Annual Report 2019

Strengthening the partnership for the Alpine transport strategy

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iMONITRAF! Annual Report 2019
Strengthening the partnership for the Alpine transport strategy

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CONTENT

The iMONITRAF! year 2019 at a glance

iMONITRAF! 2019 – strengthening the partnership

Overall traffic volumes keep on rising on the main transalpine corridors and the Alpine regions face a growing need to implement coordinated policy measures to set effective incentives for modal shift. 2019 has shown that regulatory approaches, even if they are adjusted dynamically, are not sufficient to limit transport volumes on road as their effect is overcompensated by the increase in transport demand. The role of ambitious road pricing measures like Toll Plus to implement the polluter pays principle is recognized by all regions as potential instrument to improve modal shift but joint efforts are needed to extend the implementation of this instrument and to shape the relevant European Framework for more flexibility. To join forces on an effective networking for Toll Plus, Région Sud Provence-Alpes-Côte-d'Azur became a new partner to iMONITRAF! in 2019 to strengthen its regional objective to implement a more ambitious charging scheme for heavy goods vehicles.

The network of iMONITRAF!, which was initially founded in 2005, is now enlarged to the Ventimiglia corridor, bringing some new dynamics but also new topics and insights into its activities. In addition, Bavaria became a new observer to iMONITRAF! in 2019, thus extending the perimeter of the Brenner corridor towards the German section.

Objectives 2019 – Balancing the enlarged partnership and sharing know-how

With the enlarged partnership, one main activity for 2019 was the cross-check of iMONITRAF!'s main objectives and policy proposals for the enlarged cooperation perimeter. The existing analysis on Toll Plus was extended to the Ventimiglia corridor to offer decision makers in the new partner region a basis for political discussion on this core element of iMONITRAF!. Also, the monitoring indicators were added for Ventimiglia as well as for the German stretch of the Brenner corridor in Bavaria.

Regarding Toll Plus and other common measures included in the transport strategy of 2012, iMONITRAF! pursued the goal to further strengthen its alliances and to share its know-how on the mechanisms and impacts of relevant measures. In 2019, iMONITRAF! has further cooperated with Action Group 4 Mobility of the macroregional strategy EUSALP to share insights on Toll Plus and has intensively worked with project partners of the AlpInnoCT project to develop their political action sheets. Also, it was ensured that iMONITRAF! objectives are considered in the new Alpine Climate Target System 2050, which was agreed by the Alpine Conference in April 2019.

Toll Plus remains the "hot topic" for iMONITRAF!

Toll Plus is, at the current stage, the central instrument for achieving iMONITRAF!'s objective of reducing environmental burdens of transalpine transport. Over the last years, iMONITRAF! lobbied successfully for its core elements to be integrated in the revision process of the Eurovignette Directive as relevant European framework. Four out of five specific elements of the initial iMONITRAF! resolution on Toll Plus (2016) are reflected in the current status of the revision document (amendments of the European Parliament, status as of Oct 2018). Unfortunately, the process at EU level remained pretty much on "stand-by" in 2019 with EU elections in the first half of the year. At the end of 2019, the European Council discussed the dossier in its meeting of transport ministers but did not come to an agreement. As the dossier is specifically mentioned in the European Green Deal roadmap (see EU information below), there will however be considerable pressure to move forward with this dossier in 2020. Thus, again, iMONITRAF! will have the chance to lobby for its proposals via responsible MEPs and the European Commission.

Monitoring update for the year 2018

About 24,000 heavy vehicles per day (HV/day) crossed the iMONITRAF! corridors in 2018. This is an increase of 4% or 900 additional HV/day compared to 2017. In the previous year the increase was even higher (6%). Half of these vehicles passed the corridors of Brenner, 7,200 HV/day, and Ventimiglia, 5,800 HV/day. The other half crossed the corridors Tarvisio, Gotthard, Fréjus, Mont Blanc and San Bernardino. The total of light vehicles per day (LV/day) on the same corridors in 2018 decreased by 1.2% compared to 2017, the number in 2018 was about 83,000 LV/day. Again, Brenner is the corridor with the highest number of passages, about 25,100 LV/day. The transported goods over the iMONITRAF! corridors sum up to a total of 161 million tons in 2018 with a share of 67% on the road an 33% on the rail. The goods in 2018 increased on the road with 4%, whereas the rail lost 2% compared to 2017. The Swiss corridors Simplon and Gotthard have the highest share of rail, 92% and 65%; the shares are lower on Tauern 35%, Brenner 27%, Fréjus/Mt. Cenis 18%, Ventimiglia 4%.

The annual air pollutant concentrations of NO_2 show a general decreasing trend since 2005. For PM_{10} there is a similar trend between 2005 and 2014, but since then, the concentration seem to increase slightly. Peaks in some years for PM_{10} and NO_2 may be caused by extremely hot weather periods in the Alps during summer months. The general decreasing trend is the result of reducing emission factors of road vehicles. It is more clearly visible for NO_2 because its share of traffic-emissions is higher than for PM_{10}. Noise levels are not measured at all corridors, but where results are available, they remain in 2018 on high levels between 70 and 80 dB in the daily average (L_{den}) and about 7 dB lower during night hours (L_{night}). Toll prices hardly changed compared to the previous year; for Euro 2 class HV they show a slight increase between 1 and 5 Eurocents per vehicle-km. The average fuel price in 2019 was € 1.35 for diesel and € 1.44 for petrol (average Austria, Italy and France). The prices were 2 to 3 Eurocents lower than in the previous year.

Best Practices 2019 – dynamic adjustment of policy mix and new approaches

In 2019, iMONITRAF! regions were still under high pressure to improve environmental quality along the major transit corridors. Two main clusters of activity can be summarized for 2019. On the one hand, regulatory measures were further tightened in the regions, especially in Tyrol which now has a very ambitious set of driving bans in place for the Brenner motorway. In addition, new driving bans on the secondary road network were implemented in Tyrol, too, to avoid traffic spill-overs in times of acute congestion on the motorway. As second cluster, services and incentives for combined transport (CT) operations were adjusted in several iMONITRAF! regions – with an increase/extension of subsidies for CT operations (South Tyrol, Trento), an improvement in the provision of CT services (Switzerland national level, Tyrol) and an extension of subsidies to CT infrastructures (Région Sud PACA). With respect to passenger transport, many regions reported a strong focus on the decarbonisation of cars but also public transport operations, with support systems to buy low-emission vehicles and with pilot projects to test the feasibility of electric and hydrogen buses in urban and regional traffic as well as hydrogen trains.

The EU transport policy framework – Green Deal sets new dynamics

Many iMONITRAF! activities are shaped by the European framework and the windows-of-opportunity provided by the discussions at EU level. With the European elections, the first half year of 2019 did not see much progress in the relevant discussions but in the second half year, several initiatives of the Mobility Packages I, II and III with relevance for iMONITRAF! were further specified. Consensus was found between the Commission and the Parliament on several open

questions in the revision of the Combined Transport Directive, especially the definition of combined transport operations to set effective but flexible incentives for modal shift. As highly interesting dossier for iMONITRAF!, the revision of the Eurovignette however was not advanced in 2019. In December, a general approach for an agreement in the Council was attempted, but the Council could not reach an agreement. The next multiannual financial framework for the EU (2021-2027) is still under discussion and will probably undergo some major changes again in 2020 as the European Commission presented its European Green Deal proposal at the end of 2019 and a related Investment Plan with a level of 1 trillion[1] Euro (!) dedicated for the transition of Europe to become the first climate-neutral continent by 2050.

Outlook: 2020 as milestone for continuing the cooperation

Again, 2019 highlighted the value added of the iMONITRAF! cooperation and the extension of the new partnership gave a new impetus to the network. But also, partner regions discussed the success factors of the cooperation and its delimitation in comparison to other networks and projects. These discussions showed that iMONITRAF! has some clear strengths which it should continue to focus on. Especially, its effective cooperation structure "small but powerful" enables iMONITRAF! to manage the interaction of technical and political levels and to identify windows-of-opportunities "at the edge" of new developments and to get involved in a quick and uncomplicated manner.

During their discussions, iMONITRAF! partners identified the need for updating the iMONITRAF! policy scenarios and extending them from the time horizon 2020 to 2030 – reflecting also new insights on technological change. These scenarios shall demonstrate the increasing need for action and shall be used as input for the next political roundtable foreseen for June 2020. This meeting aims to highlight the future role of the network and to identify key issues for the coming years.

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[1] "Short scale" trillion equals 1 million million (1,000,000,000,000)

iMONITRAF! Aktivitäten im Jahr 2019 – Das Wichtigste in Kürze

iMONITRAF! 2019 – Neue Dynamik für das Netzwerk

Das Gesamtverkehrsaufkommen auf den wichtigsten transalpinen Korridoren steigt weiter an und die Alpenregionen haben erkannt, dass sie nur mit einer verbesserten Koordination ihrer politischen Maßnahmen wirksame Anreize für die Verlagerung auf die Schiene schaffen können. Das Jahr 2019 hat gezeigt, dass ordnungspolitische Ansätze - auch wenn sie dynamisch angepasst werden - nicht ausreichen, um das Verkehrsaufkommen auf der Straße zu begrenzen. Ihre Wirkung wird durch die steigende Verkehrsnachfrage überkompensiert. Ambitionierte Road-Pricing-Maßnahmen wie Toll Plus zur Umsetzung des Verursacherprinzips werden daher von den iMONITRAF! Regionen als potentielles Instrument zur Verbesserung der Verkehrsverlagerung unterstützt, aber es sind gemeinsame Anstrengungen zur Verbesserung der Umsetzung sowie zur Optimierung der europäischen Vorgaben erforderlich. Um die Kräfte für eine effektive Vernetzung von Toll Plus zu bündeln, trat die französische Region Sud Provence-Alpes-Côte-d'Azur im Jahr 2019 dem iMONITRAF! Netzwerk als Partner bei – mit dem Ziel, ein ehrgeizigeres Gebührenmodell für schwere Nutzfahrzeuge umzusetzen.

Das iMONITRAF! Netzwerk, das ursprünglich 2005 gegründet wurde, wird somit auf den Korridor Ventimiglia ausgeweitet. Dies bringt eine neue Dynamik, aber auch neue Themen und Erkenntnisse in die gemeinsamen Aktivitäten ein. Darüber hinaus wurde Bayern 2019 neuer Beobachter von iMONITRAF! und erweitert damit den Perimeter des Brennerkorridors auf den deutschen Abschnitt.

Zielsetzung 2019 – Balance finden für das erweiterte Netzwerk und Know-how Transfer

Als wichtigste Aktivität für das Jahr 2019 wurde ein Quercheck der Stoßrichtungen und politischen Vorschläge für das erweiterte Partnership umgesetzt. Die bestehende Analyse zu Toll Plus wurde auf den Ventimiglia-Korridor ausgeweitet, um Entscheidungsträgern in der neuen Partnerregion eine Grundlage für die politische Diskussion über dieses Kernelement von iMONITRAF! zu bieten. Außerdem wurden die Monitoringindikatoren für Ventimiglia sowie für den deutschen Abschnitt des Brennerkorridors in Bayern ergänzt.

Im Hinblick auf Toll Plus und andere gemeinsame Maßnahmen, die in der Verkehrsstrategie 2012 enthalten sind, verfolgte iMONITRAF! das Ziel, seine Allianzen weiter zu stärken und sein Know-how über die Mechanismen und Auswirkungen der entsprechenden Maßnahmen mit anderen Akteuren zu teilen. Im Jahr 2019 hat iMONITRAF! weiter mit der AG4 4 Mobilität der makroregionalen Strategie EUSALP zusammengearbeitet, um Erkenntnisse über Toll Plus auszutauschen. Zudem hat iMONITRAF! intensiv mit den Projektpartnern des AlpInnoCT-Projekts zusammengearbeitet, um deren politische Empfehlungen zu entwickeln. Außerdem wurde sichergestellt, dass die Ziele von iMONITRAF! im neuen Alpinen Klimazielsystem 2050, das von der Alpenkonferenz im April 2019 vereinbart wurde, berücksichtigt werden.

Toll Plus bleibt das "heiße Thema" für iMONITRAF!

Toll Plus ist derzeit das zentrale Instrument um das iMONITRAF! Ziel einer deutlichen Reduktion der Umweltbelastung des alpenquerenden Güterverkehrs zu erreichen. In den letzten Jahren hat sich das Netzwerk erfolgreich dafür eingesetzt, dass die von iMONITRAF! entwickelten Kernelemente in den Revisionsprozess der Wegekosten-Richtline (Eurovignette) als relevanter europäischer Rahmen integriert werden. Vier von fünf spezifischen Elementen der ursprünglichen iMONITRAF! Resolution zu Toll Plus (2016) spiegeln sich im aktuellen Stand des Dokuments wieder

(Änderungen des Europäischen Parlaments, Stand Oktober 2018). Leider blieb der Prozess auf EU-Ebene im Jahr 2019 mit den EU-Wahlen in der ersten Hälfte des Jahres ziemlich auf "Stand-by". Ende 2019 erörterte der Europäische Rat das Dossier, kam aber nicht zu einer Einigung. Da das Dossier im Action Plan für den Europäischen „Green Deal" ausdrücklich erwähnt wird (siehe EU-Informationen weiter unten), wird es erheblichen Druck geben dieses Dossier 2020 voranzu-bringen. Somit wird iMONITRAF! erneut die Möglichkeit haben, über die verantwortlichen EU Abgeordneten und die Europäische Kommission für seine Vorschläge zu lobbyieren.

Monitoring Update für das Jahr 2018

Im Jahr 2018 überquerten etwa 24 000 schwere Güterfahrzeuge pro Tag (SGF/Tag) die iMO-NITRAF! Korridore. Dies entspricht einer Zunahme von 4% oder 900 zusätzlichen SGF/Tag im Vergleich zu 2017. Im Vorjahr war der Anstieg sogar noch höher (6%). Die Hälfte dieser Fahr-zeuge passierte die Korridore Brenner (7 200 SGF/Tag) und Ventimiglia (5 800 SGF/Tag). Die andere Hälfte überquerte die Korridore Tarvisio, Gotthard, Fréjus, Mont Blanc und San Bernar-dino. Die Gesamtzahl der leichten Fahrzeuge pro Tag auf denselben Korridoren ging 2018 im Vergleich zu 2017 um 1.2% zurück, 2018 lag die Zahl bei täglich etwa 83 000 Fahrzeugen. Auch hier ist der Brenner der Korridor mit dem höchsten täglichen Verkehrsaufkommen, etwa 25 100 Fahrzeuge pro Tag. Die über die iMONITRAF!-Korridore transportierten Güter belaufen sich im Jahr 2018 auf insgesamt 161 Millionen Tonnen, wobei der Anteil der Straße 67% und der Schiene 33% beträgt. Das Gütervolumen ist im Jahr 2018 auf der Straße um 4% gestiegen, während die Schiene im Vergleich zu 2017 2% verloren hat. Die Schweizer Korridore Simplon und Gotthard haben mit 92% und 65% den höchsten Schienenanteil; die Anteile sind auf den Tauern 35%, dem Brenner 27%, Fréjus/Mt. Cenis 18%, Ventimiglia 4% geringer.

Die jährlichen Luftschadstoffkonzentrationen von NO_2 zeigen seit 2005 eine allgemein abneh-mende Tendenz. Für PM_{10} gibt es einen ähnlichen Trend zwischen 2005 und 2014, aber seitdem scheint die Konzentration leicht anzusteigen. Spitzenwerte in einigen Jahren für PM_{10} und NO_2 können durch extrem heiße Wetterperioden in den Alpen während der Sommermonate verur-sacht werden. Der allgemeine rückläufige Trend ist das Ergebnis der Verringerung der Emissi-onsfaktoren von Straßenfahrzeugen. Er ist bei NO_2 deutlicher sichtbar, weil dessen Anteil an den Verkehrsemissionen höher ist als bei PM_{10}. Lärmpegel werden nicht an allen Korridoren gemes-sen, aber wenn Ergebnisse vorliegen, bleiben sie 2018 auf hohem Niveau zwischen 70 und 80 dB im Tagesdurchschnitt (Lden) und etwa 7 dB niedriger während der Nachtstunden (Lnight). Die Mautpreise haben sich im Vergleich zum Vorjahr kaum verändert; für die Euro-2-Klasse HGV zeigen sie eine leichte Erhöhung zwischen 1 und 5 Eurocents pro Fahrzeugkilometer. Der durch-schnittliche Kraftstoffpreis lag 2019 bei 1,35 Euro für Diesel und 1,44 Euro für Benzin (Durch-schnitt Österreich, Italien und Frankreich). Die Preise lagen um 2 bis 3 Eurocents niedriger als im Vorjahr.

Best Practices 2019 - dynamische Anpassung des Policy-Mix und neue Ansätze

Auch im Jahr 2019 standen die iMONITRAF!-Regionen immer noch unter hohem Druck die Um-weltqualität entlang der wichtigenTransitkorridore zu verbessern. Für 2019 lassen sich zwei Hauptaktivitätsschwerpunkte zusammenfassen. Einerseits wurden die regulatorischen Maßnah-men in den Regionen weiter verschärft, insbesondere in Tirol, das nun über ein sehr ehrgeiziges Paket an Fahrverbot für die Brennerautobahn verfügt. Zum anderen wurden auch in Tirol neue Fahrverbote auf dem sekundären Straßennetz eingeführt, um in Zeiten akuten Staus auf der Au-tobahn einen Ausweichverkehr auf das nachgeordnete Straßennetz zu vermeiden. Als zweites Cluster wurde in mehreren iMONITRAF!-Regionen das Angebot und die Anreize für den

kombinierten Verkehr (KV) angepasst - mit einer Erhöhung/Ausweitung der Subventionen für den KV (Südtirol, Trient), einer Verbesserung des Angebots an KV-Dienstleistungen (Schweiz national, Tirol) und einer Ausweitung der Subventionen für die KV-Infrastrukturen (Région Sud PACA). Im Personenverkehr berichteten viele Regionen über einen Schwerpunkt bei der Dekarbonisierung von Personenfahrzeuge. Zudem wurden neue Projekte zur Verbesserung des Angebots im öffentlichen Verkehr vorgestellt sowie Förderprogramme zur Anschaffung emissionsarmer Fahrzeuge und Pilotprojekten zur Erprobung der Machbarkeit von Elektro- und Wasserstoffbussen im Stadt- und Regionalverkehr sowie von Wasserstoffzügen.

Der verkehrspolitische Rahmen der EU - Green Deal setzt neue Dynamik

Viele Aktivitäten von iMONITRAF! werden durch den europäischen Rahmen und die Möglichkeiten, die sich aus den Diskussionen auf EU-Ebene ergeben, geprägt. Im ersten Halbjahr 2019 gab es aufgrund der Europawahlen keine großen Fortschritte in den relevanten Dossiers, aber im zweiten Halbjahr wurden mehrere für iMONITRAF! relevante Initiativen der Mobilitätspakete I, II und III weiter konkretisiert. Zwischen EU Kommission und Parlament wurde ein Konsens über mehrere offene Fragen bei der Überarbeitung der Richtlinie zur Förderung des kombinierten Verkehrs gefunden, insbesondere über die Definition des kombinierten Verkehrs.. Als spannendstes Dossier für iMONITRAF! wurde die Revision der Eurovignette im Jahr 2019 jedoch nicht vorangetrieben. Im Dezember wurde versucht, eine allgemeine Ausrichtung („general approach") im Rat zu finden, aber der Rat konnte keine Einigung erzielen. Der nächste mehrjährige Finanzrahmen für die EU (2021-2027) wird noch diskutiert und wird wahrscheinlich im Jahr 2020 erneut einige größere Änderungen erfahren, da die Europäische Kommission Ende 2019 ihren Vorschlag für einen europäischen Green Deal und einen damit verbundenen Investitionsplan mit einem Niveau von 1 Billion Euro (!) vorgelegt hat, der für die Transformation Europas zum ersten klimaneutralen Kontinent bis 2050 bestimmt ist.

Ausblick: 2020 als Meilenstein für die Fortsetzung der Zusammenarbeit

Auch 2019 wurde der Mehrwert der Zusammenarbeit im Rahmen von iMONITRAF! deutlich und die Erweiterung der neuen Partnerschaft gab dem Netzwerk einen neuen Impuls. Aber die Partnerregionen diskutierten auch die Erfolgsfaktoren der Zusammenarbeit und ihre Abgrenzung gegenüber anderen Netzwerken und Projekten. Diese Diskussionen zeigten, dass iMONITRAF! einige klare Stärken hat, auf die es sich weiterhin konzentrieren sollte. Insbesondere seine effektive Kooperationsstruktur "klein aber fein" ermöglicht es iMONITRAF! das Zusammenspiel von technischer und politischer Ebene zu managen und am Puls der Zeit relevante „ Windows-of-Opportunity" zu erkennen und sich schnell und unkompliziert einzubringen.

Während ihrer Diskussionen identifizierten die iMONITRAF! Partner die Notwendigkeit die politischen Szenarien von iMONITRAF! zu aktualisieren und auf den Zeithorizont bis 2030 auszudehnen - und dabei auch neue Erkenntnisse zum technologischen Wandel zu berücksichtigen. Diese Szenarien sollen den zunehmenden Handlungsbedarf aufzeigen und als Input für den nächsten politischen Runden Tisch, der für Juni 2020 vorgesehen ist, dienen. Dieses Treffen soll die zukünftige Rolle des Netzwerks hervorheben und die Schlüsselthemen für die kommenden Jahre identifizieren.

iMONITRAF! nel 2019: in sintesi

iMONITRAF! 2019 – consolidamento del partenariato

Lungo i principali corridoi transalpini, il volume di traffico complessivo è in continuo aumento e le regioni Alpine si trovano a far fronte alla crescente necessità di attuare misure politiche coordinate per definire incentivi efficaci volti al trasferimento modale. Il 2019 ha dimostrato che gli approcci normativi, benché adeguati in modo dinamico, non sono sufficienti a limitare i volumi trasportati via strada, poiché il loro effetto è controbilanciato dall'aumento della domanda di trasporto. Il ruolo svolto dalle ambiziose misure di pedaggio stradale, come quelle legate al sistema Toll Plus, basato sul principio "*chi inquina paga*", è riconosciuto da tutte le regioni come potenziale strumento utile ad accrescere il trasferimento modale, ma è necessario unire gli sforzi per implementare in modo più esteso tale strumento e definire il corrispondente Quadro comune europeo, volto a garantire una maggiore flessibilità. Al fine di unire le forze per ottenere un´efficace rete del sistema Toll Plus, nel 2019, la Regione Sud Provenza-Alpi-Costa Azzurra è divenuta nuovo partner di iMONITRAF!, con lo scopo di rafforzare l´obiettivo regionale di attivare un sistema di tariffazione più ambizioso per i veicoli pesanti.

La rete di iMONITRAF!, inizialmente fondata nel 2005, è stata ora estesa al corridoio di Ventimiglia, contribuendo così ad apportare nuove dinamiche ma anche nuovi temi ed approfondimenti nello svolgimento delle attività. Inoltre, sempre nel 2019, la Baviera è divenuta nuovo osservatore di iMONITRAF!, estendendo così il perimetro del corridoio del Brennero verso la Germania.

Obiettivi 2019 – Equilibrio del partenariato allargato e condivisione delle conoscenze

Con l´ampliamento del partenariato, una delle maggiori attività svolte nel corso nel 2019 è stata la verifica incrociata dei principali obiettivi e delle politiche di iMONITRAF! per l'intera area di cooperazione. L´analisi esistente in materia di Toll Plus è stata estesa al corridoio di Ventimiglia per consentire ai responsabili decisionali della nuova regione partner di avere una base di discussione politica su questo tema chiave per iMONITRAF!. Sono stati integrati inoltre gli indicatori di monitoraggio sia per il corridoio di Ventimiglia, sia per la sezione tedesca (Baviera) del corridoio del Brennero.

Per quanto riguarda il sistema Toll Plus e le altre misure incluse nella strategia di trasporto del 2012, iMONITRAF! ha perseguito l´obiettivo di rafforzare ulteriormente la sua rete e di condividere le sue conoscenze sui meccanismi e sugli impatti delle misure adottate. Nel 2019, iMONITRAF! ha proseguito la sua collaborazione con EUSALP, grazie alla cooperazione con il Gruppo d´Azione 4 Mobilità della strategia macro-regionale alpina per condividere le informazioni utili in merito al sistema Toll Plus ed ha inoltre lavorato intensamente con i partner del progetto AlpInnoCT per lo sviluppo degli Action Sheets politici legati al progetto. Infine, è stato garantito l´inserimento degli obiettivi di iMONITRAF! all´interno del "Sistema alpino di obiettivi per il clima 2050", adottato, ad aprile 2019, dalla Conferenza delle Alpi.

Il sistema Toll Plus continua ad essere il tema chiave per iMONITRAF!

Il sistema Toll Plus, ad oggi, è lo strumento chiave per il raggiungimento degli obiettivi di iMONITRAF!, volti alla riduzione dell´impatto del trasporto transalpino. Negli ultimi anni, iMONITRAF! ha spinto molto (e con successo) affinché i suoi elementi chiave fossero inseriti nel processo di revisione della Direttiva *"Eurovignette"*, all´interno del relativo quadro Europeo in materia di trasporti. Quattro dei cinque elementi chiave della risoluzione iniziale di iMONITRAF! sul Toll Plus (2016) trovano infatti riscontro nel documento revisionato (emendamenti del Parlamento Europeo, status aggiornato ad ottobre 2018). Purtroppo, il processo a livello europeo è rimasto in "stand-by" nel 2019, a causa delle elezioni europee nella prima metà dell´anno. Alla fine del 2019,

il Consiglio europeo ha discusso il dossier durante la riunione dei ministri dei trasporti, non raggiungendo però un accordo. Poiché il dossier è esplicitamente citato nella tabella di marcia del Green Deal europeo (si vedano le informazioni UE che seguono), verrà avviata una notevole pressione affinché il dossier venga portato avanti nel 2020. In questo modo, ancora una volta, iMONITRAF! avrà la possibilità di fare pressione per il recepimento delle sue proposte attraverso gli eurodeputati competenti e la Commissione europea.

Aggiornamento dei dati di monitoraggio per l'anno 2018

Nel 2018 circa 24,000 veicoli pesanti al giorno hanno attraversato i corridoi di iMONITRAF!, con un incremento del 4% rispetto al 2017 (pari a 900 veicoli al giorno in più). Nell´anno precedente, l´incremento era stato ancora più elevato (+6%). La metà di tutti questi veicoli ha attraversato il corridoio del Brennero, che ha registrato 7,200 veicoli pesanti al giorno, e quello di Ventimiglia, con 5,800 veicoli pesanti al giorno. L´altra metà dei veicoli registrati ha interessato i corridoi del Tarvisio, del Gottardo, del Fréjus, del Monte Bianco e del San Bernardino. Per quanto riguarda il totale dei veicoli leggeri al giorno, si è registrato un decremento dell´1.2% rispetto al 2017: nel 2018 sono stati rilevati circa 83,000 veicoli. Anche in questo caso, il Brennero risulta nuovamente il corridoio con il maggior numero di passaggi (circa 25,100 veicoli leggeri al giorno). Nel 2018, le merci trasportate lungo i corridoi di iMONITRAF! ammontano complessivamente a 161 milioni di tonnellate, con una suddivisione modale del 67% via strada e 33% via ferrovia. In quest'anno, le merci movimentate via strada sono aumentate del 4%, mentre quelle trasportate via ferrovia sono diminuite del 2% su base annua. I corridoi svizzeri del Sempione e del Gottardo hanno evidenziato le percentuali più alte di merce trasportata via ferrovia, rispettivamente 92% e 65%, mentre le quote più basse sono state registrate lungo il Tauern (35%), il Brennero (27%), il Fréjus/Moncenisio (18%) e Ventimiglia (4%).

In generale, le concentrazioni annuali dell'inquinante atmosferico NO_2 mostrano una tendenziale diminuzione dal 2005. Per il PM10 si rileva un simile trend tra il 2005 ed il 2014, ma da quel momento in poi la concentrazione sembra aumentare lievemente. I picchi rilevati in certi anni per il PM10 ed il NO_2 possono essere causati da periodi caldi nelle Alpi durante i mesi estivi. Il generale trend in diminuzione è in parte dovuto al rinnovo del parco circolante e quindi al transito di mezzi con fattori di emissione unitari inferiori. Questo è chiaramente più visibile per l´indicatore NO_2 poiché la relativa quota di emissioni prodotte dal traffico è più alta rispetto a quella del PM_{10}. I livelli di rumore non vengono rilevati in tutti i corridoi, ma nel 2018, laddove i risultati sono disponibili, essi rimangono su livelli elevati, compresi tra 70 dB e 80 dB per la media giornaliera (L_{den}) e circa 7 dB più bassi durante le ore notturne (L_{night}). I prezzi dei pedaggi sono rimasti pressoché invariati rispetto all´anno precedente; per la classe Euro 2 dei veicoli pesanti, si rileva un leggero aumento compreso tra 1 e 5 centesimi di € per veicolo-km. Il prezzo medio del carburante rilevato nel 2019 è di 1.35 € per il diesel e di 1.44 € per la benzina (media tra i prezzi di Austria, Italia e Francia). I prezzi sono inferiori di 2-3 centesimi di € rispetto all´anno precedente.

Buone pratiche 2019 - adeguamento dinamico della combinazione di politiche e nuovi approcci

Nel 2019, le regioni di iMONITRAF! sono state ancora sottoposte a forte pressione per quanto concerne l´identificazione di soluzioni volte al miglioramento della qualità ambientale lungo i principali corridoi di transito. Per il 2019 si possono identificare due principali gruppi di attività. Da un lato, le Regioni hanno reso più severe le misure normative (specialmente in Tirolo, che ad oggi ha attuato una serie di divieti di circolazione lungo l´autostrada del Brennero). Inoltre, sempre in Tirolo, sono stati introdotti nuovi divieti di circolazione lungo la rete stradale secondaria per evitare

iMONITRAF!

le ricadute del traffico nei periodi di forte congestione autostradale. Nel secondo gruppo possono essere raggruppati i servizi e gli incentivi a favore del Trasporto Combinato (TC), che sono stati armonizzati nelle diverse regioni facenti parte della rete di iMONITRAF! – con un miglioramento/estensione degli aiuti finanziari rivolti alle operazioni per il TC (in Alto Adige e Trentino), un miglioramento nell´offerta dei servizi per il TC (a livello nazionale in Svizzera e in Tirolo) ed un prolungamento degli aiuti finanziari a favore delle infrastrutture per il TC (nella Regione Sud PACA). Per quanto riguarda il trasporto passeggeri, molte regioni hanno manifestato una forte attenzione alla decarbonizzazione delle automobili ma, allo stesso tempo, anche alle operazioni di trasporto pubblico, attraverso l´attuazione di sistemi di sostegno per l'acquisto di veicoli a basse emissioni e di progetti pilota volti a testare la fattibilità dell´utilizzo di autobus elettrici e ad idrogeno nel trasporto urbano ed extraurbano, così come l´impiego di treni a idrogeno per il trasporto regionale.

Il quadro della politica dei trasporti dell'UE – Il Green Deal definisce nuove dinamiche

Molte delle attività di iMONITRAF! si sviluppano all´interno del quadro europeo e delle finestre di opportunità offerte in occasione dei confronti a livello europeo. A causa delle elezioni europee, nella prima metà dell´anno 2019 non vi sono stati molti progressi nei dibattiti in corso, ma nella seconda metà dell´anno diverse iniziative si sono avute nei cosiddetti "*Pacchetti Mobilità"* I, II e III, aventi una certa rilevanza per iMONITRAF!. È stato raggiunto un accordo tra la Commissione ed il Parlamento in merito a diverse questioni ancora aperte sulla revisione della Direttiva sul Trasporto Combinato ed in particolare sulla definizione di Trasporto Combinato, al fine di stabilire incentivi efficaci, ma allo stesso tempo flessibili, per il trasferimento modale. Nonostante fosse una questione di grande interesse per iMONITRAF!, la revisione della Direttiva "*Eurovignette*" non ha avuto ulteriori sviluppi nel 2019. A dicembre, il Consiglio europeo ha provato a definire un approccio generale per raggiungere un accordo, non riuscendo però a conseguire un´intesa. Il prossimo quadro finanziario pluriennale dell´UE (2021-2027) è ancora in discussione presso il Consiglio europeo e probabilmente subirà alcune importanti modifiche nel 2020, dal momento che la Commissione europea ha presentato la proposta sul Green Deal alla fine del 2019 ed un relativo Piano di Investimento con una movimentazione di 1 trilione[2] di euro (!) destinato a rendere l´Europa il primo continente neutrale dal punto di vista climatico entro il 2050.

Prospettiva: il 2020 come tappa fondamentale per la prosecuzione della cooperazione

Ancora una volta, il 2019 ha messo in evidenza il valore aggiunto della cooperazione di iMONITRAF! e l´ampliamento della partnership, che ha dato un nuovo impulso alla rete. Inoltre, le regioni partner hanno discusso i fattori di successo della cooperazione e la sua specificità rispetto ad altre reti e ad altri progetti. Da questi confronti sono emersi in maniera chiara i punti di forza su cui continuare a focalizzare l´attenzione. In particolare, la sua solida struttura di cooperazione, "piccola ma efficace", permette ad iMONITRAF! di gestire l´interazione tra livelli tecnici e politici e di individuare finestre di opportunità "ai margini" di nuovi sviluppi, nonché di essere coinvolta in maniera semplice e veloce.

In occasione dei loro incontri, i partner di iMONITRAF! hanno riconosciuto la necessità di aggiornare gli scenari politici e di estenderli all´orizzonte temporale che va dal 2020 al 2030 – riflettendo inoltre sulle nuove conoscenze legate al cambiamento tecnologico. Questi scenari dovranno dimostrare la crescente necessità di agire e saranno utilizzati come input per la prossima tavola rotonda politica, prevista a giugno 2020. Questo incontro si propone di evidenziare il futuro ruolo della rete e di identificare i punti chiave per gli anni a venire.

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[2] 1 trilione a "scala corta" equivale a 1 milione di milioni (1,000,000,000,000).

L'Année 2019 de iMONITRAF! en bref

iMONITRAF! 2019 – renforcer le partenariat

Dans l'ensemble, les volumes de circulation continuent d'augmenter sur les principaux corridors transalpins et les régions alpines font face à un besoin croissant de politiques coordonnées tournés vers le report modal. 2019 a montré que les politiques de régulation, même si elles sont ajustées de façon dynamique, ne sont pas suffisantes pour limiter les volumes de transport routier car leurs effets sont surcompensés par la demande. Le rôle de mesures tarifaires ambitieuses tels que Toll Plus pour mettre en œuvre le principe "pollueur payeur" est reconnu par toutes les régions comme un outil potentiel pour améliorer le report modal mais des efforts conjoints sont nécessaires pour modeler un cadre européen pertinent pour pour plus de flexibilité. Pour rassembler les forces disponibles en faveur d'un travail de réseau pour promouvoir Toll Plus, la Région Provence-Alpes-Côte d'Azur est devenu un partenaire d'iMONITRAF! en 2019 afin de renforcer son objectif de mise en œuvre d'une approche plus ambitieuse sur les véhicules poids lourds.

Le réseau d'iMONITRAF!, qui a été fondé en 2005, est maintenant élargi au corridor de Vintimille, ce qui apporte une nouvelle dynamique ainsi que de nouveaux sujets dans ses activités. En outre, la Bavière est devenu un observateur au sein d'iMONITRAF!, étendant ainsi le périmètre du corridor du Brenner à la portion allemande.

Objectifs 2019 – Equilibrer le partenariat élargi et partager notre savoir-faire

Avec un partenariat élargi, l'une des principales activités en 2019 a consisté à recouper les objectifs et les propositions d'iMONITRAF! autour d'une coopération élargie au nouveau périmètre. L'analyse existante sur Toll Plus a été étendue au corridor de Vintimille afin de fournir aux décideurs de la nouvelle région partenaire une base de discussion politique sur cet élément central d'iMONITRAF!. D'autre part, les indicateurs de suivi sur Vintimille ont été ajoutés ainsi que l'extension du corridor du Brenner en Bavière.

Concernant Toll Plus et les autres mesures communes incluses dans la stratégie transport de 2012, iMONITRAF! poursuit l'objectif de renforcer ses alliances et de partager son savoir-faire sur les mécanismes et les impacts de mesures pertinentes. En 2019, iMONITRAF a coopéré avec le groupe d'action 4 mobilité de la stratégie macrorégionale EUSALP pour partager sa vision de Toll Plus, et a travaillé intensément avec les partenaires du projet AlpinnoCT afin de développer leur feuille d'action politique. En outre, nous nous sommes assures que les objectifs d'iMONITRAF! figurant dans le nouveau Système alpin d'objectifs climat 2050, qui a fait l'objet d'un accord de la Convention alpine en Avril 2019.

Toll Plus reste le sujet brûlant d'iMONITRAF!

Toll Plus est à ce stade notre outil principal pour atteindre les objectifs de réduction des nuisances environnementales du transport transalpins poursuivis par iMONITRAF!. Au cours des dernières années, iMONITRAF! a initié un lobbying fructueux en faveur de l'intégration de ses principes fondamentaux dans le processus de révision de la Directive Eurovignette. Quatre des cinq principes spécifiques de la résolution initiale d'iMONITRAF! sur Toll Plus (2016) figurant dans l'actuelle version du document de révision (amendements du Parlement européen, version d'Octobre 2019). Malheureusement, au niveau de l'Union européenne, le processus est resté à l'arrêt en 2019 du fait des élections européennes a milieu de l'année. Fin 2019, le Conseil européen a mis le dossier en discussion lors de la rencontre des ministres des transports, sans parvenir à un accord. Alors que le dossier est spécifiquement mentionné dans la feuille de route du Green Deal

européen, il y aura néanmoins une pression intense en faveur d'avancées du dossier en 2020. Ainsi, iMONITRAF! aura l'occasion une nouvelle fois de faire du lobbying en faveur de ses propositions auprès des parlementaires concernés et de la Commission européenne

Mis à jour des activités de suivi pour l'année 2018

Près de 24.000 véhicules poids lourds (VPL/jour) ont traversé les corridors iMONITRAF! en 2018. Cela représente une augmentation de 4%, soit 900 VPL/jour en plus par rapport à 2017. Au cours de l'année précédente, l'augmentation avait été encore plus importante (6%). La moitié de ces véhicules passent par le corridor du Brenner (7200 VPL/jour) et celui de Vintimille (5800 VPL/jour). L'autre moitié traverse les corridors du Tarvisio, du Gothard, du Fréjus, du Mont Blanc et de San Bernardino. Le total de véhicules légers par jour (VL/jour) sur les mêmes corridors a baissé de 1,2% par rapport à 2017 (83.000/jour en 2018). Le Brenner est une nouvelle fois le corridor qui enregistre le plus de passages, 25.100 VL/jour. Le transport de marchandises sur les corridors iMONITRAF! a atteint 161 millions de tonnes en 2018, dont les deux tiers sur la route et un tiers par le rail. Les marchandises transportés par la route ont augmenté de 4% en 2018, alors que celles transportés par le rail ont baissé de 2% par rapport à 2017. Les corridors suisses, le Simplon et le Gothard, enregistrent la meilleure part dévolue au rail, respectivement 92 et 65%. Cette part est la plus basse sur le Tauern (35%), le Brenner (27%), le Fréjus/mt Cenis (18%) et celui de Vintimille (4%).

La concentration annuelle de NO^2 suit une tendance à la baisse depuis 2005. En ce qui concerne les $PM_{10,}$ il y a eu une tendance similaire entre 2005 et 2014, mais, depuis, leur concentration semble augmenter sensiblement. Certaines années, des pics de NO_2 pourraient avoir pour cause des périodes de chaleur excessive lors des mois d'été. La tendance Générale à la baisse est la résultante de la mise en circulation de véhicules plus récents et moins polluants. Ceci est particulièrement visible sur les NO_2. Les niveaux de bruit ne sont pas mesurés sur tous les corridors, mais là où les résultats sont disponibles, ils demeurent sur l'année 2018 à des niveaux élevés, entre 70 et 80 dB en moyenne quotidienne.et environ 7 dB inférieur Durant les heures de nuit. Le prix des péages n'ont quasiment pas bougé par rapport à l'année précédente. Pour les poids lourds de classe Euro 2, ils ont sensiblement augmenté, entre 1 et 5 centimes d'euros par veh-km. Le prix moyen des carburants en 2019 était de 1,35€ pour le diesel et 1,44 pour l'essence (moyenne en Autriche, France et Italie), soit 2 à 3 centimes plus bas que l'année précédente.

Meilleures pratiques 2019 – ajustement dynamique des politiques conjointes et nouvelles approches

En 2019, les régions iMONITRAF! étaient toujours pressés d'améliorer la qualité de l'environnement le long des principaux corridors de transit. Deux principaux groups d'activités peuvent être résumés pour 2019. D'une part, les mesures réglementaires ont été renforcées dans les régions, en particulier dans le Tyrol qui a mis en place des interdictions de circuler sur l'autoroute du Brenner. En parallèle, de Nouvelles interdictions de circuler ont été mises en place également dans le Tyrol sur le réseau secondaire routier pour éviter les phénomènes de trop plein dans les périodes de congestion du trafic sur l'autoroute. Le second groupe concerne les services et les incitations en faveur des opérations de transport combine qui ont été ajustés dans plusieurs régions iMONITRAF! – avec une amélioration/extension du subventionnement du transport combine (Sud Tyrol, Trente), une amélioration et une extension des subventions allouées aux infrastructures de transport combine (Région Sud-Provence-Alpes-Côte d'Azur). En ce qui concerne le transport passager, de nombreuses régions ont fait part d'une attention accrue à la décarbonisation des voitures mais aussi des transports publics, avec un soutien à l'achat de véhicules à basse

émission et des projets pilote destinés à tester les bus électrique et à hydrogène sur des zones urbaines et régionales ainsi que des trains à hydrogène.

Le cadre stratégique des transports dans l'UE – le Green deal crée de nouvelles dynamIques

De nombreuses activités d'iMONITRAF! Sont structurées par le cadre européen et les occasions découlant des discussions au sein des institutions de l'UE. Avec les élections européennes, la première moitié de l'année 2019 n'a pas produit de progrès notable, mais au second semestre, plusieurs initiatives du Paquet Mobilité I, II et III contenant des éléments pertinents pour iMONI-TRAF! ont été détaillées. Un consensus a été trouvé entre la Commission et le Parlement sur plusieurs questions laissées ouvertes dans la révision de la Directive sur le transport combiné, en particulier la définition des opérations de transport combiné destinés à mettre en place des incitations effective mais flexible en faveur du report modal. Un autre dossier intéressant iMONI-TRAF ! au plus haut point, la révision de la Directive Eurovignette n'a pas avancé en 2019. En décembre, une recherche d'accord au sein du Conseil n'a pas abouti. Le nouveau cadre financier pluri-annuel pour l'UE (2021-2027) est toujours en discussion au Conseil et devra subir de nouveaux changements majeurs en 2020 suite à la présentation par la Commission de la proposition de Green Deal européen à la fin de l'année 2019 et un plan d'investissements d'un montant de 1000 milliards d'euros dédié à la transition de l'Europe vers le premier continent neutre en carbone d'ici 2050..

Perspectives : 2020 étape charnière pour la continuation de la coopération

De nouveau, 2019 a mis en lumière la valeur ajoutée de la coopération au sein d'iMONITRAF! et les nouveaux partenariats ont donné un nouvel élan au réseau. Les régions partenaires ont eu l'occasion de discuter des facteurs de succès de la coopération et sa délimitation en comparaison avec d'autres réseaux ou projets. Ces discussions ont montré qu'iMONITRAF! a des atouts évidents sur lesquels nous devons continuer de mettre l'accent. Sa structure de coopération, en particulier, « petite mais puissante » permet à iMONITRAF! de mettre en œuvre des interactions efficaces au niveau politique et technique et d'identifier les opportunités offertes par les nouveaux développements et de s'y impliquer de façon rapide et souple.

Lors de leurs discussions, les partenaires ont identifié un besoin de mettre à jour les scenarios stratégiques d'iMONITRAF! en les étendant de l'horizon 2020 à 2030 – en intégrant les nouvelles connaissances sur les changements technologiques. Ces scénarios doivent démontrer le besoin croissant d'intervention et doivent être utilisées comme contribution lors de la prochaine table ronde politique prévue en Juin 2020. Cette réunion vise à souligner le future rôle du réseau et à identifier les principaux enjeux pour les années à venir.

1 Background and objectives

iMONITRAF! network – Common voice of the most affected Alpine transit corridors

Tackling the negative impacts from transalpine transport remains a common challenge for the Alpine regions which are situated along the major transit corridors. The Alpine regions Land of Tyrol, the autonomous Provinces of Bolzano and Trento, the Canton of Ticino, the Region Central Switzerland as well as the Accademia Europea di Bolzano (EURAC) have continued their cooperation in the frame of iMONITRAF to further develop common policies and measures to cope with transalpine transport topics. In 2019, the French region Région Sud Provence Alpes-Côte-d'Azur joined the network as new partner and thus enlarged the cooperation area towards the West with the integration of the Ventimiglia corridor. Also, the German region Bavaria became a new observer to iMONITRAF!, thus extending the perimeter of the Brenner corridor towards the German section. Both regions join the structure of the independent iMONITRAF! Coordination Point which has been established after two successful project phases under the Alpine Space Programme.

Objectives 2019 – Balancing the enlarged partnership and sharing know-how

With the enlarged partnership, one main activity for 2019 was the cross-check of iMONITRAF!'s main objectives and policy proposals for the enlarged cooperation perimeter. The existing analysis on Toll Plus (iMONITRAF! 2015) were extended to the Ventimiglia corridor to offer decision makers in the new partner region a basis for political discussion on this core element of iMONITRAF!. Also, the monitoring indicators were added for Ventimiglia as well as for the German stretch of the Brenner corridor in Bavaria.

Regarding Toll Plus and other common measures included in the transport strategy of 2012, iMONITRAF! had the objective to further strengthen its alliances and to share its know-how on the mechanisms and impacts of Toll Plus. iMONITRAF! partners collaborated with the AlpInnoCT project to develop recommendations for their policy action sheets in which both Toll Plus and subsidies for combined transport play a major role. Also, the information exchange with EUSALP AG4 was continued with the objective to gain additional support for iMONITRAF! – as was already successfully achieved with the extension of the partnership to Région Sud and the observer status to Bavaria.

However, 2019 also gave room for discussing the impact and role of iMONITRAF!, especially in comparison to EUSALP AG4 and iMONITRAF! partners reflected on success factors of the network. These were summarized in a short factsheet as a tool for discussions between technical and political level.[3] These discussions also showed the need for updating the former policy scenarios 2020 of iMONITRAF! (published in 2012) with an extension to 2030 to highlight the further need for action. Thus, an update of the DPSIR study was agreed as new activity of the network to be finalized in preparation for the next political roundtable in summer 2020.

Annual Report 2019 – compact overview on main activities

The Annual Report 2019 provides an overview on iMONITRAF! activities as well as on recent developments in the Alpine regions, on national as well as on European level. Its target groups

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[3] Factsheet iMONITRAF! achievements 2012-2019
http://www.imonitraf.org/DesktopModules/ViewDocument.aspx?DocumentID=96fg885+haE=

are policy makers at the different political levels as well as the broader network acting on transalpine transport policy.

The report includes main activities of the year 2019. It starts with information on the enlarged partnership and a presentation of the new partner Région Sud PACA in chapter 2 and a summary of activities on Toll Plus in chapter 3. Chapter 4 presents networking activities with EUSALP AG4 and other relevant Alpine-wide institutions, initiatives and projects. In chapter 5, an update of monitoring results is presented, including an interpretation of new insights as well as information on the new WebGIS application and the plans for extending the indicator list. Chapter 6 presents the update of Best Practices which are framed by developments at European level in chapter 7. Finally, the report includes an outlook to the next years.

2   Strengthening the iMONITRAF! partnership

Extension of the partnership

With the new partnership agreement 2019-2020, the iMONITRAF! Lead Partner invited the French region Région Sud Provence Alpes-Côte-d'Azur to join the cooperation, as the region had shown interest in the iMONITRAF! activities – especially on Toll Plus. All partners welcomed the participation of this region to the network and appreciated to have a strong French partner on board again. Also, with the extension to the Ventimiglia corridor, the perimeter is extended to the western part of the Alpine arch and new topics come into view. As main topic, Région Sud is also strongly interested in Toll Plus as this instrument would offer new possibilities for cross-financing along the more and more frequented Ventimiglia corridor.

In addition, Bavaria joined the network as observer and is interested in participating in the monitoring activities. This enlarges the cooperation area into Germany and offers new potentials for cooperation in knowledge exchange and the harmonisation of measures along the Brenner corridor.

Presentation of Région Sud Provence-Alpes-Côte-d'Azur

With its 4.9 million inhabitants, Région Sud Provence-Alpes-Côte-d'Azur (PACA) is the sixth largest region in France. Located at the crossroads between the Alps and the Mediterranean, it is closely interlinked in European transport networks being part of the North Sea-Mediterannean Corridor . Accordingly, the region is putting efforts into transboundary (Italy and Monaco) as well as transnational cooperation (Mediterraean Sea, Alpine macro-region). For the macroregional strategy EUSALP, Région Sud PACA has assumed co-leadership , partnering with the EGTC European Region Tyrol-South Tyrol-Trentino.

- Economy: With the large cities Marseille and Nice, Région Sud has two strong main economic centres. Also, surrounding the Principality of Monaco, Région Sud has a strong economic hotspot which is highly attractive to citizens and investors, supporting the positive image of the region. Economically, the region also benefits from its location of some large Mediterranean ports and features the Rhône delta which offers the accessibility to North-South inland waterway transport. This North-South connection belongs to the EU core network corridor "North Sea-Mediterranean" which aims at offering better multimodal services between the

North Sea ports, the Maas, Rhine, Scheldt, Seine, Saone and Rhone river basins and the ports of Fos-sur-Mer and Marseille.

- Social aspects: But even if the region belongs to the French regions with the highest income, if faces the challenges of high income disparities and a rather high unemployment rate.

- Environment and climate: The region faces a strong tendency of urbanisation and has a very high energy consumption level. Also, due its topographical condition and its dense transport networks, air pollution is a major challenge for the region. In 2016, 300,000 inhabitants were affected from air pollution above the tolerable thresholds. Transport is a major emitting source in the region, with a share of 60% of NOx emissions and 20% of emissions of particulate matter. For the main greenhouse gas CO_2, the transport system emits 30%. To maintain its attractiveness, the region has however already developed ambitious environmental strategies and measures – the region aims at becoming climate-neutral until 2050.

- Modal split passenger transport: The region has seen a large degree of "urban sprawl" in the last years, as citizens with large incomes built individual houses in the agglomeration areas to the large cities. Thus, there is a high dependency on individual passenger transport, 70% of citizens use their private car on a daily basis (compared to 41% in the Île-de-France region). Modal split of passenger transport is highest in Marseille and Nice, with a 25% share of public transport. In the other cities like Toulon, Avignon, Antibes and Cannes, modal split is lower with a share of around 15%.

- Accessibility: Région Sud is highly connected within European transport networks, especially its five large economic centres. 40 million passengers per year use the different access points to the region: the four airports (of which Nice and Marseille are international airports), the large maritime ports in Marseille, Toulon and Nice as well as the different connections to the French high-speed railway system. Also, the region is very well connected to the French motorway network.

- Infrastructure projects: The region aims at further developing the railway line along the Mediterranean coast (Marseille-Toulon-Gênes-Nice-Vintimille-Gênes) to offer better public transport services in this highly frequented transport axis. The railway intersections Marseille and Nice are hotspots on this railway line and their development is crucial for improving modal shift in the region.

3 Toll Plus remains the "hot topic" – activities in 2019

Toll Plus is, at the current stage, the central instrument for achieving iMONITRAF!'s main objective of reducing environmental burdens of transalpine transport. With their common resolution (2016), the Alpine regions have presented a detailed approach for harmonization of road pricing systems between and along the Alpine transit corridors and to foster modal shift from road to rail. Especially, the Toll Plus proposal calls for a consideration of the over-proportional external costs related to freight transport in the sensitive Alpine environment, more flexibility in using the mark-up factor as well as a cross-financing approach for revenues. Also, the Alpine regions see the need for a differentiated approach to pricing to consider their specific economic situation in the partially remote Alpine region.

Over the last years, iMONITRAF! has lobbied successfully at EU level to ensure that these propositions are reflected in the ongoing revision process of the Eurovignette Directive as relevant legal framework. Within this process, iMONITRAF! was able to lobby for its core elements to be

integrated in the European framework with all elements of the initial iMONITRAF! resolution on Toll Plus being reflected in the amendments of the European Parliament (status as of Oct 2018) and with several proposals in the revision document which would benefit the Alpine regions.

Specific elements as proposed by iMONITRAF! are considered in the recent revision document as follows:

- Proposal 1: The 'Plus' of the toll level shall be defined on the basis of additional costs in mountain areas.

- Proposal 2: Toll Plus should serve as a mechanism to harmonise toll levels across the iMONITRAF! corridors to allow a fair distribution of traffic volumes. Concurrently with the implementation of Toll Plus, the existing different national toll rates along the alpine corridors should be approximated.

  → These proposals 1 and 2 are reflected in several amendments as agreed by the European Parliament regarding more flexibility in charging external costs (Amendments 24: External cost charging shall become mandatory, Amendm. 32: Additional inclusion of accident costs as new external cost element, Amendm. 76: More flexibility for mark-up: increase of up to 50 % and amendm. 129: Mountain factor for external costs is increased from factor 2 to factor 4)

- Proposal 3: Toll differentiation must consider future developments beyond today's EURO-norms such as differentiation according to specific CO_2-emissions.

  → This is reflected in the new proposed component for the Eurovignette of differentiating charges according to CO_2-emissions (based on VECTO tool, see section 7 for more information).

- Proposal 4: To avoid negative economic impacts in the Alpine regions, special provisions for regional transport will be necessary, considering the size of trucks and distance.

  → Reflected in amendm. 99: New provision to allow for differentiation of charges for short-distance and longdistance transport (to avoid neg. impacts for regional transport)

- Proposal 5: Revenues should be used for specific environmental and intermodal projects to accelerate the improvement of rail quality and capacity or provide incentives for rail freight transport as compensatory measure. An appropriate share of revenues of about 30-50% shall be allocated to the regions along the transit corridors.

  → This is reflected in Amendm. 114 which determines that revenues from infrastructure charges and external-cost charges shall be used on the territory containing the road section on which the charges are applied

Networking in 2019 to strengthen alliances on Toll Plus

With the European elections (European Parliament) and the subsequent reorganisation of the European Commission, the process at EU level on the Eurovignette was held on "stand-by" in the first half of 2019 and largely into the second half. Thus, iMONITRAF! focused its activities on strengthening the alliance for Toll Plus and ensuring further support for its core policy element.

Especially, iMONITRAF! partners supported the team of the AlpInnoCT project to develop its political action sheets foreseen as policy output of the project and which were the basis for discussions on the AlpInnoCT final event in November 2019 in Brussels. Furthermore, iMONITRAF! proposals and insights were again shared with EUSALP AG4 members to increase awareness on the mechanisms of Toll Plus and its impacts.

With the Alpine Climate Target System of the Alpine Convention,[4] as agreed by the Alpine Conference at the beginning of 2019, an additional visionary framework has come into force which also includes specific targets for the transport system. Especially the target "Modal shift of Alpine freight transit: Alpine freight transit transport (> 300 km) is shifted to rail, going beyond European modal shift objectives" offers a linking point to iMONITRAF! and the Coordination Point will ensure a link to the central instrument Toll Plus within the forthcoming implementation phase of the target system.

Update of Toll Plus scenarios – extension to Ventimiglia and new insights

iMONITRAF!'s activities on Toll Plus mainly build on the in-depth study of 2015 which has presented different approaches to implement Toll Plus as well as scenarios and evaluations.[5] To consider latest developments, the network has decided to update the Toll Plus scenarios for the year 2019. Specifically, the following developments made an update necessary:

- Integration of Ventimiglia corridor to present the scenarios to the new partner Région Sud Provences-Alpes-Côte d'Azur. Also, extension of the Bavarian stretch of the Brenner corridor to consider participation of Bavaria as observer.

- Consideration of new insights on external costs in mountain regions (see Annual Report 2018 for more information[6]) as well as new insights on external costs in general (update of handbook of external costs, European Commission).

- Adjustment of corridor stretches to be in line with the perimeter of the iMONITRAF! monitoring system.

The scenarios are applied to the new corridor stretches, using the updated external cost factors (CE Delft et al. 2019) and updated information on mountain factors (INFRAS & Herry Consult 2017). All results are illustrated for EURO IV as well as EURO VI HGV with 5 axles, indicating both the new resulting rate as well as the difference (Δ) to the existing rate/status quo in 2019. Table 1 below illustrates the results for EURO VI HGV, more detailed information can be found in the updated Factsheet on Toll Plus scenarios.[7]

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[4] Alpine Climate Target System 2050
https://www.alpconv.org/fileadmin/user_upload/fotos/Banner/Topics/climate_change/20190404_ACB_AlpineClimateTargetSystem2050_en.pdf
[5] iMONITRAF! (2015): Specifying the regional proposal on Toll Plus - An in-depth analysis of the iMONITRAF! network on design elements, impacts and legal issues of a Toll Plus System
http://www.imonitraf.org/DesktopModules/ViewDocument.aspx?DocumentID=HhZQtOV4zeI=
[6] http://www.imonitraf.org/DesktopModules/ViewDocument.aspx?DocumentID=bhuXKUB1+3s=
[7] iMONITRAF! Toll Plus Factsheet 2019

SPECIFIC TOLL RATES (€CT/KM) PER CORRIDOR - RESULTS OF SCENARIO CALCULATIONS (EURO VI)

EURO VI		Brenner value	Gotthard value	Mont Blanc value	Fréjus value	Ventimiglia value	Average value
Status quo 2019	*existing rate*	36,5	86,9	189,2	153,3	33,2	
Scenario 1 - Bottom-line	*Rate in scenario "bottom-line"*	39,4	100,2	200,4	162,8	38,2	
	additional toll "bottom-line" compared to	**2,9**	**13,3**	**11,3**	**9,4**	**4,9**	**8,4**
Scenario 2 - Internalisation fee minimum	*Rate in scenario "internalisation fee"minimum*	40,9	100,2	194,2	157,7	36,2	
	Δ rate with scenario "internalisation fee" min	**4,3**	**13,3**	**5,0**	**4,4**	**3,0**	**6,0**
Scenario 2 - Internalisation fee maximum	*Rate in scenario "internalisation fee"maxium*	64,5	113,4	218,7	180,7	56,0	
	Δ rate with scenario "internalisation fee" max	**27,9**	**26,6**	**29,5**	**27,3**	**22,8**	**26,8**
Scenario 3 - Extended mark-up for rail financing	*Rate in scenario "extended mark-up"*	50,2	120,2	211,7	172,2	43,1	
	Δ rate with scenario "extension of mark-up"	**13,7**	**33,3**	**22,5**	**18,9**	**9,9**	**19,7**

Table 1 *Scenario rates (in €ct/km) for EURO VI trucks (40t 5 axles)*
Scenario 1:Bottom-line scenario which makes full use of the current EU framework (25% mark-up)
Scenario 2: Full internalisation of external costs, including appropriate mountain factors. Minimum scenario: air and noise pollution only; Maximum scenario: all external costs.
Scenario 3: Extended mark-up for rail financing with 50% mark-up.

In general, the updated scenario calculations re-confirm the results of the 2015 study:

- All Toll Plus scenarios have a considerable impact on toll prices (rates per km). The application of the 25% mark-up (scenario 1) or the external cost charge for air quality and noise (scenario 2 minimum) lead to smaller impacts with toll rates rising, on average, between 8.5 and 11.5 €ct/km for EURO IV and around 6 and 8.5 €ct/km for EURO VI. Scenario 3 with the maximum approach leads to considerable impacts with toll rates that are even higher than in an application of the 50% mark-up (scenario "extended mark-up").
- For EURO VI, impacts are considerably lower than for EURO IV, especially in scenario 2 which differentiates the external cost factors for EURO IV and EURO VI. In scenarios 1 and 3, the impacts on the French-Italian corridors are identical, as the mark-up builds on the existing rates which are not differentiated on the French and Italian motorways.
- Compared to the Toll Plus scenarios 2015, impacts of scenarios 1 and 3 are slightly higher as existing toll rates have increased over the last four years. For scenario 2 (min and max), the additional toll rate with application of the external cost charge for air quality and noise is slightly lower. This is due to the adjusted mountain factors as represented in the update study (INFRAS & Herry Consult 2017) which propose slightly lower mountain factors for air quality and noise (factor 4 instead of factor 5).
- For Ventimiglia, the effects of Toll Plus lie below the other corridors as the mountain stretch of the Ventimiglia is shorter than on the other corridors. But due to much higher traffic volumes on Ventimiglia, Toll Plus offers a considerable potential for raising additional revenue.
- For Brenner, the average toll rates in the new scenarios lie below the rates of the 2015 study. This is due to the integration of the German stretch of the Brenner motorway from Munich to Kufstein where toll rates are lower than the average toll rates on the remaining corridor.[8]

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[8] Please note: this effect is not specific to the Brenner but would also result on the Gotthard corridor if a German section would be integrated in the calculation.

Toll Plus has the main objective to set financial incentives for modal shift and to improve internalisation, but it also generates additional revenue. According to the proposal of the iMONITRAF! resolution on Toll Plus, this revenue should mainly be used for financing of additional rail infrastructures in the Alpine region. The following table gives an overview on potential additional revenue which could be generated via Toll Plus (assuming a 50:50% share of EURO IV and VI on all corridors).

POTENTIAL REVENUE GENERATED THROUGH TOLL PLUS (IN MIO. €)

(share 50:50 EURO IV and VI)	Brenner corridor	Gotthad corridor	Mont Blanc corridor	Fréjus corridor	Ventimiglia corridor
HGV volume 2017	2.449.880	862.495	637.655	765.040	2.062.615
Corridor length (km)	415	300	228	298	381
Annual additional revenue (Mio. €)					
scenario "bottom-line"	29	34	16	22	11
scenario "internalisation fee" min	82	34	13	18	12
scenario "internalisation fee" max	322	71	49	71	58
scenario "extension of mark-up	107	86	33	43	23
Optimised scenario as used in DPSIR (20 €ct/km on Gotthard, Mont Blanc, Fréjus, Ventimiglia)	254	52	29	46	46

Table 2   *Numbers represent additional revenues generated through Toll Plus. Please note: Traffic flows along the Ventimiglia corridor are calculated according to the Italian classification system, so HGV traffic volumes might be overestimated.[9]*

Current status on EU process and outlook

With the ongoing discussion of the Eurovignette revision at EU level, there will be further need for iMONITRAF! for networking and lobbying on this topic in 2020. At the end of 2019, the European Council has discussed the dossier in its meeting of transport ministers but did not come to an agreement. As the dossier is specifically mentioned in the European Green Deal roadmap (see section 7), there will be increasing pressure to move forward with this dossier in 2020. The Commission and the Croatian presidency will try again for a General Approach in the first half of 2020. The objective is to reach agreement in time for the next meeting of TRAN ministers on 14th June 2020 and then to enter trilogue discussions in the second half of 2020. In this last step, iMONITRAF! will again have the chance to lobby for its proposals via responsible MEPs and the European Commission.

In this lobbying work, good communication material will be necessary and it will be a good opportunity for presenting updated scenarios 2030 which iMONITRAF! plans to develop in the first half of 2020. These scenarios will highlight again the need for an ambitious approach on road pricing to incentivize modal shift as well as the shift towards alternative fuels and powertrains.

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[9] In the frame of the iMONITRAF! monitoring system, vehicles along Italian-French corridors are counted according to the system used by the Italian highways societies: heavy-vehicle category include those passenger vehicles belonging to class B (height above 1.3 m) and classes 3,4,5 (according to the number of axles) (see iMONITRAF! Annual report 2018).

4 Synergies with EUSALP and other networking activities

Synergies with EUSALP AG4

EUSALP Action Group 4 Mobility (AG4) had an intense cooperation year in 2019, with a transition from its first Work Plan (2016-2019) to a new Work Plan for the next mandate (2020-2022). Members of the Action Group strategically discussed the role of different topics for the further cooperation, the types of activities as well as the future cooperation structure. As the European Region Tyrol- South Tyrol- Trentino remains in the lead of AG4, synergies with iMONITRAF! could be further improved in the new Work Plan, now being supported by the new iMONITRAF! partner Région Sud PACA which became, at the same time, Co-leader of AG4.

With respect to specific activities, several activities of 2018 were continued or finalized in 2019:

- The **preparatory study "Infrastructure for combined transport"**[10] included dialogue events with strategic implementation partners, to optimise multi-modal logistic chains and illustrated the need for further in-depth analysis and pilot activities to better understand the role of innovative technologies for future-proofing Alpine freight transport systems. → Insights of this study can be used for the planned update of the iMONITRAF! DPSIR scenarios in 2020.

- The **common methodology to assess infrastructure and operative projects** has been further discussed within a dedicated task-force of AG4 to derive a common approach for identifying projects with a value-added for the macro-region. During the last AG4 meeting in 2019, a specific approach was presented, including a proposal on assessment criteria and on thresholds for identifying relevant projects.
  → Criteria and thresholds will also be interesting for updating the DPSIR methodology of iMONITRAF!.

- Insights of the first cooperation phase 2016-2019 were brought together in a **political statement of AG4** "Facing the transport challenge - Towards a coherent strategy to promote sustainable transport and mobility systems in the Alps" ensuring a bridge from technical discussions in AG4 to the political level. It is foreseen to discuss the contents of this political statement in spring 2020 and to publish it as annex or reference to the EUSALP Joint Declaration of the French Presidency.
  → A political resolution on iMONITRAF! should consider this political statement of AG4 with the objective to specify some of the elements from the viewpoint of the main transit-affected Alpine regions.

- The **development of a common multi-modal information and ticketing platform** remained a core objective for AG4 and a great success was the approval of the project proposal "LinkingAlps[11]" in the frame of the 4th call of the Alpine Space Programme. The project connects Alpine mobility information services to foster a modal shift from private to low carbon passenger transport (e.g. public and on-demand), thus offering integrated mobility chains for passenger trips. A standardised exchange service of travel information between the individual travel information service providers will be created. In this way, information can be exchanged between the individual information systems and compiled into a continuous travel chain. Travelers can thus view the entire trip from start to destination on a single service.

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[10] http://alpine-region.eu/results/preparatory-study-and-dialogue-events-strategic-implementation-partners-investigate-and
[11] https://www.alpine-space.eu/projects/linkingalps/en/about

- The **ARPAF project CrossBorder**[12], jointly implemented by the EUSALP AG4 and AG5 leaders, addresses the phenomenon of increasing cross-border commuter mobility across the Alpine territory. The project identified gaps in transport infrastructure and services and offered solutions for improving sustainable mobility in selected cross-border commuter hotspots. The project came to an end in 2019 with a final publication in the form of a project compendium containing, in addition to all previous project results, summaries of local implementation workshops and nine political recommendations to improve cross-border mobility.
- The cooperation with EUSALP AG4 helped to re-launch the iMONITRAF Web GIS application, now called Alpine Platform of Knowledge for Mobility and Transport[13], with a more user-friendly and attractive design and the inclusion of additional layers (see also chapter 5.2).

The new Work Plan 2020-2022 of AG4 will be structured into three thematic objectives, supported by four horizontal activities. Within the thematic objective, specific activities will be taken forward under the lead of interested AG4 members:

- **Thematic area 1 – smart clean logistics and CT to support modal shift:** As starting point, two activities are foreseen: 1) Strategic framework: Policy measures to support modal shift (with special focus on Combined Transport), 2) Masterplan ports and inland terminals.
- **Thematic area 2 - Accessibility on local and regional transport links on the secondary network:** Up to now, the activity "Masterplan for secondary infrastructure" is foreseen in this thematic area.
- **Thematic area 3 - Smart and low-carbon mobility & innovative public transport solutions:** This area found the largest interest in AG4 and four activities are already foreseen: 1) Innovative forms of public transport, real-time passenger information and ticketing (as implemented by LinkingAlps project), 2) Innovative propulsion systems and fuels, 3) Strategic initiative on cross-border mobility with possible focus on commuters and data collection, 4) Mobility and lifestyle, dynamic data collection.
- **Horizontal activities:** Horizontal activities include all crosscutting activities which are taken forward by the AG4 Lead Team: monitoring activities, assuming a more active role in policy development, identification of new AG4 funding opportunities as well as external communication of AG4 activities and results.

Other networking activities

iMONITRAF! also cooperated closely with other institutions and stakeholders in the field of trans-alpine freight transport:

- The cooperation with the **AlpInnoCT** project was intensified in 2019 as AlpInnoCT came to the stage of finalising its political action sheets. iMONITRAF! partners attended an AlpInnoCT workshop in April 2019 to discuss contents and objectives of the pollical action sheets and contributed in their finalisation.

- The Lead Partner of iMONITRAF! also represents the network during the meetings of the **Alpine Convention's Working Group Transport** and informs its members of relevant updates. The WG Transport's new mandate for the period 2019-2020 includes several activities

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[12] http://alpine-region.eu/projects/arpaf-crossborder
[13] http://alpine-region.eu/results/alpine-platform-knowledge-mobility-and-transport

with relevance for iMONITRAF!, especially a report on modal shift with recommendations is foreseen.

- The iMONITRAF! Coordination Point also worked closely with the **Alpine Climate Board** which finalized its Alpine Climate Target System 2050[14] at the beginning of 2019 and then started with the development of implementation pathways. These pathways contain specific activities which include many links to iMONITRAF!.

- The Suivi de Zurich process was pretty much on stand-by in 2019 and no network activities were possible. iMONITRAF! counts for some new dynamics in this network in 2021 at the latest, with the Swiss presidency of the Suivi de Zurich.

5 Monitoring of iMONITRAF indicators

5.1 Evaluation of monitoring results

This chapter provides the main findings from the data analysis of the iMONITRAF indicators, which include road traffic volumes, the transported tons and modal split, the concentration of nitrogen dioxide and particulate matter, the exposure to noise, toll prices and prices of fuel. To identify the eight transalpine corridors object of the analysis, a consistent color scale is adopted: yellow = Ventimiglia, orange = Fréjus/Mont Cenis, red = Mont Blanc, blue = Gotthard, light blue = San Bernardino, cyan = Simplon, green = Brenner, violet = Tarvisio/Tauern.

Indicator "Road traffic volumes"

Road traffic volumes can be measured in different ways, according to the measuring stations and the counting systems considered. Regarding the **measuring stations**, for Fréjus, Mont Blanc, San Bernardino and Gotthard data is taken from the stations at the entrance of the tunnels. For Brenner and Tarvisio, the data series stem from the Austrian stations of Brennersee and Maglern, which are the closest toll stations to the Italian-Austrian border. Finally, for Ventimiglia, the Italian toll station of Ventimiglia (that is the closest to the FR-IT boundary) has been considered. Regarding the **counting systems**, Brenner and Tarvisio adopt the Austrian classification for road detection, as provided by Asfinag: all vehicles below 3.5 t are counted as light vehicles, whereas those above 3.5 t are classified as heavy vehicles. For Swiss corridors, the official classification adopted by the Federal Office of Transport (FOT) has been considered: vehicles belonging to classes 1-3 (passenger cars, motorcycles and light commercial vehicles) are counted as light vehicles; those belonging to classes 4-7 (buses, coaches, HDV trucks, HDV truck trailers and HDV articulated trucks) as heavy vehicles. Finally, vehicles along Italian-French corridors are reckoned according to the system used by the Italian highways: light-vehicle category consists of vehicles belonging to class A (height below 1.3 m), while heavy-vehicle category include those means belonging to class B (height above 1.3 m) and classes 3,4,5 (according to the number of axles).

Fig. 1 analyses the **overall annual average daily traffic for all vehicles** in the years 2005-2018. This indicator is the sum of total light and heavy vehicles circulating along the different corridors, divided by 365 (366 in leap years). With an average of 32,327 vehicles per day, the Brenner corridor presents the highest traffic flows, followed by Ventimiglia and Gotthard (24,657 and 17,570). Tarvisio lies in the middle with 14,785 vehicles, followed by the San Bernardino (about 7,079 vehicles). Finally, Mont Blanc and Fréjus present the lowest values, with 5,359 and 5,016 vehicles per day.

The analysis since 2005 shows different trends. If we consider the absolute traffic volumes, Brenner presents the highest values and a generalized increase of flows until 2018 (+24.8%), despite a significant reduction in years 2009-2011, which is due to the international economic crisis. Also Ventimiglia, Gotthard and Tarvisio show an overall growth of vehicles (respectively +7.2%, +9.3% and +17.0%). For Tarvisio, data are available only from 2012 onwards. San Bernardino, Fréjus and Mont Blanc registered a relative increase higher than 10%, but absolute values are lower.

In the short term (yearly variation between 2017 and 2018), Brenner and Fréjus registered an increase of vehicles (+1.3% and +2.8%); the number of vehicles is stable along Ventimiglia and Tarvisio, whereas a decrease has been registered at Gotthard (-1.3%), Mont Blanc (-1.7%), and San Bernardino (-4.7%).

The number of vehicles crossing all iMONITRAF! corridors is ca.107,000 per day - and it stayed on the same level in 2018 as in 2017 (difference is about 100 vehicles per day, 0,1%).
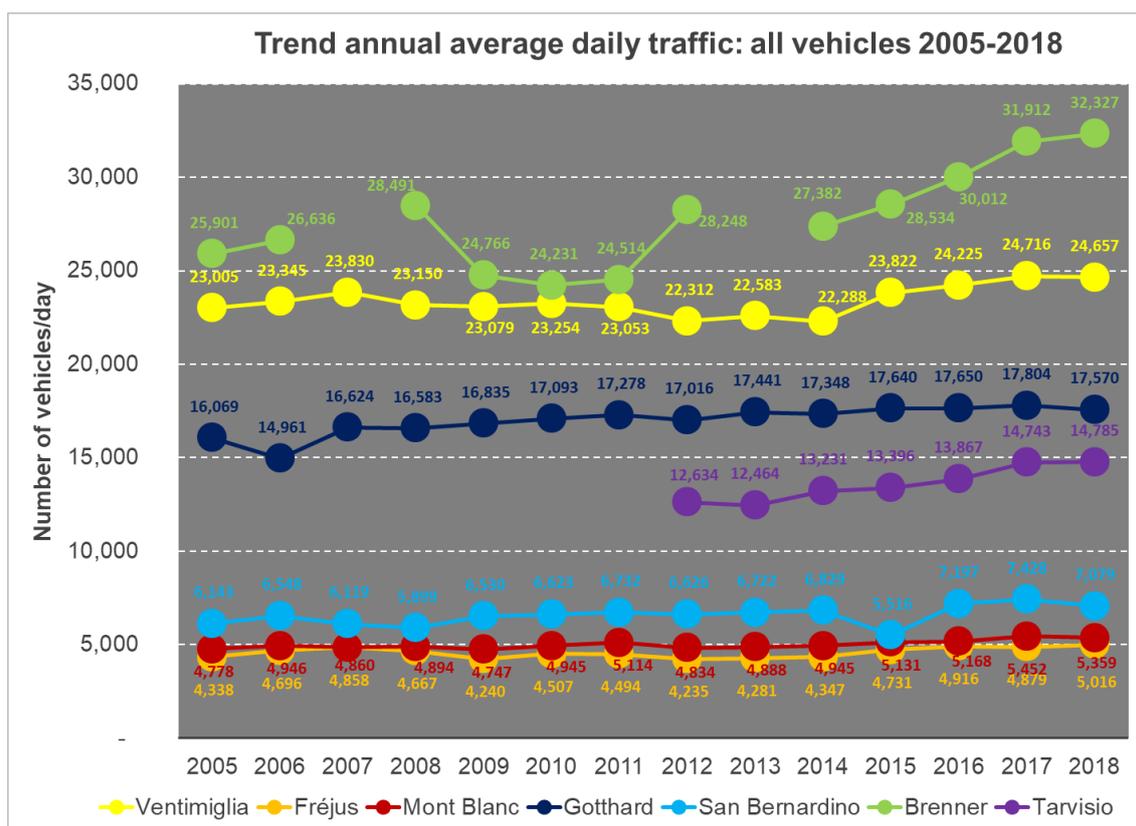

Figure 1: Annual average daily traffic: all vehicles per day

Considering the **annual average daily traffic of heavy vehicles** (Fig. 2), the highest values are registered also at Brenner, where in 2018 7,202 vehicles per day were counted on average (+7.3% in comparison to 2017). Ventimiglia and Tarvisio follow, with 5,801 (+2.7%) and 3,798

(+5.4%) vehicles per day. Along these three corridors, a constant increase has been registered since 2012. The trend is stable at Gotthard, where overall values are in the middle: about 2,332 vehicles/day in 2018 were registered (-1.3% compared to 2017). Finally, the values registered along Fréjus, Mont Blanc and San Bernardino were lower (between 2,220 and 570 vehicles/day). The restrictive measures and the comparably high toll prices on these four axes (see indicator toll prices) contribute to explain these results.

By analysing the period 2005-2018, several distinct phases can be distinguished: between 2005 and 2007, the flow of heavy vehicles increased in all corridors. This development is followed by a decline until 2009, which reflects the impact of the economic crisis. The year 2010 shows some recovery (except for Brenner), followed by another generalized decrease in 2011-2013. In the last five years, a new increase has been registered at Brenner, Tarvisio, Mont Blanc, Fréjus and Ventimiglia, whereas a stabilization is visible along the Swiss corridors (Gotthard and San Bernardino). A comparison between values registered in 2005 and in 2018 reveals that only two corridors present a ten-year negative trend: Fréjus (-7.5%) and Gotthard (-14.1%); San Bernardino, Brenner and Ventimiglia recovered the effects of the economic crisis (respectively, +12.5%, +13.7% and +15.7%). With an increase by +36.8%, Tarvisio has registered the highest increase, but in this case the comparison is made with 2012, due to the lack of previous data.

The aggregated number of heavy vehicles crossing all iMONITRAF! corridors is about 24,000 per day in 2018, which is an increase of 4% or 900 vehicles per day more than in 2017. The year before, the increase was higher(6%).
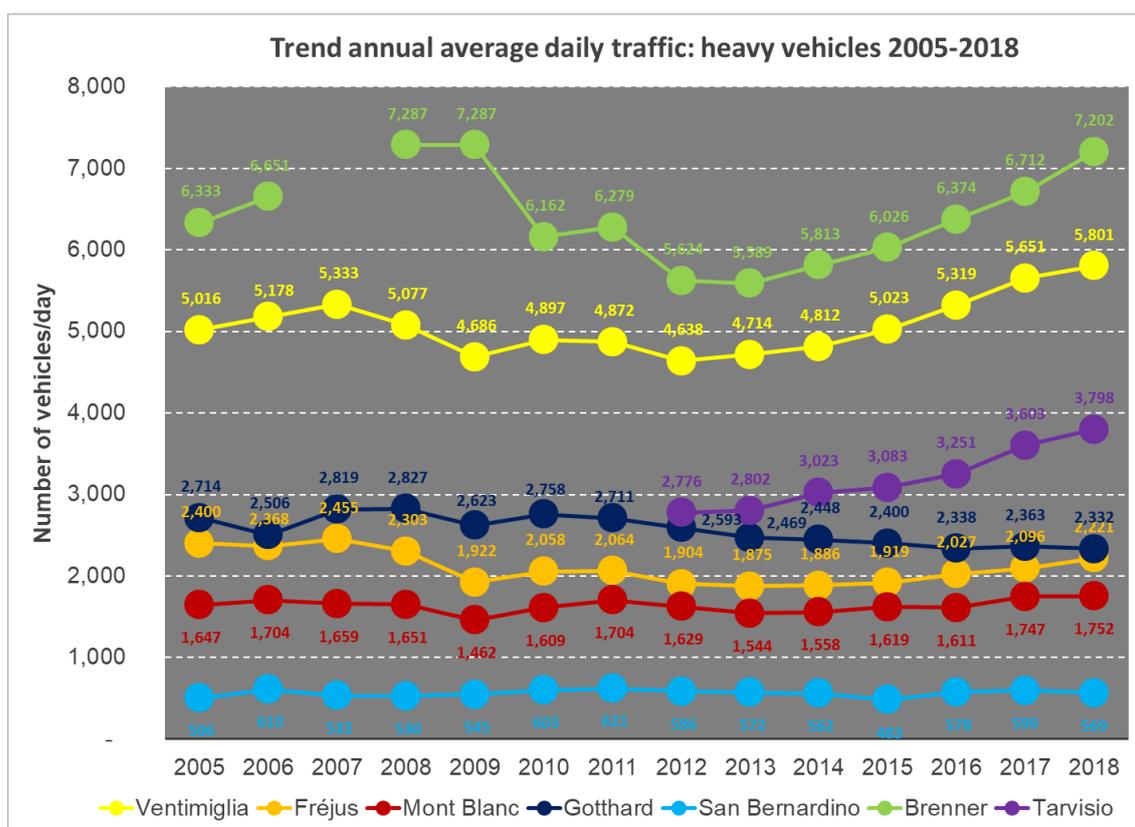

Figure 2: Annual average daily traffic: Heavy vehicles per day

The analysis of the **annual average daily traffic for light vehicles** (Fig. 3) indicates the highest values at Brenner, with 25,125 vehicles per day in 2018. Brenner is followed by Ventimiglia (18,850), Gotthard (15,250), Tarvisio (11,000) and San Bernardino (6,500), while the number of the transits between France and Italy along Mont Blanc and Fréjus is the lowest (about 3,600 and 2,800 vehicles per day). Compared to the year 2017, a generalized decrease is visible. San Bernardino and Mont Blanc (-4.7% and -2.6%) presented the highest relative decrease, whereas in other corridors the decrease is lower than 1.5%. The only (slight) growth is detected at Fréjus (+0.5%).

The analysis of the development since the year 2005 depicts a moderate increase of light vehicles until 2009, followed by a general stabilization for the years 2010-2013 (not valid for the Brenner corridor, which registered a significant reduction of flows in 2010 and 2011). After this phase, a general increase is recognized for all corridors in 2014, 2015 (except for San Bernardino, for a temporary closure of the road), 2016 and 2017. In 2018 the trend is again negative (overall -1.2%). However, by comparing the numbers of 2005 with those of 2018, a generalized increase of flows along all corridors is registered. In relative terms, the highest growth is detected at Fréjus (+44.2%), followed by Brenner (+28.4%), San Bernardino (+15.5%), Mont Blanc (+15.2) and Gotthard (+14.1%).

The aggregated number of light vehicles crossing all iMONITRAF! corridors is about 83,000 per day in 2018, which is a decrease of 1.2% or 1.000 vehicles per day less than in 2017.
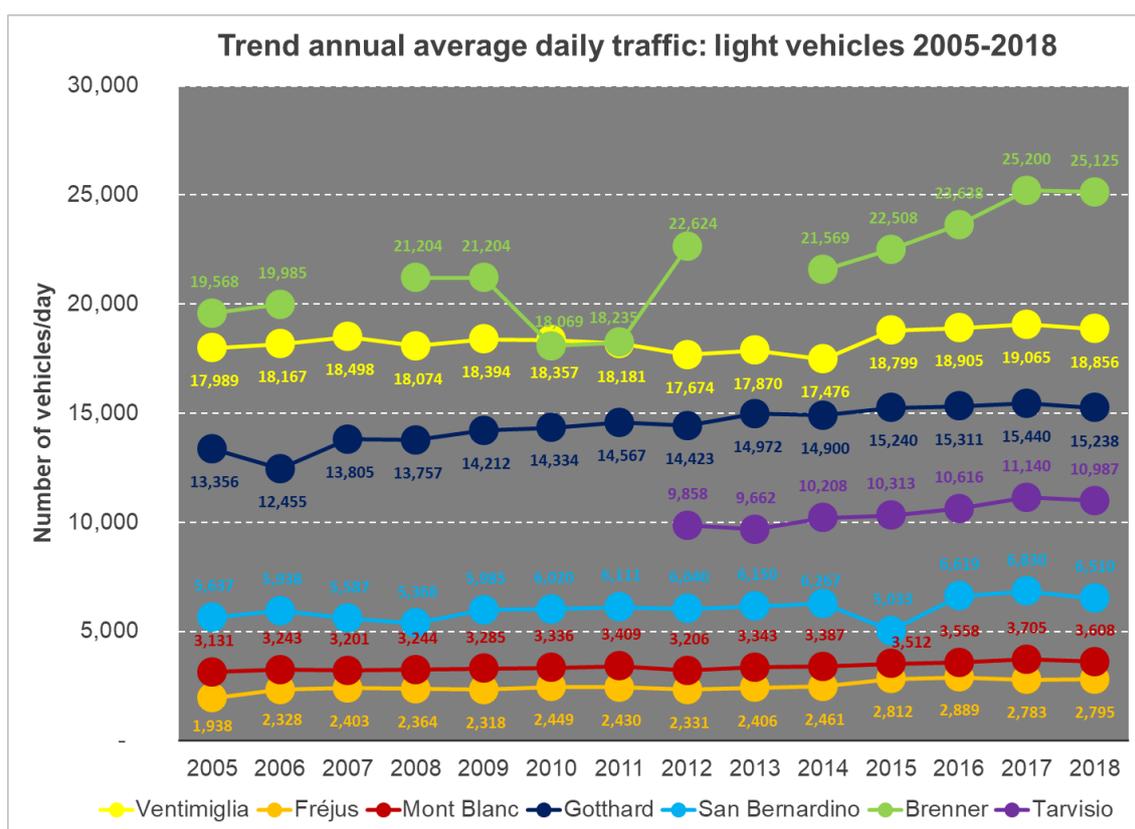

Figure 3: Annual average daily traffic: Light vehicles per day

Indicator transalpine freight transport rail and road

The analysis of the tons transported per year is largely affected by the difficulties in finding reliable and consistent data. However, thanks to the information provided by the Swiss Ministry of

Transport (FOT 2019[15]), data for all corridors have been collected until 2018 (Fig. 4). Compared to the previous years, in the eastern part of the Alps the corridor of Tarvisio (last data available were for the year 2014) has been replaced by Tauern. Here, a complete dataset for the entire period is available.

Regarding the variation between 2017 and 2018, at Brenner an increase of the overall freight volumes from 49.4 Mt to 52.9 Mt is detected; the increase involved both road (passing from 35.6 Mt to 38.8 Mt) and rail transport (from 13.8 Mt to 14 Mt). At Gotthard, the overall transported tons have increased, passing from 22.1 Mt to 23.7 Mt. Coherently with the previous years (except 2017, when a 50 day blocking of all freight rail in Germany due to a construction accident of the Oberrheinstrecke in Rastatt was registered), this increase is only due to the rail component (from 13.6 Mt to 15.3 Mt), while the road transport has slightly decreased from 8.6 Mt to 8.4 Mt. Along Simplon, a significant decrease of rail volumes is visible (from 13.6 Mt to 12.6 Mt), together with a stabilization of the road component (at about 1 Mt). Along the French-Italian corridors, the percentage of rail transport is lower. At Ventimiglia, it counts for about 4% of overall freight transport (0.7 Mt out of 20.8 Mt). Along Mont Blanc, no rail connection is available and goods are transported only by road (9.5 Mt). Finally, the percentage of rail at Fréjus/Mont Cenis is higher than other French-Italian corridors: it counts for about 18% of the total (2.6 Mt out of 14.5 Mt), but in relative terms it is lower than 2017 (20%).
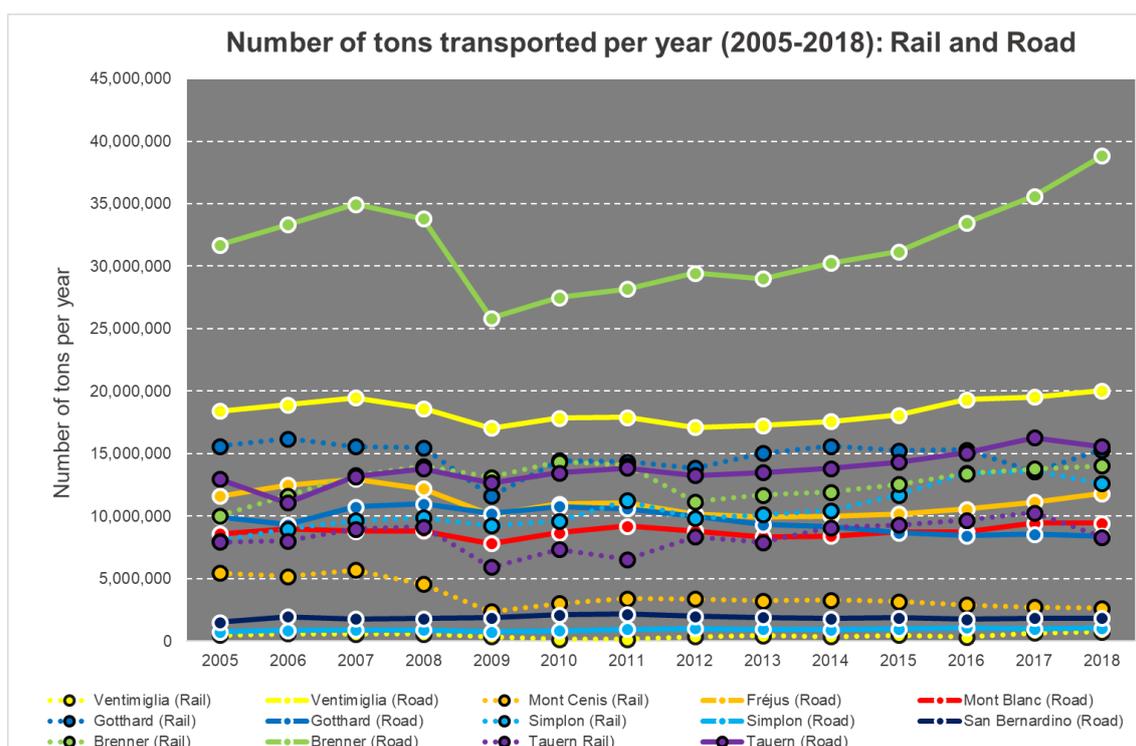
Figure 4: Transported tons per corridor

[15] FOT 2019: Bericht über die Verkehrsverlagerung vom November 2019. Verlagerungsbericht Juli 2017 – Juni 2019. Bericht des Bundesrats. Bern, November 2019. Available at:
https://www.newsd.admin.ch/newsd/message/attachments/59108.pdf (Report in German)
https://www.newsd.admin.ch/newsd/message/attachments/59109.pdf (Report in French)
https://www.newsd.admin.ch/newsd/message/attachments/59109.pdf (Report in Italian)

As far as the modal split is concerned (Fig. 5), Simplon and Gotthard are the corridors with the highest share of rail. Volumes at Gotthard increased in the period 2009-2014 and remained stable at 64% in the years 2015-2016, decreasing to 61% in 2017 for the reasons explained above and again increasing in 2018, reaching, at 65%, the highest value in the period 2005-2018. Simplon presented always values over 90% and in 2018 the share was at 92%, 1% less than in the previous year. On the other hand, along Brenner rail transport had shown a decreasing trend since 2010, ending at 28% in 2014. In 2015 and 2016 a 1% increase was visible (from 28% to 29%), but in 2017 and 2018 the share decreased again by 1% per year, reaching the values of 2006 (27%). Referring to Fréjus/Mt. Cenis, data of the year 2018 (18% rail, 82% road) shows a further reduction of the rail component. Mont Blanc and San Bernardino do not have a transalpine rail connection, therefore 100% of the freight is transported across the Alps on the road. Finally, the percentage at Tauern is 35% for rail and 65% for road, with the rail component constantly decreasing since 2015.

When referring to the railway component (Fig. 6), it is also possible to distinguish the type of service between conventional transport, unaccompanied combined transport (UCT) and accompanied combined transport (ACT). Along the two French-Italian corridors with a rail connection (i.e., Fréjus and Ventimiglia), conventional rail transport and UCT play the major role. In 2018, along the Ventimiglia line, UCT constitutes 44% of rail movements and the remaining 56% is conventional. Along Mont Cenis, UCT counts for about 57%, conventional transport (42%), while ACT (with the service between Aiton and Orbassano) is limited to 1%. The condition is similar along the two Swiss corridors, with UCT as the main component (62% at Gotthard and 76% at Simplon), followed by conventional transport (37% at Gotthard and 13% at Simplon). ACT is limited along Gotthard (1%) and more developed at Simplon (11%), mostly thanks to the connection between Freiburg and Novara. Along Brenner, UCT counts for 54% of total freight transport, followed by conventional transport and ACT (connection Wörgl-Brennersee-Trento), with, respectively, 24% and 22% of total volumes. Finally, at Tauern most of the rail traffic (68%) is conventional, followed by UCT (32%) and ACT (less than 1%).

The transported goods sum up to a total of 161 million tons in 2018 with a share of 67% on the road an 33% on the rail. The goods increased on the road with 4%, whereas the rail lost 2% compared to 2017.
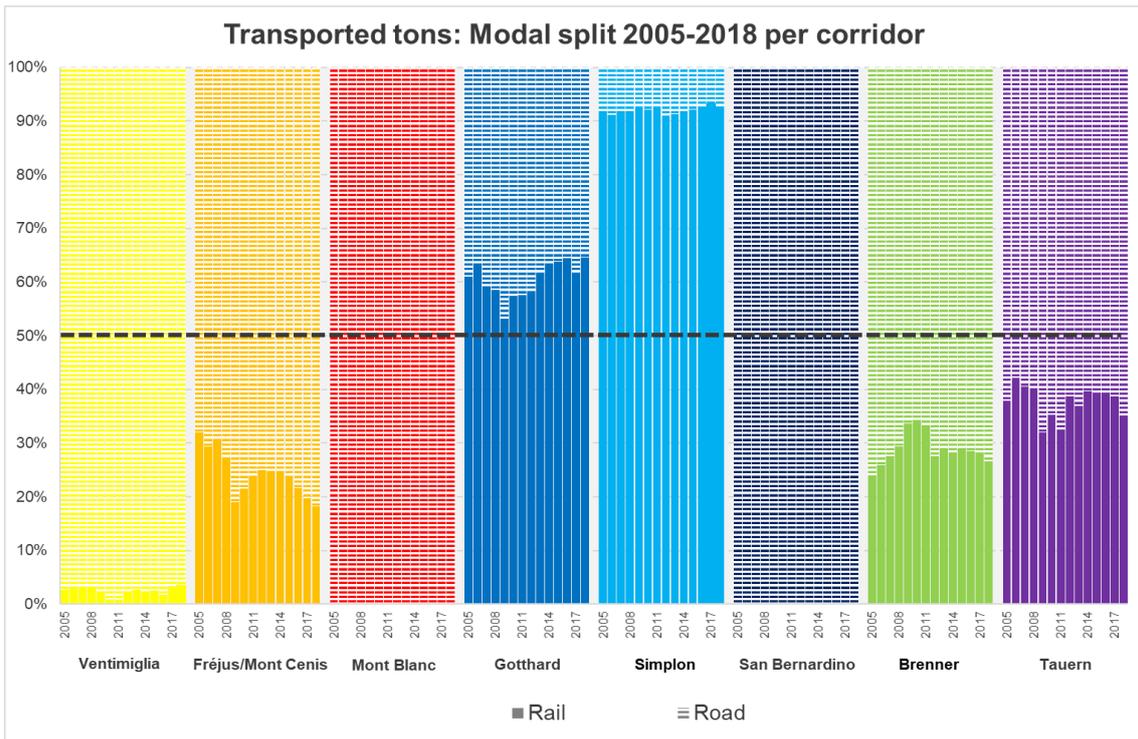
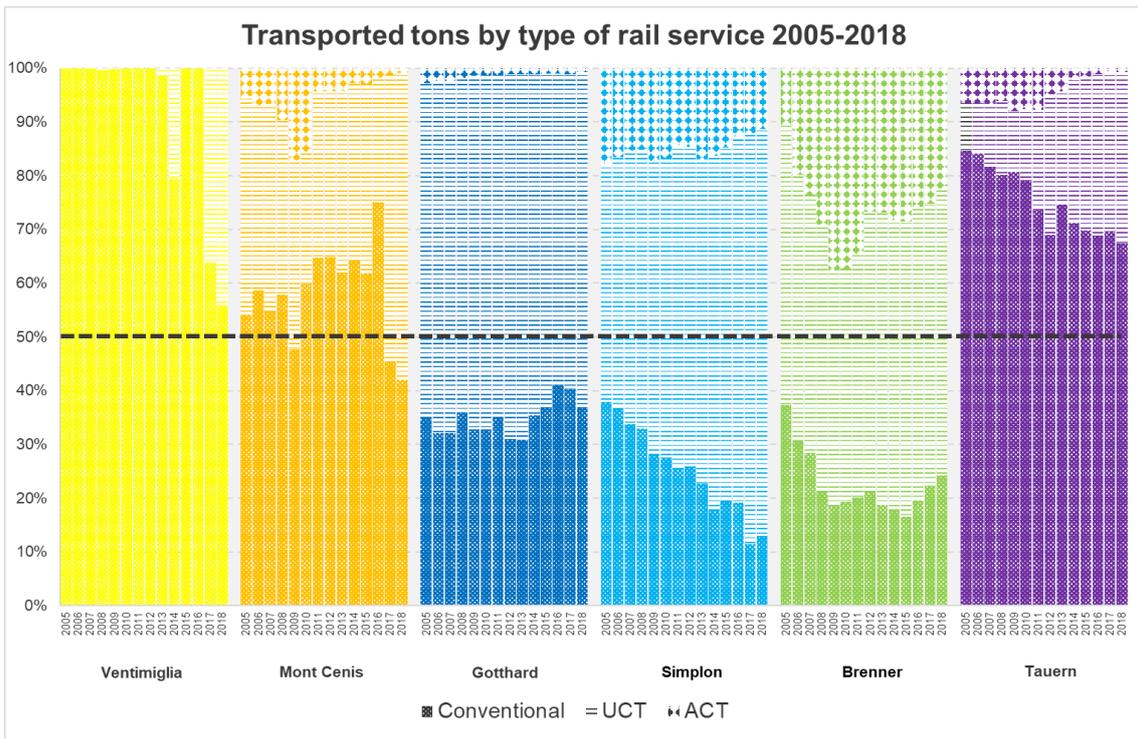*Figure 5: Transported tons, modal split per corridor*

Figure 6: Transported tons by rail, type of services

Indicator air pollution concentrations measured

Fig. 7 illustrates the trend in annual average for **nitrogen dioxide (NO$_2$)** ambient concentrations between 2005 and 2018 near the highways, since NO$_2$ is mainly related to road transport (and particularly to diesel vehicles). Compared to last years, two changes in the measurement sites have to be mentioned, both related to the Brenner corridor. First, the Bavarian station of Oberaudorf has been integrated, thus covering also the German stretch of the highway. Second, the South Tyrolean station of Velturno/Feldthurns has been dropped, since it was deactivated at the end of 2016: South Tyrol is thus described by the stations of Bressanone/Brixen and Ora/Auer.

In general terms, after the slight increase happened in 2017, the year 2018 registered a decrease except at two stations (Tolmezzo, Vallée de la Maurienne). The highest concentrations in 2018 are measured along Brenner (green colour scale), Mont Blanc (red) and Gotthard (blue) corridors, while lower values are visible along Fréjus, Ventimiglia, San Bernardino and Tarvisio (orange, yellow, light blue and violet colours). This result is related to the road traffic volumes presented in Figures 1-3, but it includes other effects, as well: composition of vehicle fleet (share of vehicle categories, share of Euro classes) and meteorology.

The annual average values of NO$_2$ exceed the EU annual limit value of 40 µg/m^3 for the French station of Chamonix-Bossons (Mont Blanc) and for some monitoring stations of the Brenner corridor: Mutters, Vomp and Avio. With 50 µg/m^3, the last two stations registered also the highest values for 2018. Along the Gotthard axis, the stations of Moleno and Camignolo exceed the Swiss national annual limit of 30 µg/m^3. Values are below the EU limit in Quiliano (Ventimiglia), Entreves (Mont Blanc), Vallée de la Maurienne and Susa (Fréjus), Rothenbrunnen (San Bernardino), Tolmezzo (Tarvisio), Ora/Auer, Bressanone/Brixen and Oberaudorf (Brenner).
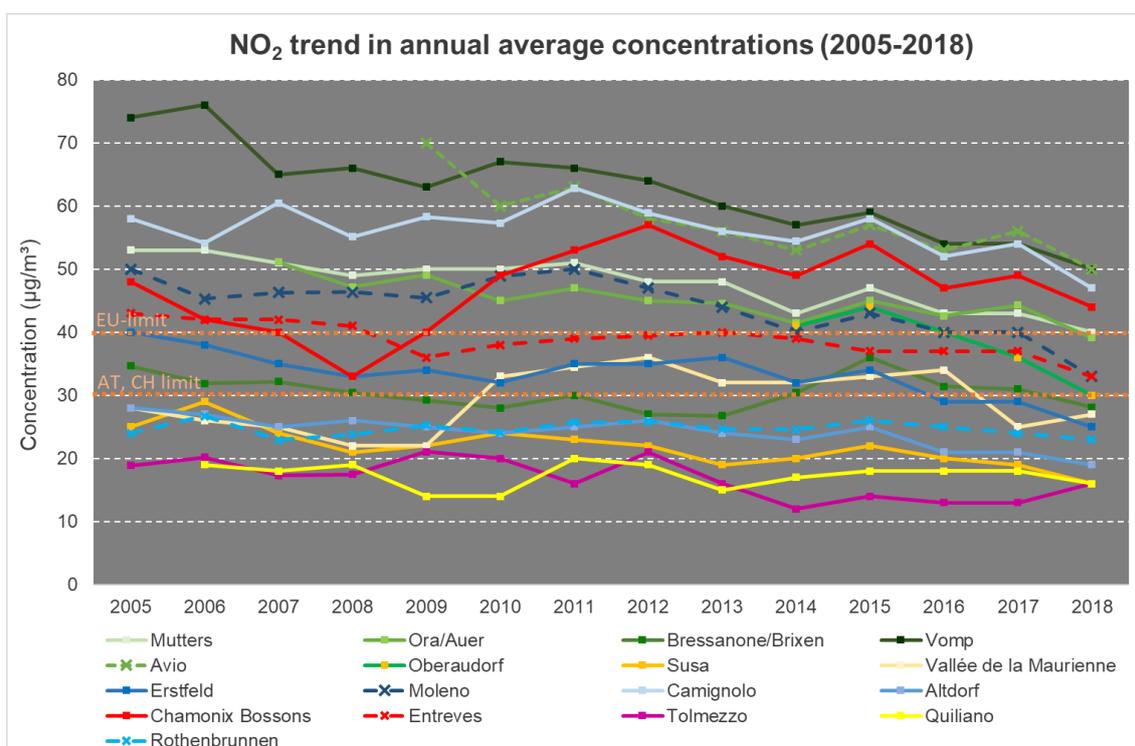

Figure 7: NO$_2$ trend in annual average concentrations[16]

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[16] The value for the station Vallée de la Maurienne in 2011 represents the average 2010-2012; the value for Entreves in 2011 and 2012 represents the average 2010-2013.

Similar to the description of NO_2, the analysis of the **particulate matter (PM_{10})** concentration is restricted at the roadside stations (Fig. 8). Compared to the year 2017, a reduction of PM_{10} concentrations is visible in those stations with higher values (Avio, Ora, Susa, Quiliano and Vallée de la Maurienne). This last registered also the highest values, with 24 µg/m³. On the other hand, stations with lower values (Altdorf, Erstfeld, Rothenbrunnen and Entreves) have registered an increase in concentrations. However, the limit value for the annual average that has been fixed by the EU (40 µg/m³) is not exceeded at any station and the limit value of Austria and Switzerland (20 µg/m³) is not exceeded in any Austrian or Swiss station. Besides this indicator, there are also limit values for $PM_{2.5}$ and short-term limit values for PM_{10}. The corresponding concentrations are only measured at few of the iMONITRAF! sites (e.g. the station in Camignolo, where the limit value[17] is exceeded in 2018 and in the previous years) and an indicator for all corridors is not available.

A time series analysis reveals a fluctuating trend of this indicator. After a general decrease between 2005 and 2014, concentrations start to increase slightly until 2018. Peaks in 2006, 2011, 2015, 2017 may be caused by extremely hot weather periods in the Alps during summer months. A similar feature – but less significant – may also be recognised for NO_2, see Fig. 7. For PM_{10} the value in 2017 in the Vallée de la Maurienne marks an exception, which is not explained.

A couple of caveats are necessary: PM_{10} concentrations are (more strongly than NO_2) influenced by other sources than transport such as wood heating installation. Secondary PM_{10}, built from gaseous precursor concentrations (NO_x, SO_2, NH_3, VOC), can contribute to half of the PM_{10} concentration measured. The long-term trends may therefore not only be explained by the development of PM_{10} emissions of roads vehicles.
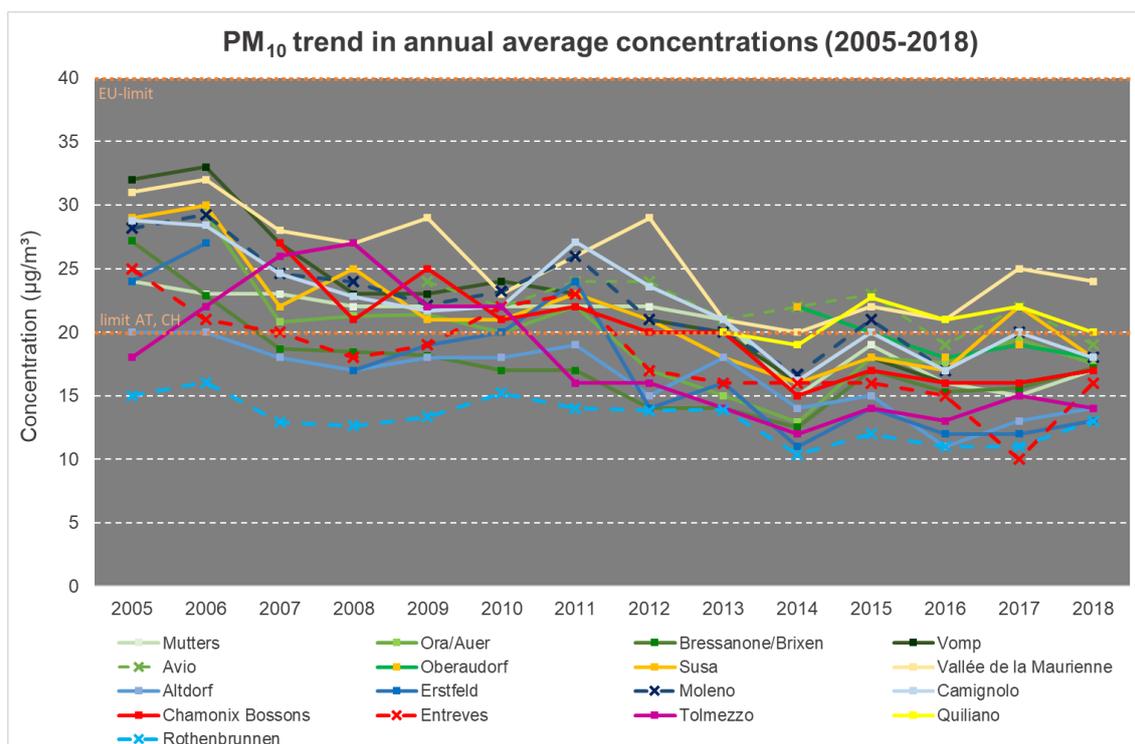

Figure 8: PM_{10} trend in annual average concentrations[18]

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[17] 50 µg/m³, not to be exceeded more than 3 times a calendar year.
[18] The value for Vallée de la Maurienne in 2011 represents the average of the years 2010 and 2012.

Indicator noise

Noise has been measured through the indicators L_{den} and L_{night}. The former defines the overall level registered during the day, evening and night and is used to describe the general annoyance caused by noise. The latter is the indicator for the sound level during the night and it is used to describe sleep disturbance. A comparison between the values registered in different corridors may be not appropriate, due to different distances of the microphones to the streets. However, the variations along the individual corridors are consistent throughout the years. Gotthard and Mont Blanc are the only corridors with continuous data collection for the period 2005-2018 (measuring stations of Camignolo, Reiden and Courmayeur), whereas noise is not monitored along Brenner and Ventimiglia. Only partial data is available along San Bernardino (Rothenbrunnen), Tarvisio (Camporosso), and Fréjus (Bardonecchia). Regarding the first station, data collection started in 2012 and is currently ongoing; in Camporosso and Bardonecchia updated values are not available: the monitoring period was limited to 2011-2017 in the former case and to 2010-2014 in the latter.

Fig. 9 and Fig. 10 show that L_{den} lies in the range between the 79.9 dB(A) and 71.5 dB(A), while L_{night} lies between the 72.4 dB(A) and the 63.4 dB(A). In both cases, the highest value is registered at Reiden and the lowest at Châtillon. Resulting from the installation of a noise-reductive paving, a sudden decrease of Lden and Lnight values occurs in Camignolo and Rothenbrunnen in 2013. Since 2015 the noise levels along the two Swiss corridors are rather stable. Along the Mont Blanc, an increase is registered both in Courmayeur-La Palud (limited to for L_{den}) and in Châtillon. Here, the increase is more evident (from 70.9 to 71.5 dB(A) for L_{den} and from 62.9 to 63.4 dB(A) in L_{night}), but lower than the values of previous years. This can be partially explained by the presence of a construction site for the replacement of the central guard-rail, which started in 2017 and lasted until June 2018, imposing a reduction of the width of the carriageway and, consequently, of the maximum speed.

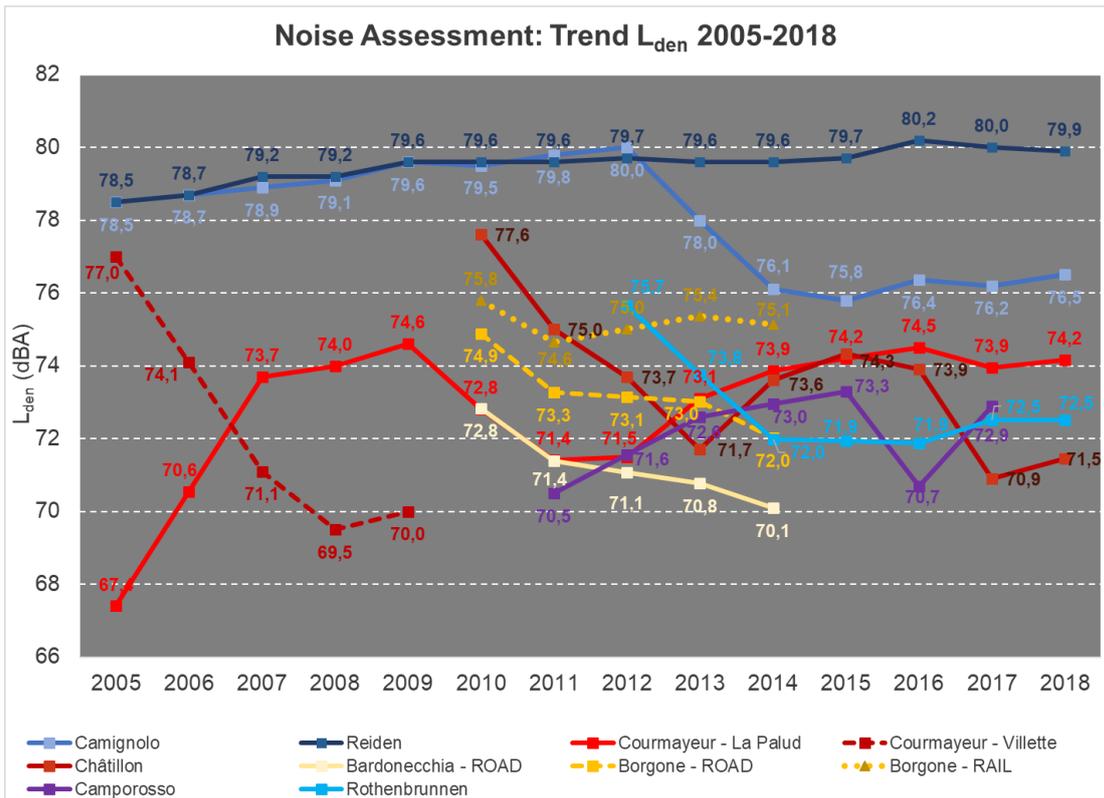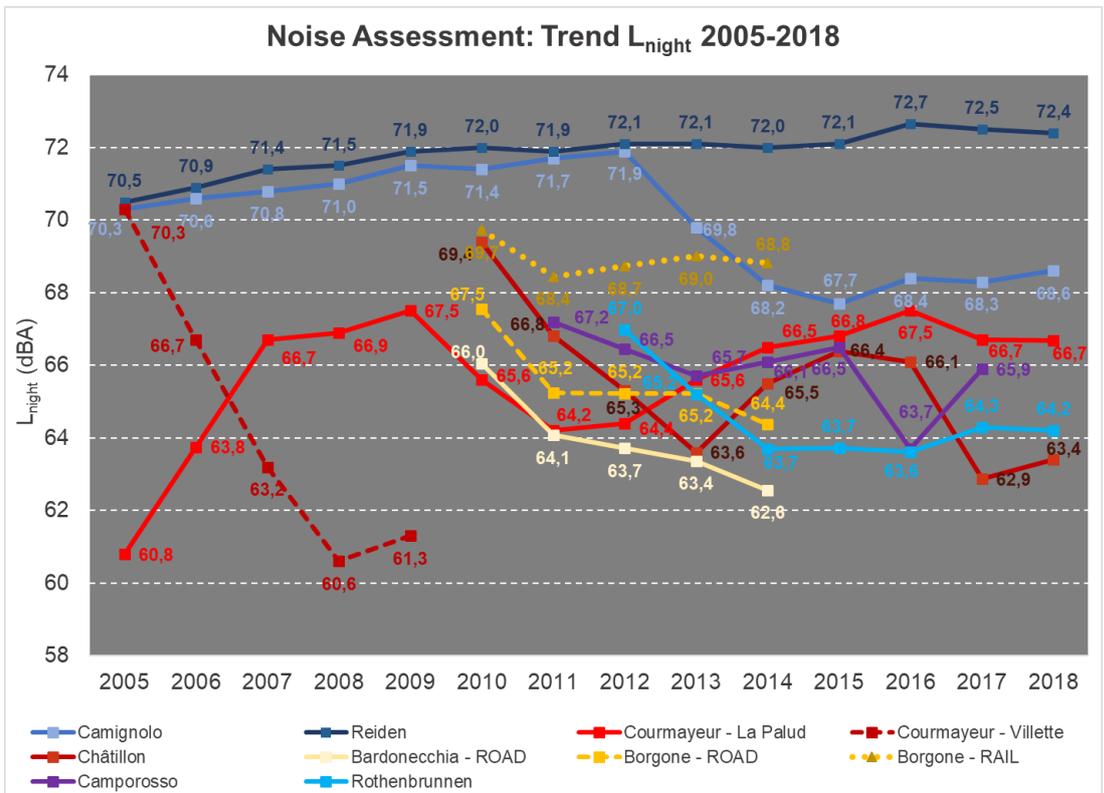Figure 9: Daily average noise level L_{den} trend[19]

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[19] Data for Courmayeur – La Palud (year 2006), Bardonecchia and Camporosso (year 2012) is not available. The average value between the previous and the following year has been considered.

Figure **10***: Noise level during night L$_{night}$ trend*[20]

Indicator Toll prices

Toll prices are calculated as the distance between the entering and exiting toll stations of localities that are located along the transalpine axis under evaluation and that are relevant nodes of the infrastructural network. Compared to the previous reports, Brenner has been prolonged from Kufstein (Border AT/DE) to Munich, thus including also the German stretch of the corridor. Origins and destinations have been defined as follows:

- Ventimiglia: from Marseille (FR) to Genova (IT) via Ventimiglia (381 km)
- Fréjus: from Lyon (FR) to Torino (IT) via Fréjus road tunnel (298 km)
- Mont Blanc: from Bellegarde-sur-Valserine (FR) to Ivrea (IT) via Mont Blanc road tunnel (228 km)
- Simplon: from Brig (CH) to Gravellona Toce (IT), via Simplon pass (99 km)
- Gotthard: from Basel (CH) to Chiasso (CH) via Gotthard road tunnel (288 km)
- San Bernardino: from Chur (CH) to Chiasso (CH) via San Bernardino road tunnel (169 km)
- Brenner: from Munich (DE) to Verona (IT) via Brenner pass (415 km)
- Tarvisio: from Salzburg (AT) to Udine Nord (IT) via Villach (313 km)

The assessment is performed for the passage of a standard passenger car and three standard heavy duty vehicles of 5 axles and 40 t, with distinction between EURO-classes II, V and VI. The sums for the alpine passages for the year 2018 are visualized in Fig. 11. The prices refer to the prices for a single passage. This holds for the Fréjus and Mont Blanc tunnels, the Austrian high-way vignette and the separate Brenner highway toll on the A13 in Austria as well as for the Swiss highway toll (passenger cars). For these corridors return tickets and yearly subscriptions are also available, which would lower the cost for a single passage. For Switzerland only a yearly ticket is available, meaning that only the first passage costs € 36.03, while all subsequent passages within the same year are free.

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[20] Data for Courmayeur – La Palud (year 2006), Bardonecchia and Camporosso (year 2012) is not available. The average value between the previous and the following year has been considered.
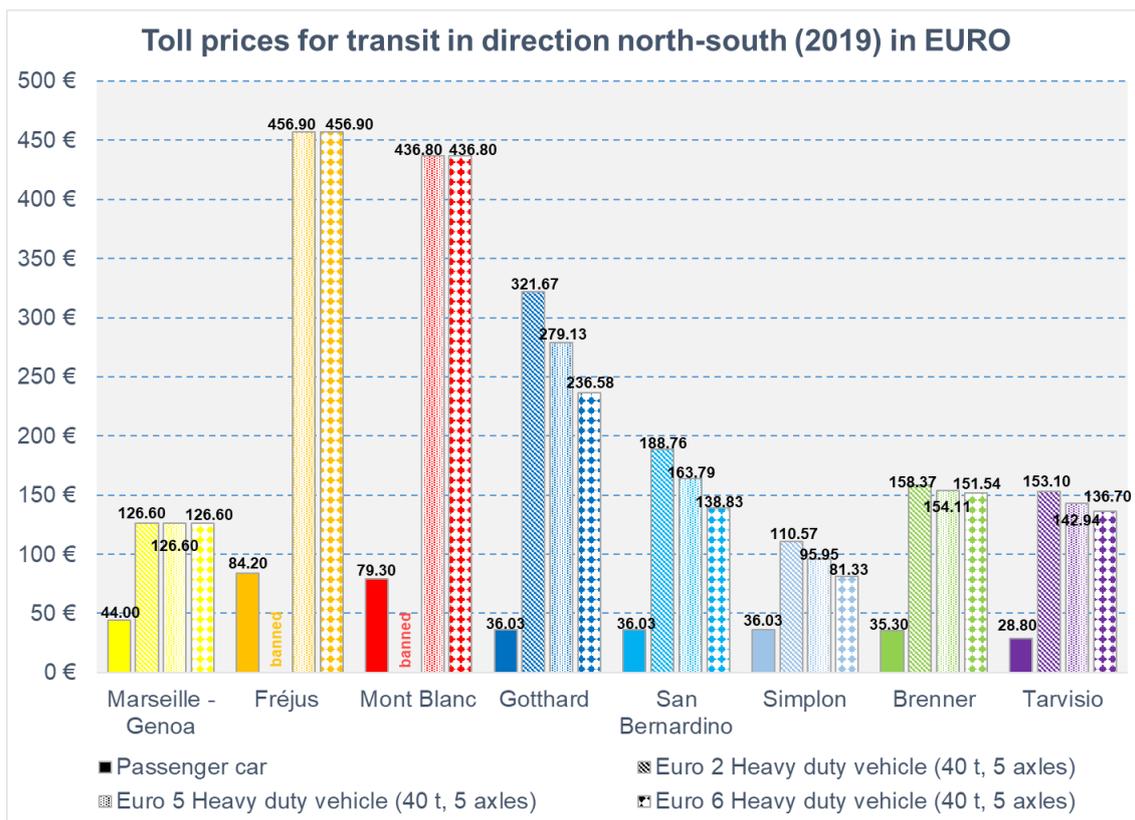
Toll prices for transit in direction north-south (2019) in EURO

Corridor	Passenger car	Euro 2 HDV	Euro 5 HDV	Euro 6 HDV
Marseille - Genoa	44.00	126.60	126.60	126.60
Fréjus	84.20	banned	456.90	456.90
Mont Blanc	79.30	banned	436.80	436.80
Gotthard	36.03	321.67	279.13	236.58
San Bernardino	36.03	188.76	163.79	138.83
Simplon	36.03	110.57	95.95	81.33
Brenner	35.30	158.37	154.11	151.54
Tarvisio	28.80	153.10	142.94	136.70

■ Passenger car · Euro 2 Heavy duty vehicle (40 t, 5 axles) · Euro 5 Heavy duty vehicle (40 t, 5 axles) · Euro 6 Heavy duty vehicle (40 t, 5 axles)

Figure 11: Toll Prices for a single transit on the iMONITRAF! corridors in direction North-South

For **passenger cars** the highest charges are applied for the Fréjus and Mont Blanc corridors. Here, apart from the highway tolls, the additional tunnel tolls are responsible for the high overall sum compared to the other corridors. It is also important to point out that the tunnel tolls on the Fréjus and the Mont Blanc differ according to the direction of travel, due to the different VAT applied: they are higher when travelling from Italy to France (€ 46.40 instead of € 45.60 for both Fréjus and Mont Blanc). With € 44,00, € 36.03 and € 35.30, the charges for Ventimiglia, the Swiss highways and Brenner are in the midrange of the corridors, while the cost for a passage on Tarvisio are the lowest (€ 28.06). Referring to Brenner, it has to be mentioned that German highway is free of charge for passenger vehicles, so the toll derives only from the Austrian and Italian components.

For **heavy duty vehicles**, road tolls follow the similar West-East-divide as for passenger cars. Fréjus and Mont Blanc charge the highest tolls, while Gotthard and San Bernardino charge medium-ranged sums. Leaving aside Simplon (whose distance is noticeably shorter compared to other corridors), Ventimiglia, Tarvisio and Brenner charge the lowest tolls for a passage. Differently from light vehicles, German highways are not free of charge for heavy vehicles, so this component concurs in defining the tolls along the Brenner corridor. Differently from Switzerland, Germany and Austria, the Italian and French toll systems have not yet applied a distinction of charges between single emission classes. For instance, at Ventimiglia the toll for Euro II and Euro VI is the same (€ 126.60). Compared to the previous year, a reduction of price has been registered. This is due to the Italian side and derives from the collapse of the Morandi bridge in Genoa. Indeed, the shortening of the distance run along the highway has reduced also the toll.

The toll of the Italian part of the Brenner corridor (from Brenner to Verona) is € 40.20 for each EURO class. On the contrary, the German and Austrian systems (from Munich to Kufstein and

from Kufstein to Brenner) introduces differences to the tolls according to the EURO classes. In Germany, tolls are € 20.50 for EURO II, € 16.24 for EURO V HDVs and € 15.34 for a EURO VI HDV; in Austria, € 97.67 for EURO II and V HDVs, € 96.00 for a EURO VI HDV. This explains the slight difference visible in Fig. 11. The biggest difference among Euro classes is visible at Mont Blanc and at Fréjus, where EURO II vehicles are not allowed to circulate. A further analogy with the situation of passenger cars is that the tunnel tolls on Fréjus and Mont Blanc differ according to the direction of travel for heavy duty vehicles: due to the different VAT, the charge is higher when travelling from Italy to France (€ 338.40 compared to € 332.80 for a EURO V or EURO VI truck). Finally, along the Swiss corridors, a EURO V truck pays € 279.13, about 87% of the charge of a EURO II vehicle (€ 321.67). This percentage further lowers to 74% when we compare EURO VI (€ 236.58) and EURO II trucks.

This analysis shows the absolute costs of selected trips. For freight forwarders, the distance-specific costs – costs per vehicle kilometre – is another important criterion for choosing the most convenient corridor and transport mode. To this aim, Fig. 12 shows the specific costs, by dividing the absolute costs presented in Fig. 11 by the number of kilometres for each corridor, as expressed at the beginning of this section. The order of corridors from highest to lowest costs remains similar as for the absolute costs: if we consider a heavy vehicle with EURO VI technology and 40 tons, specific toll prices are the highest at Fréjus and at Mont Blanc (€ 1.92/veh-km and € 1.53/veh-km), they lie in the middle for Swiss corridors (€ 0.82/veh-km at Gotthard, Simplon and San Bernardino) and are the lowest at Tarvisio (€ 0.44/veh-km), Brenner (€ 0.37/veh-km) and Ventimiglia (€ 0.33/veh-km). Compared to the values of 2018 presented in the previous annual report, toll prices did hardly change compared to the previous year. For Euro 2 class HV they show a slight increase between 1 and 5 Eurocents per km. Another modification (decrease) happens at Brenner: this is due to the inclusion of the German component in the calculation, which is lower than the Austrian and Italian ones, and contributes to a reduction of specific costs for the entire corridor.

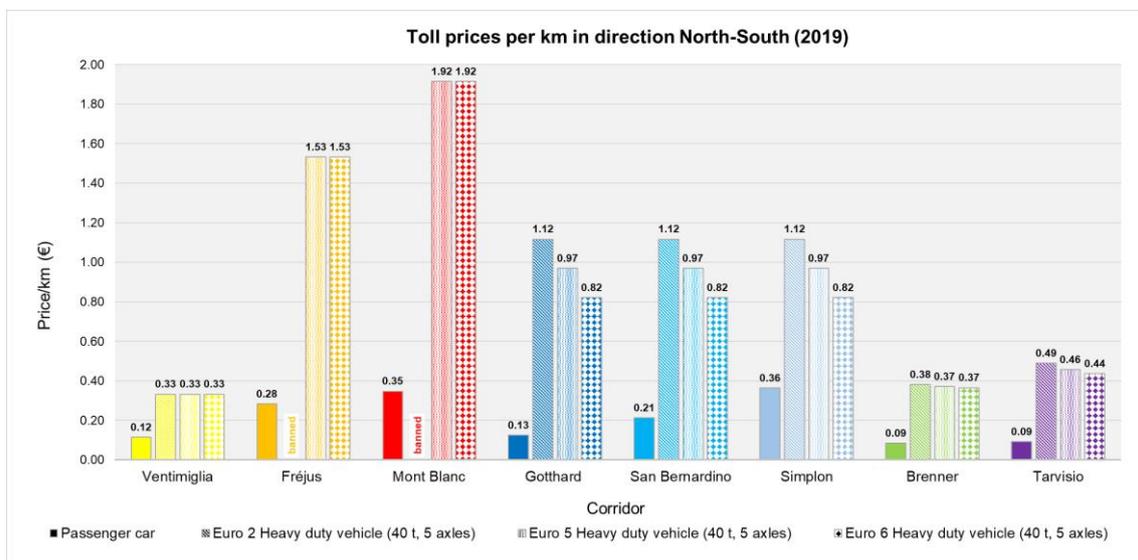*Figure 12: Distance-specific toll prices (€/km) for a transit on the iMONITRAF! corridors (direction North-South)*

A general feature of absolute and specific costs is that high tolls correlate with low traffic volumes and vice versa: recalling Fig. 2 and Fig. 12, the Fréjus and the Mont Blanc have high tolls and low traffic volumes, while Brenner, Ventimiglia and Tarvisio have lower costs and higher traffic volumes.

Indicator fuel price

This indicator monitors the average prices of diesel and petrol (normal petrol) at the national level in Austria, France, Italy, Switzerland and (from this year on) also Germany. The values shown in Fig. 13 are the annual averages of the values officially registered in every country on four days in all seasons (15th Jan, May, Jul, Oct). Data is provided by ÖAMTC for Austria, the Federal Statistical Office for Switzerland SFSO, ISTAT for Italy, INSEE for France and ADAC for Germany. Average price is € 1.35 for diesel and € 1.44 for petrol.

In comparison to 2005, an overall increase of prices happened in all countries, but with a significant fluctuation during the economic crises of 2008 and 2009. From 2009 onwards, there has been a strong increasing trend until 2012, followed by a decrease in all countries for the years 2013-2016. The decrease is particularly relevant in years 2014-2016 for Italy, France and Austria and it can be explained by the drastic plunge in price of the crude oil. In Switzerland the decrease seems less marked (diesel) or even in countertrends (petrol). However, this result must be interpreted by considering the unit of measure selected for our analysis (€) and the financial policies adopted by the Swiss National Bank, which in January 2015 decided to discontinue the minimum exchange rate of CHF 1.20 per Euro and to lower the interest rate. If the costs of petrol and diesel in Switzerland were expressed in CHF, the time series would show the same features as those in the other countries, the value for 2015 would be about 15% lower than in 2014. After four years of decreasing prices, 2017 and 2018 show a general increase, which has led to the levels of the year 2015. In 2019, a slight reduction of prices is recognised. Switzerland seems to show a contrary trend. However, if the variation of the exchange rate is accounted[21], the trend in Switzerland is the same as in the other countries with lower fuel prices in 2019 than in 2018.

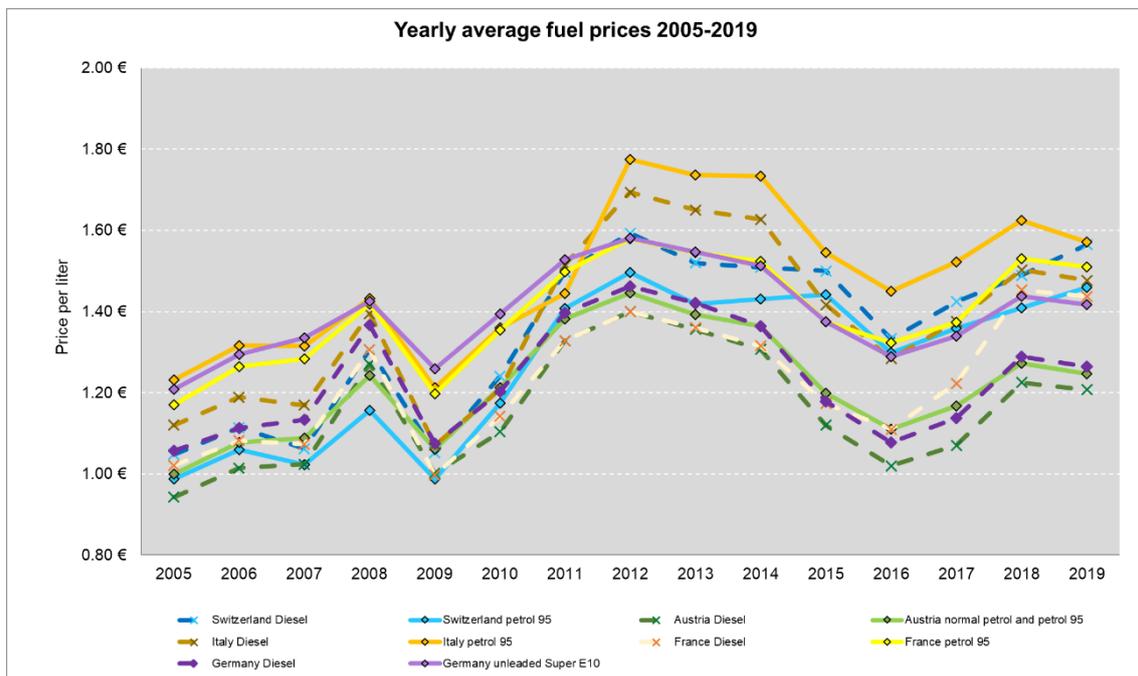**Figure 13: Annual average fuel prices in € per litre.**

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[21] Exchange rate EUR/CHF 2017: 1.111, 2018: 1.155, 2019: 1.112 (https://www.estv.admin.ch/estv/de/home/direkte-bundessteuer/wehrpflichtersatzabgabe/dienstleistungen/jahresmittelkurse.html)

5.2 New online presentation of the monitoring system and outlook

New WebGIS application: Alpine Platform of Knowledge for Mobility and Transport

A re-launch of the iMONITRAF! WebGIS application in collaboration with EUSALP AG4 has been achieved in 2019. The new „Alpine Platform of Knowledge for Mobility and Transport offers a user-friendly interface that gathers not only the existing indicators collected by iMONITRAF!, but also presents results of studies, projects and activities carried out under EUSALP Action Group4 Mobility (AG4) since the start of the Macro-regional Strategy for the Alpine Region in 2016. On the „Layers" section, a variety of transport related information can be visualised, including the transalpine corridors, the trans-European road and rail network (TEN-T), the location of rail-road terminals, seaports, and measuring stations. One layer also maps conflicts of transport and mobility with concrete examples of regions that show the complexity of balancing the sustainable social, economic and ecological development in the Alpine Region. On the „Analysis" section, traditional iMONITRAF! Indicators such as road and rail traffic fluxes, emissions, fuel prices etc. for the different corridors can be queried and exported in a more attractive and user-friendly way. The Alpine PoK for Mobility and Transport will be continuously updated to become an important communication and decision-support tool on transport in the Alpine Region.

Outlook: Extension of the monitoring system – new indicators

In the last years, the expected improvement of emission factors of road vehicles has occured - at least partly. Exhaust emission factors for heavy vehicles and gasoline light vehicles decreased for NO_x and PM_{10}. Due to the "Dieselgate" scandal, the trend did not happen for diesel passenger cars and light duty vehicles as expected. The overall result, however, is a decreasing trend as can be seen in Figure 7 and – with exceptions – in Figure 8. At most measuring sites, the limit values are no longer exceeded, which reduces the pressure on politicians to fight for more clean air measures. At the same time, the public has become aware of the urgent need for climate protection action. Instruments and measures are planned or already in force towards decarbonizing the transport system. So far, the iMONITRAF! indicators do not represent the influence of such measures and their effects. Therefore the set of indicators shall be extended correspondingly. First ideas for interesting aspects are:

- Increase of infrastructures for recharging electric vehicles and service stations proving alternative fuels (biofuels, CNG, LPG, hydrogen) in the Alps along the iMONITRAF! corridors.
- National fleet composition and fleet composition of HGV at toll stations along the iMONITRAF corridors (alternative drive systems, alternative fuels).
- National use/sale of alternative fuels.
- Information on the differentiation of pricing components in the Alpine regions.
- Policies in the Alpine regions for promoting sustainable mobility.

The technical group of iMONITRAF! will check the availability of indicators that are useful for the description of these aspects for all iMONITRAF! corridors.

6 Moving ahead on regional and national level: Update on Best Practices

Again, transport policy frameworks were further developed and optimised in all iMONITRAF! regions throughout the year 2019. Developments took place in all five policy pillars (see table below) with a specific focus on pull-measures (improvement of rail & CT infrastructures, services and incentives) to make combined transport more competitive. In policy pillar 3 "Modal shift", several regions have reported further improvements of CT subsidy systems as well as the extension of CT services and terminal infrastructures. Regulatory measures (as reported under pillar 2) were only slightly adjusted in 2019, as a very comprehensive set of driving bans and restricting measures is now already available along the iMONITRAF! corridors (bans in Tyrol, Switzerland). With respect to passenger transport (pillar 4), a strong focus on cross-border mobility was reported for 2019 as well as a continued effort to decarbonise cars, busses and passenger trains.

The new partner Région Sud PACA mainly reported on its activities regarding the use of alternative fuels. Facing chronic air pollution (fine particles, ozone, NO_x) and with a high commitment to implement ambitious climate change policies, Région Sud took several initiatives to promote alternative fuels.

OVERVIEW: BEST PRACTICE UPDATE 2019

Policy Pillar	Name of measure	Country/region
Pillar 1: Monitoring, Information & awareness raising	Adjustment of monitoring systems – new measurement devices to monitor black carbon (soot) and $PM_{2.5}$	Central Switzerland
Pillar 2: Limiting negative impacts of Alpine transport	Extension of Night Driving Ban	Tyrol
	Tightening of Sectoral Driving Ban (SDB), inclusion of five new types of goods	Tyrol
	Dynamic adjustment of driving bans for high-emitting HGV	Tyrol
	Ban of leaving the motorway to reach certain petrol stations	Tyrol
	Driving bans on secondary roads as emergency reaction against massive evasion traffic	Tyrol
	Task Force "Traffic control" to implement regulatory measures in the Canton of Nidwalden	Canton of Nidwalden
	Intensification of heavy goods vehicle controls	Switzerland
	Construction of noise barriers along the Brenner railway line and motorway A22	Autonomous Province of Bolzano
	Continuation of pilot activities on speed limits within LIFE project "BrennerLEC"	Autonomous Province of Trento and Autonomous Province of Bolzano
Pillar 3:	**Modal shift policy mix and CT**	

Modal Shift	Support measures and subsidy system for CT	Autonomous Provinces of Bolzano and Trento
	Decision to reduce track access charges	Switzerland
	Decision to adjust HGV fee	Switzerland
	Expansion of Rolling Road Services	Tyrol
	New framework agreement for rolling motorway	Switzerland
	New national law "Strategic Orientations for Mobility" (LOM)	France
	Subsidies for CT infrastructures (transhipment platforms and connection to parts)	Région Sud PACA
	Infrastructure	
	Successful continuation of extension to 4 m-corridor	Switzerland
	Swiss-German Declaration to increase rails freight capacities	Switzerland & Germany
	Brenner Base Tunnel's southern access route: Additional Act of the Agreement upon the rail bypass of Trento	Autonomous Province of Trento
	Upgrading of existing intermodal terminals along the Brenner corridor	Autonomous Province of Trento (and Veneto Region and Lombardy Region)
Pillar 4: Passenger transport	New contract for public transport services in Tyrol	Tyrol
	ARPAF project CrossBorder	Tyrol
	Alpine Space project LinkingAlps	Land of Tyrol, Autonomous Province of Bolzano, Autonomous Province of Trento
	Long-distance direct connections Bolzano-Vienna and Bolzano-Milan	Autonomous Province of Bolzano
	Further implementation of the subsidy system for the purchase of electric cars and charging stations.	Autonomous Province of Bolzano
	Feasibility studies on new rail connections: Primolano-Feltre as part of the "ring of the Dolomites" and Rovereto-Riva del Garda	Autonomous Province of Trento
	Large-scale improvement of railway services on Mediterranean Coast	Région Sud PACA
	Implement regional standard for rail services (2 trains/hour)	Région Sud PACA
	Survey and pilot projects on the use of alternative fuels (electricity, natural gas) in passenger transport (road, rail & maritime transport)	Région Sud PACA

	Financial support for set-up of charging stations for alternative fuels and purchase of electric cars & natural gas vehicles (different purposes)	Région Sud PACA
	Improvement of public transport services to Andermatt	Canton of Uri
	Extension of new railway line Mendrisio-Varese to Milano Malpensa Airport	Canton of Ticino
	New boat line Porto Ceresio-Morcote for cross-border transport	Canton of Ticino
Pillar 5: Innovative approaches	Appliance of production know-how (standardisation, First-in-First-out principle) on high frequent CT routes via the Brenner corridor	Bavaria, Land of Tyrol, Autonomous Province of Bolzano, Autonomous Province of Trento (Brenner Corridor)
	ICT systems to support intermodality as part of SmartLogi project	(case study in Friuli Venezia Giulia and Carinthia – Tarvisio Corridor)

Table 3: Source: Compilation of the iMONITRAF! network

6.1 Overview on revised and new Best Practices

6.1.1 Pillar 1: Information, monitoring, awareness raising

Overall, monitoring campaigns are continued as in previous years and as summarized by the iMONITRAF! monitoring activities (see chapter 4). In 2019, no specific new measures related to information, monitoring or awareness raising were reported by the partners.

In 2019, the Cantons of Central Switzerland extended their common monitoring network "inLUFT" by measurements of fine paticulate matter $PM_{2.5}$ (so far only PM_{10}) and black carbon (soot). The new measurement devices for black carbon can distinguish fossil from biogenic matter and thus provide information on the emission sources (mainly diesel or wood combustion). The new measurements started in the beginning of 2020.

6.1.2 Pillar 2: Limiting impacts of Alpine transport

Pillar 2 of the iMONITRAF! categorization of measures deals with regulatory measures with the direct objective to limit negative impacts of transalpine freight transport. Especially along the Brenner corridor, pressures related to air pollution and congestion remain very high so that new regulatory measures were implemented. Also, enforcement measures belong the pillar 2 to ensure the effectiveness of the implemented policy mix.

In **Tyrol**, the existing set of driving bans was further optimised in 2019. The **sectoral driving** ban was extended to the transport of five additional types of goods: 1) crop, 2) paper and cardboard, 3) liquid mineral oil products, 4) cement, limescale, processed plaster stone and 5) tubes and hollow profiles. From beginning of 2020, exemptions from the sectoral driving ban for transit traffic are only granted for new EURO VI HGV with a first licence approval after 31st August 2019 (NOx emissions below 0.4 g/kWh). For destination and source traffic, EURO V and VI are still exempted

in the period 2020-2022 and from 2023 onwards the exemptions are only granted for new EURO VI vehicles as well. The **night driving ban** is also further extended: in 2020, only EURO VI HGV are exempted from the night driving ban. These vehicles will also be banned in the beginning of 2021 when the exemptions to the night driving ban will only be granted for zero emission vehicles (not considering special exemptions, e.g. for the transport of perishable food or period paper work).

Since 31 Oct 2019 all **HGV Euro 4 classes are banned** on the A12 motorway, with exceptions for regional traffic valid until 1 January 2021. Tyrol has furthermore implemented two **measures to avoid unwanted traffic shifts to the secondary road network**. A pilot project was launched to ban HGV along the Brenner corridor in Tyrol to access two petrol stations in order to alleviate traffic along certain access routes. As major measure, driving bans on specific sections of the secondary road network were implemented by the Regional Government of Tyrol to act against the massive undesired evasion traffic due to traffic congestion on the motorways during the holiday season. Drivers exiting the motorway won't have the possibility to bypass traffic jams on regional roads. Exceptions are valid for destination and originating traffic as well as for residents. These driving bans came into effect during the summer holidays period 2019 and will be repeated in winter 2019-20 on selected sections of the road network, on Saturdays, 7 AM until 7 PM and Sundays, 8 AM until 5 PM in both directions and starting December 21th 2019 until April 13th, 2020.

OVERVIEW: DRIVING BANS IN TYROL (EXISTING & DYNAMIC ADJUSTMENTS)

		EURO 0-II		EURO III		EURO IV		EURO V (incl. EEV)		EURO VI (1st registr. before)		EURO VI (1st registr. after 31.8.18)		ZEV	
		Solo HGV	Semi-trailers	Solo HGV	Semi-trailer	Solo HGV	Semi-trailer	Solo HGV	Semi-trailers	Solo HGV	Semi-trailer	Solo HGV	Semi-trailer	Solo	Semi-trailer
Driving bans for high-emitting vehicles "Euroclass driving bans" (Kufstein - Zirl)	Transit	■	■	■		As of 31.10.19	As of 01.01.21								
	Origin- and destination traffic	■	■	as of 01.01.20		As of 01.01.21	As of 01.01.23								
	Exemptions														
Sectoral Driving ban (Kufstein - Ampass)	Existing sectors (8 types of goods)	■	■	■	■	■	■	■	■	As of 01.01.2021					
	New sectors (5 add. types of goods)	As of 01.01.2020													
	Origin- and destination traffic	As of 01.01.2020						As of 01.01.23							
	Remaining goods and exemptions														
Night driving ban (Kufstein - Zirl)	Transit	■	■	■	■	■	■	■	■	As of 01.01.2021					
	Origin- and destination traffic	■	■	■	■	■	■	■	■	As of 01.01.2021					
	Exemptions														

■ ... no driving ban (green)
■ ... existing driving bans (red)
■ ... driving bans to be dynamically adjusted as of... (orange)

Table 4   ZEV = zero emission vehicles

In the Swiss **Canton of Nidwalden**, a **Task Force "Traffic control Nidwalden"** was established in 2019 which discusses potential measures to regulate traffic spill-overs to the regional and local road network in times of high congestion on the A2 motorway (Gotthard corridor). Measures that are discussed include dosing systems, changing streets into "dead-end-streets" and driving bans – thus similar measures that already implemented in Tyrol.

In **Switzerland**, **enforcement** of technical standards of heavy vehicles, load and social provisions were further extended. In 2018, 190,459 vehicles were tested with 161,382 inspection hours, which is 5% more than in 2017 (153,652 hours).

Measures for limiting environmental pressures also include measures for limiting noise impacts. In the **Autonomous Province of Bolzano**, works for the construction of **noise barriers along the Brenner railway line** started in 2019 and are currently going on in the municipalities of Chiusa/Klausen (barrier of 540m) and Colle Isarco/Gossensass (barrier of 870m). Tender procedure for the construction of noise barriers in the city of Bolzano/Bozen has been published. Concerning the Brenner motorway A22, noise barriers of 232m length are currently built in the municipality of Vadena/Pfatten, south carriageway.

In the frame of the **BrennerLEC project**, reduced speed limits were still applied on the Brenner motorway A22 (Italian section), resulting in environmental benefits. In particular, the experimental data collected during phase 2 of the project in 2019 showed decreases of about 7% for nitrogen monoxide and about 2-3% for nitrogen dioxide with an average speed reduction of about 5 km/h for light vehicles, compared to reductions of 10% for both types in phase 1 with an average speed reduction of about 14 km/h for light vehicles (see Annual Reports 2017 and 2018 for more information). With regard to application of reduced speed limits for the optimisation of the motorway capacity, during some tests there was a reduction in journey times of approximately 30% on heavy traffic days ("red sticker"), allowing vehicles to travel at a speed of around 80 km/h, compared with the 55 km/h expected in particularly critical traffic conditions.

6.1.3   Pillar 3: Modal shift

Pillar 3 focuses on modal shift measures, including both push and pull measures. It includes policy measures related to modal shift, with a special focus on developments related to the common measures of the iMONITRAF! strategy as well as infrastructure measures.

Policy measures

In **Switzerland**, the Federal Council decided to **reduce track access charges** for freight transport in general (ca. 7%) and by offering discounts for long freight trains (> 500 m) and for the use of multiple traction in particular from 1 January 2021. The reduction will significantly increase the competitiveness of transalpine rail freight transport. In the same decision, it was agreed to **adjust the Swiss HGV fee (LSVA)** dynamically: as of 2021, HGV belonging to Euroclasses IV and V will be shifted into the most expensive pricing category.

As illustrated in the Annual Report 2018, the **autonomous Province of Bolzano** an the **autonomous Province of Trento** implemented a **subsidy system for combined transport** so that financial incentives are extended beyond the existing system on the Tyrolean part of the Brenner corridor. In the year 2019, the measures are extended until 2021 and additional financial resources were made available by both regions. In the **autonomous Province of Bolzano**, financial aids are provided for the rail section Brenner-Salorno/Salorno-Brenner for accompanied combined transport or unaccompanied combined transport. In the years 2020-21, the aids will be continued with a € 3 million support per year. The prolongation has also been confirmed by the European Commission.

The Autonomous Province of Trento, in order to promote the development of Combined Transport (CT) and the transfer of freight traffic from road to rail, extends the financial aids until the end of 2021 (consistent with the resources available in the provincial budget) and the notification for a further extension to 2022 has been delivered.

The **frameworks for the provision of rolling motorway services** were extended both in **Tyrol** and on national level **in Switzerland**. In Tyrol, in coordination with ÖBB, it was agreed to considerably extend rolling motorway capacity from about 150,00 vehicles/year in 2017/2018 to approximately 250,000 vehicles/year at the beginning of 2020, approx. 400,000 vehicles/year from 04/2020 to 450,000 vehicles/year from the beginning of 2021. This extension of the rolling motorway is part of a ten-point plan between Germany, Austria and, in particular, Tyrol and Bavaria. In Switzerland, a new framework agreement for the years 2019-2023 was signed for the provision of rolling motorway services. The Confederation orders annual traffic volumes of between 100,000 and 110,000 consignments, with an annual subsidy volume of a maximum of 23.8 million Swiss francs.

Also, the new partner **Région Sud PACA** makes use of **subsidies for combined transport**, with a focus on subsidies for infrastructure development. Especially, subsidies are granted for improving rolling motorway transshipment platforms to improve the access of the hinterland of Marseille port to the European network. The objective is to reduce traffic volumes by 30,000 vehicles/year on the relevant corridors. Furthermore, subsidies are granted for better connecting the port of Toulon to the railway network and for improving infrastructure and freight ships for inland waterways.

In **France**, at national level, the year 2019 also gave a new platform for re-discussing the options for optimizing **road pricing on the French road network**. Over the last years, the French government has several times tried to implement new toll approaches (éco-redevance poids lourds (→ Annual Report 2014), Écotaxe (→ see Annual Report 2018)) and with the discussion of a new strategic Mobility law "Loi d'Orientation des Mobilités" (LOM), different options for implementing the polluter-pays principle in the frame of road pricing were discussed. One option which was discussed was a Vignette solution which had rather strong support in the first rounds of discussion. However, after the final decision of the European Court of Justice on the German toll proposal (with discriminatory impact) and the new proposals for the Eurovignette Directive which foresee a phasing-out of time-based charges, the Vignette proposal was not taken forward. The transport sector itself proposed a charge `"Éco-Transport" for which implementation was however not feasible. As both proposed options were in the end not feasible, the LOM law does in its final version not foresee the implementation of any new road pricing elements for the French road network.

Infrastructure measures and services

In **Switzerland**, the **construction work for the 4 m-corridor** on the access routes to the New Railway Link through the Alps (NRLA) is proceeding according to plan. This programme, with a budget of CHF 990 million, is an important element of Switzerland's modal shift policy and is to be implemented by the end of 2020, following the opening of the Ceneri Base Tunnel. This transalpine tunnel will be inaugurated by the Swiss president on 4th September 2020. The opening of this 15.4-kilometre tunnel connecting Camorino and Lugano will mark the end of the Alpine rail link project which also includes the 57-km Gotthard and 34.6-km Lötschberg base tunnels inaugurated in 2016 and 2007, respectively.

Swiss Federal Councilor Sommaruga and German Transport Minister Scheuer signed a ministerial declaration on 22 May 2019 on the access routes through the Alps. The agreement aims to create more capacities for rail freight traffic (+ 50 tracks/day) until the Rhine Valley line between Basel and Karlsruhe is expanded to four lanes. Also, the railway line between Stuttgart and Zurich shall be further developed for rail freight traffic to serve as fully available detour route in case of disruptions of the Rhine Valley line (as occurred in 2017).

The **construction of the Brenner Base Tunnel** is on track. At the end of 2019, almost half of excavation works on the Brenner Base Tunnel have been completed. This means that 115 km of the total 230 km of the tunnel system are excavated. Construction works are going on non-stop in the regions of South Tyrol (Italy) and Tyrol (Austria) with 11 excavation fronts and the four construction lots in Tulfes-Pfons, Pfons-Brenner, Mules and the Isarco River Underpass.

In **Trento**, the **by-pass of the city of Trento** of the Brenner railway line is planned. Following the Agreement signed in 2018 among the Province of Trento, the Municipality of Trento and the Italian railway manager (RFI) and a promising feasibility study presented in the early 2019, an Additional Act has been signed to establish a more precise schedule: for spring 2020, a preliminary study of the by-pass of the city of Trento is foreseen.

As part of the new concession (Resolution n.24/2019 related to the approval of the cooperation agreement for the motorway concession A22 Brenner-Modena), the **A22 motorway should provide € 250 million for the upgrading of the intermodal terminals** of Trento and Isola della Scala (Verona) and for the Valdaro river port (Mantova). For the implementation of these investments a specific environmental toll (based on the Eurovignette Directive) will be introduced. In addition, about € 10 million has been allocated from the Council of the **Autonomous province of Trento** to realize **relevant improvements in the intermodal terminal of Trento** (new tracks for RoLa service, extension of tracks to host 750m length trains, etc) in order to improve efficiency.

6.1.4 Pillar 4: Passenger transport

Public transport – Frameworks, infrastructures and services

In **Tyrol**, the **new contract for public transport services** ("Verkehrsdienstevertrag"), signed in December 2019 between the land of Tyrol and the relevant service providers, includes a broad range of improvements for public transport services: more comfortable and better equipped train sets; compressed timetables; rail journeys across the Brenner without changing trains; additional connections and a broader ticket distribution network are made possible by the contract. Especially, it needs to be noted that the contract includes a considerable improvement for cross-border mobility along the Brenner: Six of the total 25 new vehicles will automatically switch over the Italian power system, which is different from the Austria one. Thus, passengers will be able to travel across the border in the Euregio with regional trains without changing trains at the Brenner Pass.

The **extension of public transport** services also is a major objective in **Région Sud PACA** within its Climate Action Plan. The major objective is to implement a regional standard for public transport, offering two trains/hour in the major urban zone on the coastline (from Miramas to Vintimille).

Région Sud PACA is currently planning a major extension of the railway line on the Mediterranean Coast (Marseille-Toulon-Nice-Vintimille): the large railway stations Marseille shall be further developed and better linked to the other large economic centres in the region. Especially, public transport in the Eastern parts of the region and the cross-border connections to Liguria shall be improved. Main infrastructure elements are the construction of a new underground railway station in Marseille, a fourth track on the highly used railway section Marseille-Aubagne and a new railway connection to better link Cannes, Sophia Antipolis, Nice Aéroport, Nice Centre et Monaco.

New railway connections are planned in the **Province of Trento**. In 2019, funding was made available for feasibility studies for a new rail connection, to better connect Trentino and Veneto

Region (with a challenging project of a "Ring of the Dolomites", able to connected different spots in the Dolomites) and a sustainable connection to Garda Lake, one of the most important touristic place in Trentino. Furthermore, there is a commitment of the Italian railway manager (RFI) to electrify the Valsugana Railway, a passenger railway that connects Trentino and Veneto and that is the only one in Trentino still operating with diesel traction. This would help in reducing the environmental impact and would improve the efficiency of the service.

In **Ticino,** cross-border public transport service were again a focus topic in 2019. The new railway line that connects Como to Varese via Mendrisio and which was opened at the beginning of 2018 as extended in 2019 to offer direct connections Ticino - Malpensa Airport on an hourly basis. Also, a new boat line on the lake of Lugano was set up, connecting Porto Ceresio to Morcote and thus offering new options for cross-border transport.

Furthermore, the **autonomous Province of Bolzano** has reported several improvement in public transport, e.g. the electrification of the Venosta railway line and the purchase of seven new comfortable trains "Talent 3" equipped with multiple traction system and the European Train Control System ETCS. Thanks to these characteristics the new trains are not only suitable for crossborder connections along the Brenner (Euregio Italy-Austria), but also for the Brenner Base Tunnel. Furthermore, an ambitious investment program to renew the urban bus fleet has been approved, with the acquisition of electric, hybrid and electric fuel cell buses and to realise the associated refueling infrastructure.

Also, public transport services to the upgraded tourism destination Andermatt in the **Canton of Uri** will be improved. It is foreseen to further develop the connecting train station Göschenen into a major transfer hub, allowing an easier and more comfortable transfer between transport modes – especially for tourists.

The **integration of public transport information and timetables** has been taken forward by EUSALP AG4 and under the 4th call of the Alpine Space programme a project proposal could be successfully placed. This new project "**LinkingAlps**" has the objective to connect Alpine mobility information services to foster a modal shift from private to low carbon passenger transport (e.g. public and on-demand), thus offering integrated mobility chains for passenger trips.

Commuter mobility

The project CrossBorder, jointly launched be EUSALP AG 4 and AG 5 (Connectivity), has proceeded in its implementation and recently come to a successful end. The latest activities of the project include: a compact on behavior change for more sustainable mobility; Innovative solutions for public authorities and transport operators to improve cross-border mobility and passenger flows; and a final publication in the form of a project compendium containing, in addition to all previous project results, summaries of local implementation workshops and political recommendations to improve cross-border mobility.

Transition towards alternative fuels

Région Sud PACA has put a strategic focus on the transition towards alternative fuels and the decarbonization of the vehicle fleet. To assess gaps and challenges in this transition, the region has conducted a survey which involved a sample of 115 companies to assess their needs and to work on a fueling network map (charging stations for electric vehicles and fuel stations that provide alternative fuels). Especially, the following pilot projects on alternative fuels were taken forward in the region:

- Bus lines with natural gas buses: On two bus lines (Arles-Salon and St Raphaël-Draguignan), the feasibility of natural gas buses was tested in 2018/2019. These tests led to positive impacts with reduction of noise and fuel consumption and also positive driving conditions for passengers and drivers. Environmental impacts were considerable (-50% of NOx emission, -95% of particles, - 80% of CO_2). As major challenge, the distances between refueling points was identified.

- Replacement of diesel trains: In France, 20% of the train fleet still runs on diesel and their replacement must be considered within a few years. Those trains run mainly in alpine area that had not been electrified due to lower traffic volumes. Région Sud conducted an assessment of alternative solutions on train lines where electrification investment appears too high, e.g. to transform diesel trains i) into battery trains (Bombardier), ii) Hydrogen trains (Alstom) - brand new train and product channels not yet operational or iii) BioNGV trains (Alpine train line Nice-Plan-du Var). Conclusions of the assessment will be published by the end of 2019.

- Maritime transport: shore-side electricity and LNG ships: In order to reduce the environmental impact of cruise ships and luxury yachts, Region Sud provides incentives (subsidies for equipment) to ship owners in the ports of Marseille, Nice and Toulon to use shore-side electricity. Also, Region Sud supports LNG conversion schemes for ships propulsion. The ports of Marseille proposes an integrated offer with the adaptation of the Fos-Tonkin gas-terminal and the building of two tank ships.

Within its decarbonization strategy and Climate Action Plan, Région Sud also foresees the implementation of different financial support schemes – focusing on both charging infrastructure as well as purchase of vehicles. For example, a specific support scheme is foreseen for taxis. Regarding fueling stations, a support of natural gas fueling stations is foreseen as well as a considerable extension of the charging network for electric vehicles (set-up of 480 charging points in the years 2018/2019, one charging point on every 100km of the road network).

6.1.5 Pillar 5: Innovative approaches

Within the AlpInnoCT project an innovative Pilot Case for improving transport concept has been applied to TX Logistik's most frequently used transport route (via Brenner). It was demonstrated how the appliance of know-how from production industry affects efficiency, reliability and use of resources within intermodal transportation.

Given that 20-25 trains per day are being operated on this route, the Brenner corridor plays a major role in the overall transport network of TX Logistik. Any disruptions, blockages or delays affect the overall performance of the trains operated. With the implementation of the Brenner-Shuttle-Concept started in January 2019, TX raises the efficiencies on that line for six different traffic lines, all arriving in and departing from the Terminal Quadrante Europe Verona (Italy). Focus was laid on aspects such as standardisation and harmonisation of used equipment/resources, especially wagons, locomotives & tracks. Moreover, a First in - First out (FiFo) principle regarding the efficient use of wagon parks has been introduced in the terminal of Verona.

6.2 Best Practice Update in the light of previous recommendations and latest trends in transalpine traffic

Again, the iMONITRAF! partners have established a broad range of additional measures in 2019 and have further improved their policy mix for sustainable transport. Several existing measures were further extended in a dynamic way: policy measures as well as services and infrastructures – in order to keep up with the growing transport volumes in freight and passenger transport. A special interest in 2019 was given to combined transport services and infrastructures, with new framework provisions for CT services in Tyrol and Switzerland and several extensions of CT sub-sidies.

Regarding the implementation of the iMONITRAF! strategy of 2012 and especially regarding the support of modal shift, the following highlights of the Best Practice update 2019 can be summa-rized:

- Pillar 1: The new online presentation of the iMONITRAF! monitoring system within the new "Alpine Platform of Knowledge for Mobility and Transport" as developed jointly with EUSALP AG4 offers new tools for information and awareness raising. Monitoring indica-tors can be illustrated in graphical representations with several layers and can thus offer new insights. Also, information is available on key policy measures, e.g. tolls and other pricing mechanisms for road and rail freight transport.

- Pillar 2: With respect to regulatory measures, further optimisation steps have been imple-mented by iMONITRAF! regions but the remaining potential becomes more and more limited. In Tyrol, driving bans were further extended (sectoral driving ban and driving ban for high-emitting HGV) and new driving bans were implemented to avoid unwanted spill-over effects to the secondary road network. This shows that road infrastructure capacities reach their limit along the Brenner corridor and that ambitious and innovative approaches to set incentives for modal shift are necessary.

- Pillar 3: With respect to modal shift policies, several incentive measures for combined transport were reported in 2019. Several regions have adjusted their frameworks for providing CT services and subsidy systems were also extended in some of the regions. As the support of CT seems to be an issue in all iMONITRAF! regions, a better coordina-tion of subsidy systems and CT services would be a great value added to develop a more transparent and easy system for CT operators and users.

- Pillars 4: With respect to passenger transport, the collection of Best Practices more and more shows the need for a diverse set of measures: modal shift of passenger transport will only be possible with a further ambitious improvement of infrastructures and services. In cross-border regions, this also requires the further integration of services and tickets to provide seamless mobility options. However, a large share of motorized passenger transport will remain, requiring the need for low-emissions solutions to reduce impacts on air quality and climate change.

- Pillar 5: In 2019, innovative technologies were tested in the frame of pilot studies of the AlpInnoCT and SmartLogi projects. They show the need for testing new approaches and for exchanging results in the broader network.

7   Trends for transport and environmental policies on EU level

Several policy fields are considerably shaped by the European framework and the relevant EU legislation. Especially, the Mobility Packages that were launched by the European Commission in 2017/2018 (see previous Annual Reports) give new dynamics to the discussion at EU level and many of the proposed elements of the Mobility Packages were specified in 2019. Overall, the European Commission's Mobility Package is a collection of three initiatives concerning the governance of commercial road transport in the European Union. It represents the biggest change to EU road transport rules, covering many aspects of the industry's activities. It is intended to address a number of problems or support specific developments within the European road transport sectors. The harmonisation and simplification of the rules resulting in better, more consistent enforcement across all Member States, supporting social fairness, fair competition, improving the environmental performance of road transport operations, and encouraging innovation are just some of the aims of this package of legislative initiatives.

Also, after the European elections, a new Commission took up its work and, as one of its first outputs, published an ambitious document with the European Green Deal – including the objective to make Europe the first climate-neutral continent until 2050. This Green Deal will also have considerable implications for the EU budget for which the next multi-annual financial framework 2021-2027 was heavily debated in the European Council in 2019. The following section highlights some major developments of European transport and environmental policies.

Update on Eurovignette, EETS Directive, Combined Transport Directive

In the first half of 2019, the process for revising the Eurovignette Directive was mainly on standby due to European elections and the lacking interest of the Romanian presidency. On 4th Dec 2019, under Finish EU presidency, the proposal was discussed in the EU Council of transport ministers but he Council did not reach a general approach on a proposal to revise EU road charging rules. The Commission and the Croatian presidency will try again for a General Approach in the first half of 2020. The objective is to reach agreement in time for the next meeting of TRAN ministers on 14th June 2020 (for more information see chapter 2).

Regarding the improvement of the European Electronic toll system (EETS), the new EETS directive[22] was formally adopted by the European Parliament on 14 February 2019 and by Council on 4 March 2019. The new provisions enhance cross-border interoperability of electronic tolls (also necessary for feasibility of Toll Plus implementation, especially for differentiation of long- and short-distance transport), contribute to administrative simplification and reduce fraud. The Directive pursues the objective of making it possible to pay tolls in the whole EU with only one subscription contract and a single on-board device.

The revision of the Combined Transport Directive has seen a similar process in 2019 as the Eurovignette. The proposed amendments (see Annual Report 2018) have been debated in 2018 and a first step towards compromise has been taken with the vote of the TRAN Committee of the European Parliament on 27th March 2019 in favour of several changes to the initial proposal. The compromise proposals relate to the much-discussed definition of the road leg of CT operations, the legal status of road haulage and CT operators, the framework for CT subsidies at national level as well as the maximum weight of semi-trailers used in CT operations (gross weight of up to

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[22] Directive 2019/520 of the European Parliament and of the Council of 19 March 2019 "on the interoperability of electronic road toll systems and facilitating cross-border exchange of information on the failure to pay road fees in the Union", 18 April 2019.

44 tonnes shall be allowed). With the publication of the European Green Deal (see below), the revision of the CT Directive however becomes a new dynamic and it is likely that a new proposal for the revision will be presented by the Commission in 2020.

Clean vehicles and VECTO tool

In April 2019, the European Parliament agreed to the first-ever CO_2 targets for trucks, delivering a cut in CO2-emissions from new trucks by 15% by 2025 and 30% by 2030.[23] The Regulation also includes a mechanism to incentivise the uptake of zero- and low-emission vehicles, in a technology-neutral way. These incentives will help to kick-start the shift away from fossil fuel technology in the heavy-duty vehicles sector.

Implementing this Directive is only feasible on the basis of the new VECTO tool which has been developed by the European Commission together with stakeholders and shall be used for determining CO_2 emissions and Fuel Consumption from Heavy Duty Vehicles (trucks, buses and coaches) with a Gross Vehicle Weight above 3500 kg. From 1 January 2019 the tool was mandatory for new trucks under certain vehicle categories in application to the certification legislation under type approval. As of 2019, the CO_2 emissions and fuel consumption data determined with VECTO, together with other related parameters, will be monitored and reported to the Commission and made publicly available for each of those new trucks. The inputs for VECTO are characteristic parameters to determine the power consumption of every relevant vehicle component. Amongst others, the parameters for rolling resistance, air drag, masses and inertias, gearbox friction, auxiliary power and engine performance are input values to simulate fuel consumption and CO_2 emissions on standardised driving cycles.

Next multiannual financial framework for the EU – CEF and other funding programmes

The next multiannual financial framework has been a major issue for discussions in the European Council in 2019. The Romanian presidency (first half of 2019) had the objective to move forward with discussions in a structured way and proposed to use a so-called "negotiating box" as tool for structuring and facilitating the negotiations on the MFF. As negotiations move forward, it is constantly discussed and updated. The negotiating box brings together those elements which are most likely to require political guidance from the EU leaders. On 10th December 2019, the Council held a policy debate on the MFF and discussed negotiating box with figures presented by Finland's presidency. The presidency proposed an overall level of € 1,087 billion, representing 1,07% of the gross national income (GNI) of the EU27. This level lies below the current EU budget of 1,114% of EU 27 GNI.

With the proposal for the European Green Deal Investment Plan, the Commission proposed to attribute a greater share of spending on climate and environmental action from the EU budget than ever before to crowd in private funding. This proposal will be further discussed in 2020.

In view of the next EU long-term budget 2021-2027, a Common Understanding was reached on the **CEF 2021-2027** as instrument for TEN-T funding between the Council and European Parliament in March 2019 which provides for the continuation of the CEF programme focusing on cross-border links and missing links with increased emphasis on decarbonisation and digitalisation as well as a new military mobility component. The Commission proposal was for a total transport budget of EUR 30.6 billion. Novelties compared to the current CEF include a 60% climate

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[23] Regulation (EU) 2019/1242 of the European Parliament and of the Council of 20 June 2019 setting CO_2 emission performance standards for new heavy-duty vehicles and amending Regulations (EC) No 595/2009 and (EU) 2018/956 of the European Parliament and of the Council and Council Directive 96/53/EC

expenditure target, increased facilitation of synergies between the three sectors and blending operations with the Invest EU programme.

A European Green Deal

Becoming the world's first climate-neutral continent by 2050 is the greatest challenge and opportunity of our times. To achieve this, the European Commission presented the European Green Deal in December 2019, the most ambitious package of measures that should enable European citizens and businesses to benefit from sustainable green transition. Measures accompanied with an initial roadmap of key policies range from ambitiously cutting emissions, to investing in cutting-edge research and innovation, to preserving Europe's natural environment.

Supported by investments in green technologies, sustainable solutions and new businesses, the Green Deal can be a new EU growth strategy. Involvement and commitment of the public and of all stakeholders is crucial to its success.

On 14th January 2020, the European Commission presented its proposal for financing the Green Deal: The European Green Deal Investment Plan and Just Transition Mechanism. The Investment Plan - the Sustainable Europe Investment Plan – has the objective to mobilise public investment and help to unlock private funds through EU financial instruments, notably InvestEU, which would lead to at least € 1 trillion of investments. While all Member States, regions and sectors will need to contribute to the transition, the scale of the challenge is not the same. Some regions will be particularly affected and will undergo a profound economic and social transformation. The Just Transition Mechanism will provide tailored financial and practical support to help workers and generate the necessary investments in those areas.

In the Commission's Communication on the Green Deal and the proposed roadmap on key policies and measures, Sustainable Mobility plays a major role. The roadmap names the improvement of multimodal freight transport as one major objective and considers withdrawing and presenting a new proposal to revise the Combined Transport Directive. The roadmap also mentions the important role of effective pricing instruments and calls on the Council to maintain the high current ambition of the revision proposal for the Eurovignette.

8   Outlook 2020 and beyond

Again, 2019 highlighted the value added of the iMONITRAF! cooperation, and the extension of the new partnership gave a new impetus to the network. But also, partner regions discussed the specific impact of the cooperation and its delimitation in comparison to other networks and projects. These discussions showed that iMONITRAF! has some clear strengths which it should focus on and which should be better communicated with respect to policy makers and relevant stakeholders. Especially, its effective cooperation structure "small but powerful" enables iMONITRAF! to manages the regular interaction of technical and political levels and to identify windows-of-opportunities "at the edge" of new developments and to get involved in a quick and uncomplicated manner. Activities for 2020 were broadly discussed by the partners, especially to prepare the next upcoming political roundtable which shall lead the path toward extending the cooperation beyond 2020.

Common measures: Toll Plus and support for CT remains in the focus

2020 will become the crucial year for the revision process of the Eurovignette Directive. iMONI-TRAF! proposals are well reflected in the current status of the revision document but the European Council still has to approve this high level of ambition. The roadmap of the European Green Deal will hopefully give some new dynamics to the process as it highlights the need for ambitious action on effective road pricing. In any case, iMONITRAF! will have to become active again in preparation to the trilogue discussions between Council, Commission and Parliament which are foreseen for the second half of 2020.

Also, the potential withdrawal of the revision document for the Combined Transport Directive will offer new opportunities for iMONITRAF!. The Best Practice review 2019 has shown that iMONI-TRAF! regions have implemented relevant support measures for CT and that some level of coordination of these mechanisms seems necessary to provide transparent incentives for modal shift. iMONITRAF! will keep in the loop on relevant developments, especially if a new proposal for the revision will be developed by the European Commission.

Further extension of monitoring system

The further development of the common monitoring system will remain one main focus of iMON-ITRAF!, as its value added is widely recognized by relevant decision makers. The new „Alpine Platform of Knowledge for Mobility and Transport" offers new opportunities for presenting additional results of monitoring activities, but also on common measures, and 2020 will be used for continually updating the Platform to become the central communication and decision-support tool on transport in the Alpine Region. At the same time, iMONITRAF! reflects the high need for action on climate change and will adjust its monitoring system to better reflect topics related to climate change. 2020 will be used to collect information and to come to a decision on new indicators to be integrated into the monitoring activities.

Update of policy scenarios for the time horizon 2030 - DPSIR

During a technical workshop in June 2019, iMONITRAF! partners decided that instead of an update of the iMONITRAF! strategy a technical background document – highlighting the need for action in an attractive format - should accompany a potential political statement 2020 as well as the future partnership agreement. For this technical document an update of the former DPSIR[24] brochure (2012) was agreed . Several reasons hold for this idea:

- The former DPSIR brochure was a successful tool for presenting objectives and the value added of common measures as well as the need for transnational cooperation in the frame of iMONITRAF!.

- Last technical activities of iMONITRAF! resulted in studies on "Toll Plus" and "Innovative Technologies". Results of these studies still need to be transferred into corresponding scenarios, including an analysis of their effects. Especially new scenarios for the timeframe 2030 can highlight the need for common action along and between the transit corridors.

- An adjustment of the DPSIR methodology with a closer link to the iMONITRAF! indicators will again highlight the value-added of the monitoring activities. The link between the technical expertise of iMONITRAF! and its political relevance can be nicely illustrated.

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[24] The DPSIR indicator scheme (used by European Environment Agency) includes indicator to cover the whole political cycle: From driver, pressure state impact to response.

iMONITRAF! as trendsetter for topics in transalpine transport policies

In 2020, iMONITRAF! will again have the chance to become a trendsetter for transalpine transport policies and for shaping political discussions in this important field of action. The policy scenarios 2030 will offer a tool for motivating policy makers on further need for action and the accompanying political statement/resolution foreseen for the political roundtable in June 2020 will define some key topics for a continued cooperation beyond 2020. These topics can be used by iMONITRAF! to further develop its role as knowledge and networking hub and for bringing ambitious proposals into the different networks, platforms and initiatives.

Especially, iMONITRAF! will remain the knowledge hub for EUSALP AG4, especially regarding the new activity on "Strategic framework: Policy measures to support modal shift". In this work sharing, iMONITRAF! can bring new impulses and ideas into the AG4 and has the advantage to highlight specific needs of the most affected Alpine transit regions. Also, the networking with the Alpine Convention will be continued, especially regarding the development of implementation pathways for the Alpine Climate Target System 2050. The new policy scenarios 2030 will offer a great link to these pathways – which could provide new impulses to specific implementation of policies at national but also regional level.