozen)



FEASIBILITY STUDIES AND PILOT ACTIONS - SMARTLOGI project

Pilot actions n.1-2 Port of Trieste – Terminal Villach- Fürnitz

- ✓ Development of a **fast logistics corridor** for rail freight transport **between Austria** (terminals of Villach Süd - Fürnitz) **and Italy** (Port of Trieste)
- ✓ Implementation of **ICT tools** (e.g. PSC- Sinfomar platform) and development of new solutions



Key elements for the development of a **cross-border customs corridor**

Feasibility study for improving multimodal freight transport in the Veneto Region

- ✓ Improvement of multimodal freight transport in the Veneto Region, focusing on the **Province of Belluno**
- ✓ **Strengthening the rail infrastructure system and missing links** in the provincial territory



Key elements for the development of regional transport strategy: the **Dolomites Ring Project**

Feasibility study for improving multimodal freight transport on the Brenner corridor

- ✓ Analysis of the potentialities of **measures to improve CT** in Bolzano and Trento
- ✓ **Analysis of freight transport demand in South Tyrol**, pointing out the companies in favour of a **new intermodal terminal** located in the provincial territory
- ✓ In-depth analysis of **ICT tools** adopted in the context



Key elements for the improvement of **multimodal transport along the Brenner corridor**

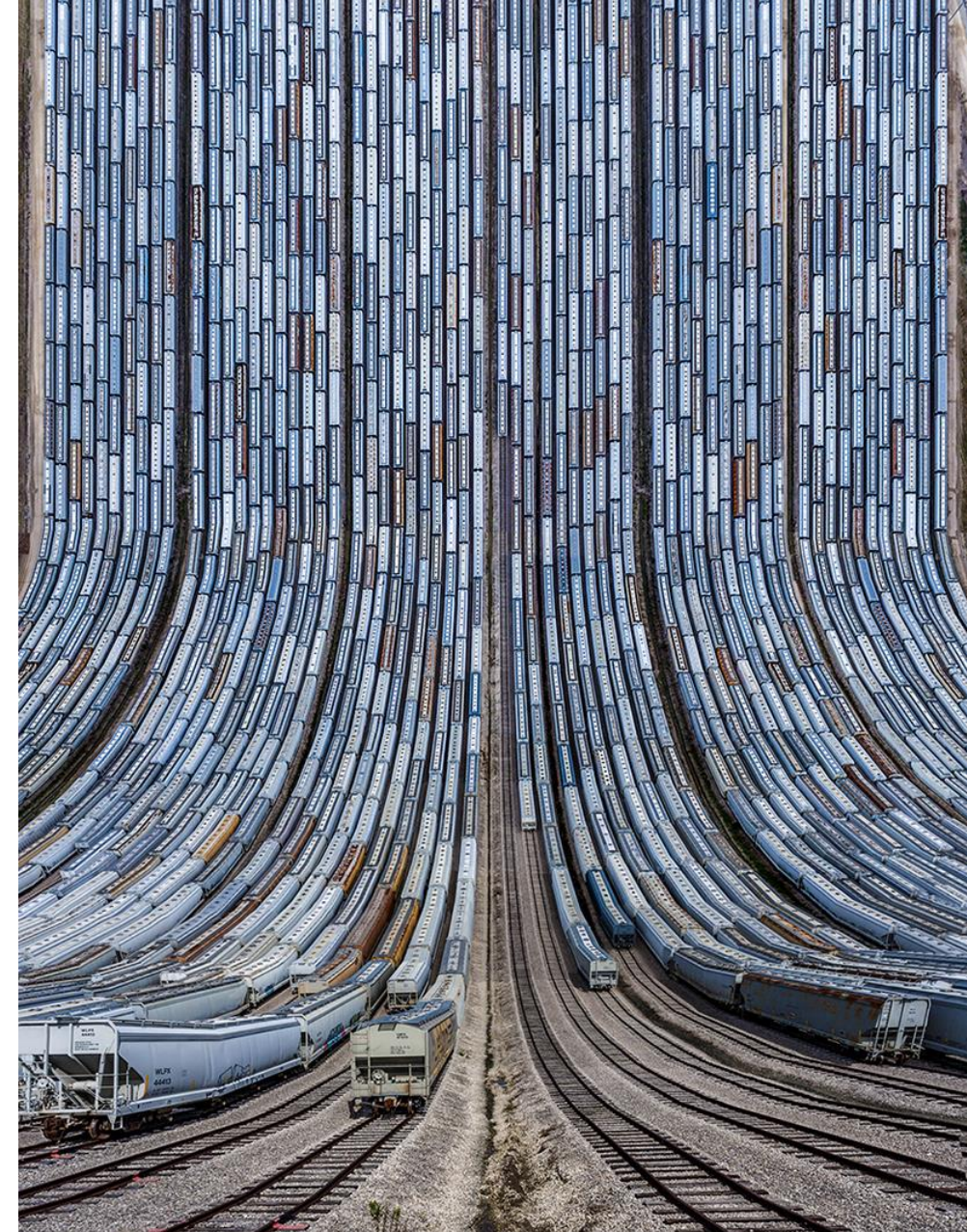
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Source: www.designboom.com, 2019

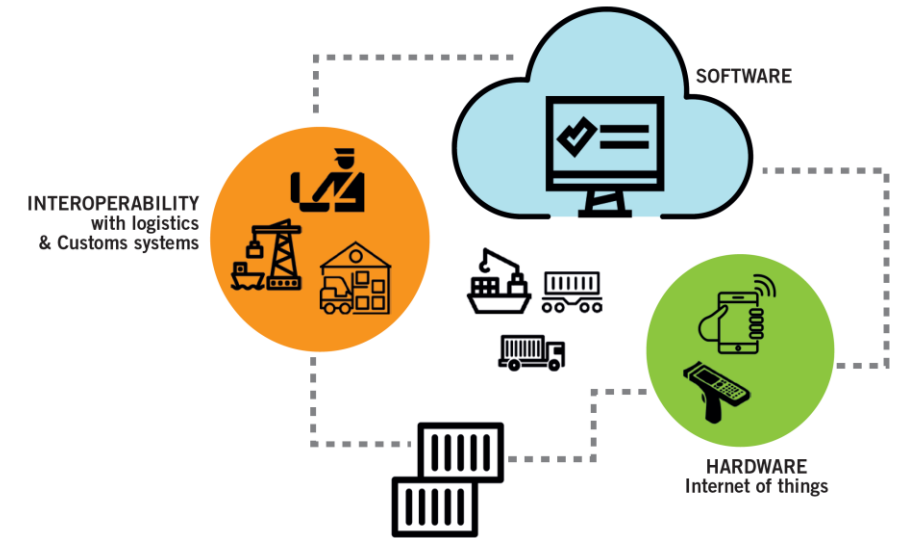
Feasibility study for improving multimodal freight transport along the Brenner corridor

A. STARTING POINT

- maritime and hinterland terminals enable the transshipment of load units between various transport modes and **play a significant role in intermodal freight transport**
- **information and communication technologies** make transport services more attractive and viable



Interbrennero SpA
Source: www.interbrennero.it, 2019



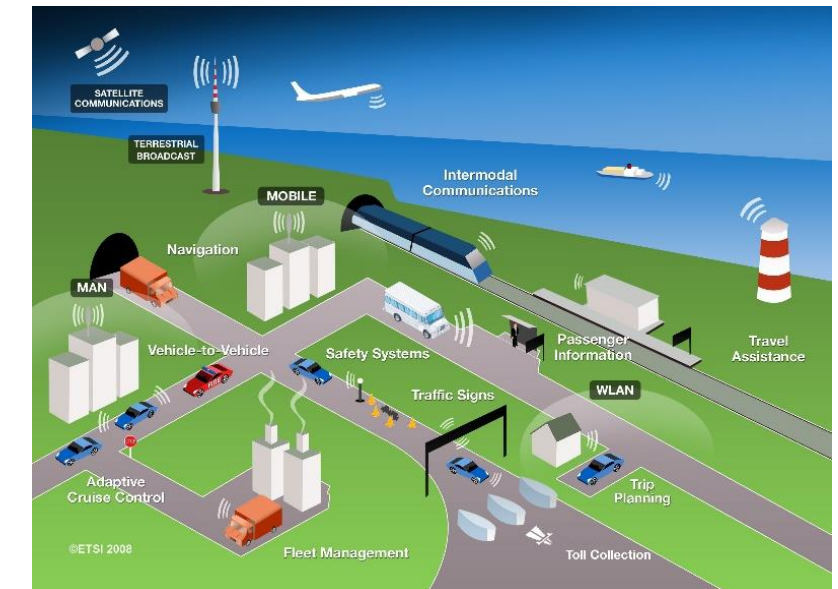
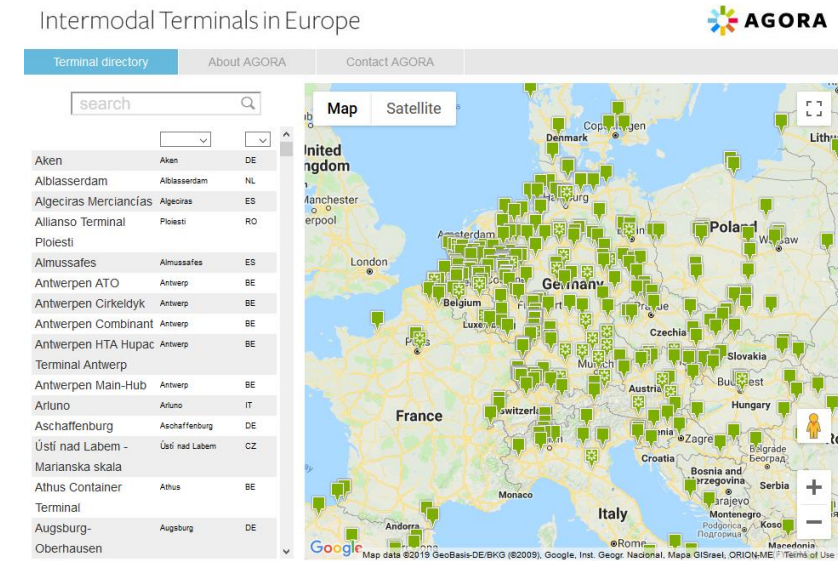
HUPAC Group
Source: <http://www.hupac.ch/>, 2018

B. RESEARCH QUESTION

➤ Can a new intermodal terminal in South Tyrol increase the competitiveness of freight transport by rail along the Brenner corridor?

❑ If yes, which is its best location at the Provincial level?

❑ If no, which measures can be a valid alternative to encourage the use of existing terminals?



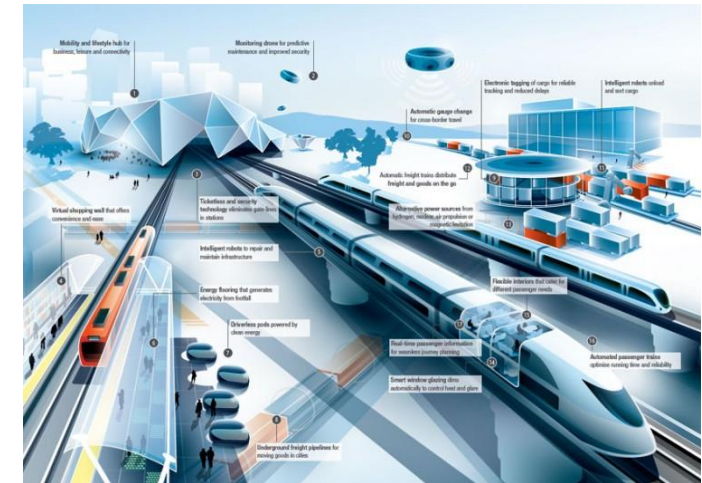
C. METHOD ADOPTED FOR THE DEVELOPMENT OF THE FEASIBILITY STUDY

DATA COLLECTION_1

- a **structured questionnaire** has been prepared, together with the participation of relevant local actors:
 - the freight department of the Autonomous Province of Bolzano – South Tyrol
 - the Chamber of Commerce of Bolzano
 - a group of interest in favour of the terminal that is active in South Tyrol and is composed by local Firms and freight forwarders
 - Interbrennero S.p.a.
- data collected will be the **basis for a technical feasibility study**



The stakeholders theory
Source: <https://economia.tesionline.it>, 2019




Future of Rail 2015 - Infographic
Source: <https://www.driversofchange.com>, 2019

C. METHOD ADOPTED FOR THE DEVELOPMENT OF THE FEASIBILITY STUDY

DATA COLLECTION_2

- The questionnaire asks information about:
 - ☐ transport demand - goods imported and exported - seasonality
 - ☐ transport modes adopted and the opinion about the current transport alternatives
 - ☐ effects of policies and measures already implemented along the corridor
- Currently, these information are not available at such a disaggregated level

Interreg
Italia-Österreich
SMARTLOGI
European Regional Development Fund


EUROPEAN UNION

EURAC Research

DOMANDA DI TRASPORTO

13. Effettua attività di:

1 Approvvigionamento

2 Spedizione

3 Entrambi

14. È a conoscenza della modalità di gestione del trasporto della merce IN ENTRATA e/o IN USCITA legato alla sua attività?

1 NO

2 SI

SEZIONE DEDICATA ALL' APPROVVIGIONAMENTO/ARRIVO DELLA MERCE

15. **MERCEOLOGIA**; quale è la classificazione della merce che **RICEVE**? (specificare la tipologia di merce movimentata identificando il codice NST 2007² e la relativa descrizione).

MERCEOLOGIA	
Codice NST 2007	Descrizione

16. Principalmente, quale/i MODALITÀ DI TRASPORTO utilizza la sua attività per il trasporto della merce IN ENTRATA?

1 via strada

2 via ferrovia + strada

3 via mare + strada

4 via mare + ferrovia + strada

5 altro (specificare) _____

17. Perché predilige la/le modalità di trasporto sopra indicata/e?

18. Come RICEVE la merce presso la sua attività? (in % di volume rispetto al totale della merce ricevuta).

1 Autoapprovvigionamento (conto proprio)

2 Conto terzi

_____ %

_____ %

TOTALE

100 %

Extract from the questionnaire
Source: Eurac research, 2019

eurac research

Rome - 22/03/19

Loading stations along main transalpine axes: an opportunity for transalpine rail transport?

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C. METHOD ADOPTED FOR THE DEVELOPMENT OF THE FEASIBILITY STUDY

DATA COLLECTION_3

- the questionnaire will be filled by **selected local Firms in favour of the intermodal terminal**, in order to understand if:
 - a) current demand is sufficient to justify the investment
 - b) the location of such Firms allows identifying an ideal location
- the involvement in the process of the Association in favour of the terminal guarantees a representative sample in quantitative terms
- in qualitative terms, **Firms import and export different types of goods** (e.g. materials derived from agricultural products, plastics and composite materials, buildings materials)



Local Firms located in South Tyrol (the images are purely for information)

Source: www.rieper.com, 2019

www.gknpm.com, 2019

www.loacker.com, 2019

www.stahlbaupichler.com, 2019

C. METHOD ADOPTED FOR THE DEVELOPMENT OF THE FEASIBILITY STUDY

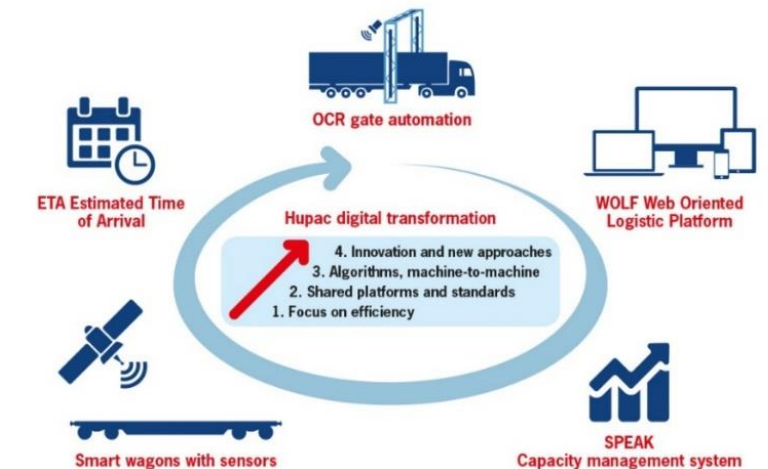
DATA ANALYSIS

- questionnaires will be used as primary source to understand the **quantity of goods that can be shifted from road to rail**
- data are the basis for the definition of **future scenarios** that should evaluate the appropriateness of a new intermodal terminal
- on the basis of these scenarios, the **best location** or the **identification of alternative solutions** to existing intermodal terminals will be defined



New terminal in South Tyrol?
Source: Eurac Research, 2019

Digital transformation – projects



HUPAC Group
Source: <http://www.hupac.ch/>, 2018

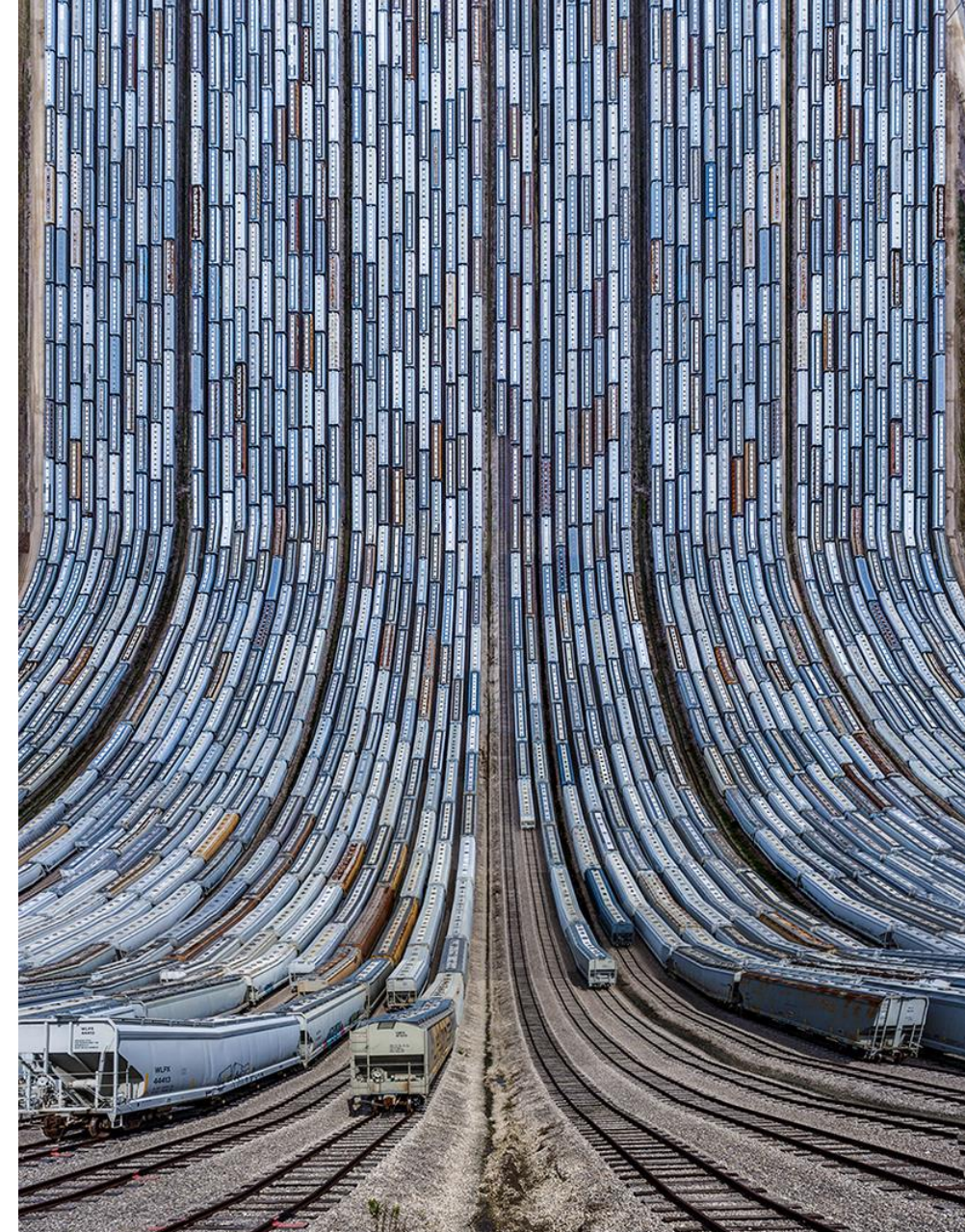
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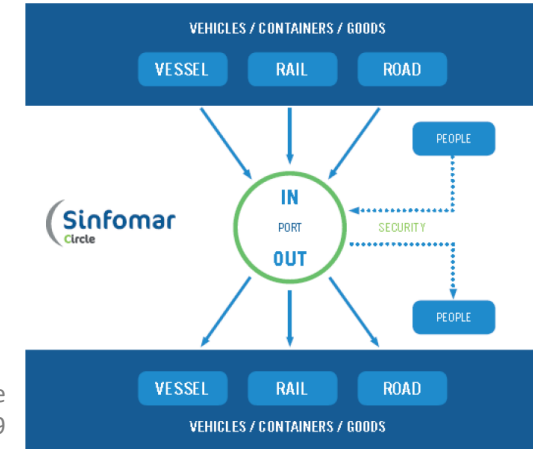


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Source: www.designboom.com, 2019

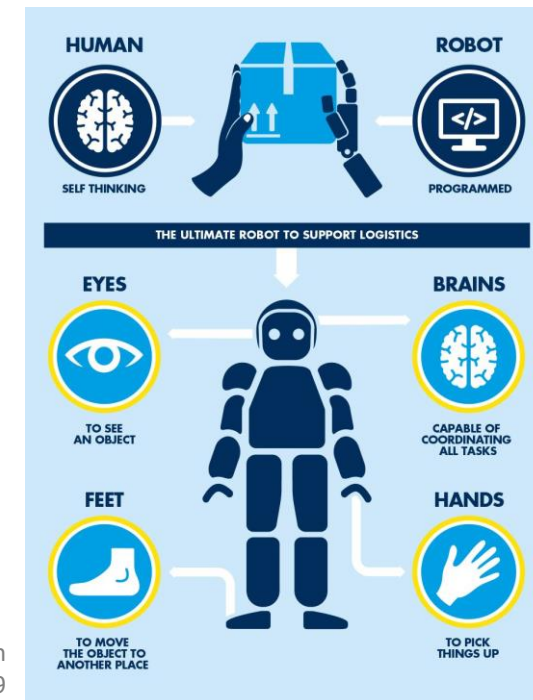
D. RESULTS

The study aims to give a more comprehensive vision about:

- the role of **punctual infrastructures** for a better balance of freight transport at transnational level not only in main urban areas, but also in areas characterized by a lower demand to improve the modal split from road to rail
- the identification of **potential alternatives to the infrastructural development** (if results of the questionnaire reveals a transport demand insufficient to justify the necessity of an intermodal terminal)
- the role of **innovative technologies and digitalization** in order to improve reliability and quality of CT and rail services, with a focus on intermodal terminals



The Sinfomar Platform, Port of Trieste
Source: www.sinfomar.it, 2019



Port of Rotterdam
Source: www.portofrotterdam.com, 2019

E. DISSEMINATION

The results:

- are used by the Autonomous Province of Bolzano and by GECT in order to have a more accurate view about the mechanisms that regulate the **South Tyrolean** transport demand and the transport choices made by local Firms
- can be used for a selection of **adequate strategies** for limiting the road transport along the **Brenner highway**



Brenner Corridor

Source: www.ilsole24ore.com , 2019



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MOBILITÀ NELL'EUREGIO

Una **moderna cultura della mobilità** si basa su una rete di trasporti pubblici ben funzionante, infrastrutture efficienti per la circolazione di persone e merci e un lavoro di informazione e sensibilizzazione mirata (ad esempio, Giornata della mobilità dell'Euregio, divieti di circolazione). L'obiettivo è quello di portare gli utenti della strada (privati, turisti e imprenditori) alla loro destinazione nella Regione europea, ben informati, sicuri e nel modo migliore in termini di una cultura del trasporto sostenibile. Un gruppo di lavoro transnazionale ha quindi raccolto **consigli utili, link e punti di contatto** importanti per gli utenti della strada e li ha messi a disposizione qui in forma aggregata.

Tuttavia, l'EuregioTirolo-Alto Adige-Trentino vede anche il suo compito nel promuovere la cooperazione e il trasferimento di know-how in materia di mobilità in modo ancora più forte e nel dimostrare soluzioni congeniali per la **mobilità sostenibile**, nota anche come mobilità verde. Un approccio transfrontaliero promette indubbiamente un maggiore successo in questo campo - e l'Euregio vuole sfruttare questo vantaggio.

Mobility - Euregio

Source: www.europaregion.info, 2019

Thanks for your attention!

Eurac Research
Federico Cavallaro
Institute for Regional Development
Viale Druso 1, I-39100 Bolzano, Italy
federico.cavallaro@eurac.edu,
+39 0471 055 355
www.eurac.edu

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Drone with cargo container
Source: <https://it.freepik.com>, 2019