



Annual Report 2018

Innovative technologies and the future of iMONITRAF!



iMONITRAF! Annual Report 2018

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INFRAS / Climonomics / Eurac Research with inputs of iMONITRAF! partners

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The iMONITRAF! year 2018 at a glance

iMONITRAF! 2018 – effective policy networking through the common voice

Favourable economic conditions have led to an increase of freight transport over the Alps, between 2016 and 2017 freight transport volumes have further increased by 5.9 % aggregated over the main transalpine corridors Brenner, Tarvisio, Gotthard, Simplon, San Bernardino, Mont Blanc, Fréjus and Ventimiglia. Thus, even with a shift to cleaner and more efficient heavy goods vehicles, environmental pressures related to transalpine freight and passenger transport remain high and there is an ever growing need for the Alpine regions to implement effective and coordinated approaches to limit these impacts.

In the frame of the iMONITRAF! network, the regions along the major transit corridors took common action to change the relevant policy framework to implement their common transport strategy. Setting ambitious price incentives for modal shift remains a main focus of iMONITRAF! and the network has increased its lobbying activities to support an ambitious revision of the Eurovignette Directive as relevant European Framework. A review of innovative technologies highlighted the need to consider ongoing technological trends in the development of common measures and illustrated future need for action.

Toll Plus: a showcase for successful regional cooperation

Based on the common resolution on Toll Plus (Lucerne 2016), the coordination phase 2017-2018 put a strong focus on lobbying for Toll Plus at European level. 2018 can be seen as milestone for the iMONITRAF! coordination in this respect as iMONITRAF! proposals could be successfully placed in the discussion of the European Parliament and four out of five specific proposals of the Toll Plus resolution are now reflected in the current version of the revised Eurovignette Directive (as agreed by the European Parliament in Oct. 2018). In January 2018, two information events were organized by iMONITRAF! in Brussels to directly present the proposals on Toll Plus to decision makers in the European Parliament. Follow-up contacts and discussions could be established during these meetings so that iMONITRAF!, for example, was able to provide a specific proposal on how to deal with regional transport in the frame of the Eurovignette as well as on external costs in mountain regions – building on its knowledge base as developed in 2017 with the in-depth analysis on regional transport as well as the update on external costs of transport in mountain areas.

With the amendments of the European Parliament, the Eurovignette revision proposal can now be seen as progressive document which would give higher flexibility to Alpine countries to implement ambitious road pricing systems.

Innovative technologies and their role for iMONITRAF!

The iMONITRAF! strategy of 2012 is still a milestone for the network, as it defines common targets as well as a set of common measures. However, since 2012 several developments have gained new momentum and technology has developed at a much higher speed than foreseen. In 2018, iMONITRAF! has thus launched a review of innovative technologies to check the role of future technology driven trends for the iMONITRAF! strategy in order to align the specific policies and flanking measures with the new developments. The review identified five major innovation clusters with a relevance for long-distance transalpine transport: 1) Innovative drive technologies for long-distance heavy goods vehicles, including electric vehicles, 2) toward autonomous trucks, 3) integration in logistics (Logistics 4.0), 4) Smart Combined Transport solutions and 5) Smart Rail.

The different technology-driven trends might lead to considerable impacts on the competitive situation between road and rail – regarding their environmental but also economic performance. Developments on the road will be strongly market-driven: automated vehicles will ease social problems in the road transport sector (especially regarding working times) and will reduce the pressure on the labour market. Electric solutions will be driven through climate change policy, based on EU and national policies. The review thus identifies the need for iMONITRAF! to set better incentives for boosting innovation clusters 4 and 5, supporting the automation and integration of combined transport and thus guaranteeing its compatibility with fully automated logistic solutions and thus an increase in modal shift.

Monitoring update for the year 2017

Increasing number of road vehicles crossing the iMONITRAF! corridors continued also in 2017. 6,700 heavy vehicles per day passing the Brenner were counted in 2017, 5.3 % more than in 2016. Also the other corridors showed similar trends. Aggregated over all iMONITRAF! transalpine corridors, the number of heavy vehicles increased even by 5.9 %. The same feature holds for the light vehicles, their aggregated number crossing the main transalpine corridors increased by 3.2 % from 2016 to 2017. Freight transport also continued to grow on the whole. While freight transports increased (in tons) on the road by 4.4 %, it weakened on the rail by 2.3 %. The total freight, however, increased by 2.1 %. On the Swiss rail corridors Gotthard and Simplon, a decrease happened as a direct consequence of the 50 day blocking of all freight rail in Germany due to a construction accident of the Oberrheinstrasse in Rastatt.

The annual air pollutant concentrations of PM₁₀ and NO₂ showed an increase on most measuring sites, which is in contrast to the general decrease of emissions due to successful reduction measures (shift to higher Euro classes for all vehicle categories). The high levels in 2017 can be explained by warm summer and very cold January days (increased heating, wood burning). Noise levels are not measured at all corridors, but where results are available, they remain on high levels between 70 and 80 dB (L_{den}) in 2017. Toll prices in 2017 did not change significantly, if compared to 2016. Fuel prices underwent a minimum in 2016, in 2017 and also 2018 they were growing and reached levels similar to the year 2014.

Best Practices 2018 – dynamic adjustment of policy mix

The Best Practices implemented in 2018 illustrate the growing need to find effective solutions for reaching air quality targets. As there is very limited potential in optimising pricing measures without an ambitious revision of the Eurovignette Directive, regional measures have focused strongly on regulatory approaches. Dynamic adjustments of driving bans (Tyrol) and speed limits (South Tyrol, Trento and Ticino) have been implemented by iMONITRAF! regions but the remaining potential becomes more and more limited. In Tyrol, an extension of the sectoral driving ban has been agreed with implementation foreseen for 2019. The increase of traffic volumes and its threats for securing traffic flow on the Austrian part of the Brenner corridor led to a continuation of the dosing system approach (block admission system) to regulate traffic on peak days.

With respect to modal shift, regional measures have again focused on the further development on support measures for combined transport as well as the further development of infrastructures. A comprehensive support system for combined transport is now available along the Brenner corridor as the subsidy system of the Province of Bolzano could also be launched in 2018. In Switzerland, rail transport is further incentivized through a reduction of energy prices. In the field of

passenger transport (pillar 4) a very strong attention on cross-border mobility can be observed for 2018 as well as new approaches to strengthen the decarbonisation of passenger cars.

The EU transport policy framework – Mobility Package and future EU budget

iMONITRAF! activities are not only shaped by the regional and national level but also by the European policy framework. With its Mobility Package, the European Commission has launched a set of legislative initiatives to support the transition to a clean, competitive and connected mobility. Two packages concerning the governance of commercial road transport in the EU were already initiated in 2017, a third Package in 2018. Overall, the complete Mobility Package represents the biggest change to EU road transport rules, covering many aspects of the industry's activities. In 2018, key dossiers of the Mobility Package with relevance for iMONITRAF! were discussed and agreed in the European Parliament: the revision of the Eurovignette Directive, the regulation of combined transport as well as the first-ever implementation of CO₂ standards for heavy goods vehicles. In addition, the long-term climate framework for the EU up to 2050 was developed by the European Commission and the foundations for the next multiannual financial framework for the EU (2021-2027) were defined. In this MFF, the Connecting Europe Facility as instrument for TEN-T infrastructures shall be continued with a similar budget than in the existing financing period.

Outlook: new cooperation phase 2019-2020

In the preparation phase of the Logistics Dialogue in Altdorf in October 2018, political representatives of iMONITRAF! bilaterally came to an agreement to continue the cooperation in the phase 2019-2020. The continuation was then officially announced by attending politicians during the Logistics Dialogue. Both the activities on Toll Plus as well as the review of innovative technologies brought up several starting points for new activities and the need for continuing the network was effectively illustrated with the successful cooperation year 2018.

For the phase 2019-2020, the network aims at focusing again on its common measures, however with a stronger focus on measures to support combined transport – which will be developed together with the AlpInnoCT partnership. As major focus, the review of the common strategy is foreseen, building on the insights of the review on innovative technologies. Especially, the environmental targets of the strategy need to be updated as they refer to the timeframe 2020 only and the set of common measures needs to be aligned with developments at technological level.

iMONITRAF! Aktivitäten im Jahr 2018 – Das Wichtigste in Kürze

iMONITRAF! 2018 – erfolgreiches politisches Networking dank gemeinsamer Stimme

Aufgrund guter wirtschaftlicher Rahmenbedingungen wächst das Verkehrsvolumen im Alpenraum weiter, zwischen 2016 und 2017 ist der Güterverkehr auf den wichtigsten Transitrouten Brenner, Tarvisio, Gotthard, Simplon, San Bernardino, Mont Blanc, Fréjus und Ventimiglia um weitere 5.9 % gestiegen. Trotz Modernisierung der Fahrzeugflotten bleiben die negativen Umweltwirkungen des Personen- und Güterverkehrs somit weiterhin auf hohem Niveau und der Druck in den Alpenregionen zur Umsetzung effektiver und abgestimmter Ansätze zur Reduktion der Umweltbelastung nimmt stetig zu.

Im Rahmen von iMONITRAF! haben sich die Alpenregionen entlang der wichtigsten Transitrouten zusammengeschlossen, um politische Rahmenbedingungen zur Umsetzung ihrer gemeinsamen Verkehrsstrategie zu gestalten. Ambitionierte Preissignale zur Unterstützung der Verkehrsverlagerung, durch die Harmonisierung und Weiterentwicklung von Mautsystemen bleibt ein zentraler Fokus der iMONITRAF! Arbeiten und das Netzwerk hat im Jahr 2018 seine Lobbying-Aktivitäten im Hinblick auf die Revision der Wegekosten-Richtlinie, als relevanten Europäische Gesetzgebung, weiter intensiviert. Ein Review über die Entwicklung innovativer Technologien machte zudem die Notwendigkeit deutlich, die aktuell laufenden Technologie-Trends stärker in das Design der gemeinsamen Maßnahmen einfließen zu lassen und zeigte weiteren Handlungsbedarf auf.

Toll Plus: ein Vorzeigeprojekt für erfolgreiche Koordination der Alpenregionen

Auf Basis der gemeinsamen Resolution zu Toll Plus (Luzern 2016), wurde dem Lobbying zu Toll Plus auf europäischer Ebene in der Arbeitsphase 2017-2018 eine hohe Priorität gegeben. 2018 kann dabei als Meilenstein für die iMONITRAF! Zusammenarbeit gewertet werden, da iMONITRAF! Vorschläge in diesem Jahr erfolgreich in der Diskussion im Europäischen Parlament platziert werden konnten: vier von fünf konkrete iMONITRAF!-Vorschlägen zu Toll Plus wurden im vorliegenden Entwurf des Europäischen Parlaments zur Revision der Richtlinie (Oktober 2018) aufgenommen. Im Januar 2018 organisierte iMONITRAF! zwei Informationsveranstaltungen in Brüssel, um den Entscheidungsträgern im Parlament die konkreten Vorschläge zu Toll Plus direkt zu präsentieren. Während dieser Veranstaltungen konnten erfolgreich Kontakte für die weitere Vernetzung geknüpft werden, auf deren Basis iMONITRAF! zum Beispiel einen Vorschlag zum Umgang mit Regionalverkehr in Transitregionen oder zur Berücksichtigung von externen Kosten in Berggebieten in den Prozess einspeisen konnte – auf Basis der Grundlagenstudien zum Regionalverkehr und zu externen Kosten aus dem Vorjahr.

Mit den Änderungsvorschlägen des Europäischen Parlaments ist der Vorschlag zur Revision der Wegekostenrichtlinie nun äußerst positiv und progressiv zu bewerten: in dieser Form würden die Alpenländer deutlich mehr Flexibilität für die Umsetzung ambitionierter Pricing-Systeme erhalten.

Innovative Technologien und ihre Bedeutung für iMONITRAF!

Die iMONITRAF! Strategie aus dem Jahr 2012 ist immer noch ein Meilenstein für das Netzwerk, sie definiert gemeinsame Ziele für die Verkehrspolitik sowie konkrete Maßnahmen zu deren Umsetzung. Seit 2012 hat die technologische Entwicklung jedoch eine deutlich stärkere Dynamik angenommen als erwartet. Für 2018 hat sich iMONITRAF! daher einen Review zur Bedeutung innovativer Technologien für die iMONITRAF! Strategie vorgenommen und um das Design gemeinsamer Maßnahmen besser auf technologische Trends und Entwicklungen auszurichten. In

diesem Review wurden fünf Innovationscluster mit hoher Bedeutung für den alpenquerenden Güterverkehr identifiziert: 1) Innovative Antriebstechnologien für schwere Güterfahrzeuge, 2) Entwicklung in Richtung autonomer Güterfahrzeuge, 3) Integration des Verkehrs in Logistikprozesse (Logistik 4.0), 4) „Smarter“ Kombiniertes Verkehr und 5) „Smarter“ Schienenverkehr.

Die technologischen Entwicklungen haben teilweise disruptiven Charakter und könnten die Wettbewerbsfähigkeit von Straße und Schiene maßgeblich verändern, sowohl bezogen auf deren Umwelt- Performance aber auch deren Kosteneffizienz. Entwicklungen im Straßenverkehr werden dabei stark vom Markt getrieben sein: autonome Fahrzeuge werden die sozialen Probleme im Straßengüterverkehr (v.a. bezüglich Arbeits- und Ruhezeiten) sowie die Engpässe am Arbeitsmarkt abfedern. Die Entwicklung alternativer Antriebe wird zudem stark durch die notwendigen Anstrengungen zur Erreichung der bestehenden Klimaziele vorangetrieben. Der Review von i-MONITRAF! zeigt daher zusätzlichen Handlungsbedarf zur Beschleunigung der Innovationscluster 4 und 5 auf, insbesondere zur weiteren Automatisierung und Integration des kombinierten Verkehrs, um diesen auch im Rahmen von voll automatisierte Logistikprozesse wettbewerbsfähig zu machen und somit die Verkehrsverlagerung weiter voranzubringen.

Monitoring Update für das Jahr 2017

Auch im Jahr 2017 stieg das Straßenverkehrsvolumen auf den iMONITRAF! Korridoren weiter an. 6 700 schwere Güterfahrzeuge pro Tag wurden im Jahr 2017 am Brenner gezählt, 5.3 % mehr als im Vorjahr. Ähnliche Entwicklungen sind für die anderen Korridore zu verzeichnen. Aggregiert über alle iMONITRAF! Transitrouten stieg das Verkehrsvolumen im Güterverkehr sogar um 5.9 %. Auch für Personenfahrzeuge ist zwischen 2016 und 2017 ein weiterer Anstieg zu verzeichnen, aggregiert über alle Korridore ergab sich ein Zuwachs von 3.2 % gegenüber 2016. Im Güterverkehr konnte das starke Wachstum auf der Straße von 4.4 % der transportierten Gütermenge den Rückgang auf der Schiene von 2.3 % überkompensieren, insgesamt stieg die transportierte Gütermenge um 2.1 %. Auf den Schweizer Korridoren Gotthard und Simplon ist der Rückgang im Schienenverkehr direkt auf den Unfall beim Bau der Oberrheinstrecke in Rastatt zurückzuführen, der zu einer 50-tägigen Vollsperrung des Zulaufs aus Deutschland führte.

Die Immissionsmesswerte 2017 der Luftschadstoffe PM₁₀ und NO₂ lagen an den meisten Messstationen höher als im Vorjahr. Diese Entwicklung kontrastiert die kontinuierliche Verbesserung der Emissionen aus dem Straßenverkehr (dank schärferer Emissionsfaktoren in den höheren Euroklassen für alle Fahrzeugkategorien). Die Entwicklung erklärt sich durch den heißen Sommer sowie die sehr kalten Tage im Januar 2017 (zusätzlicher Heizbedarf, Holzöfen). Die Lärmbelastung wird nicht an allen Korridoren gemessen, aber dort, wo Messungen durchgeführt werden, verharnt die Belastung 2017 auf hohem Niveau zwischen 70 und 80 dB (L_{den}). Die Mautsätze haben sich 2017 gegenüber 2016 kaum verändert, hingegen stiegen die Treibstoffpreise seit 2016 weiter an und erreichen nun einen ähnlich hohen Wert wie im Jahr 2014.

Best Practices 2018 – dynamische Anpassungen notwendig

Die im Jahr 2018 umgesetzten Best Practices machen den immer größeren Handlungsbedarf zur Umsetzung effektiver Maßnahmen notwendig, um die bestehenden Luftqualitätsziele zu erreichen. Da bei der Optimierung der Pricing-Systeme für den Straßengüterverkehr ohne eine ambitionierte Revision der Wegekosten-Richtlinie gerade wenig Potential besteht, haben sich die regionalen Maßnahmen stark auf regulative Ansätze konzentriert. So wurden bestehende Fahrverbote (Tirol) und Tempolimits (Südtirol, Trento, Tessin) im Jahr 2018 dynamisch weiterentwickelt, wobei das zusätzliche Minderungspotential dieser Verschärfungen begrenzt ist. In Tirol

wurde zudem eine Ausweitung des sektoralen Fahrverbots beschlossen, die Umsetzung soll jedoch erst in 2019 erfolgen. Zudem wurde in Tirol das Blockabfertigungssystem weiter umgesetzt, um den Verkehrsfluss entlang des Brenner-Korridors auch an Tagen mit extremen Verkehrsspitzen zu gewährleisten.

Im Bereich Verlagerungspolitik haben sich die regionalen Maßnahmen auch 2018 stark auf die Umsetzung von Fördermaßnahmen für den kombinierten Verkehr sowie die Weiterentwicklung der relevanten Infrastruktur fokussiert. Ein umfassendes Fördersystem für den kombinierten Verkehr ist nun entlang des gesamten Brenner-Korridors im Einsatz, da 2018 nun auch das Fördersystem der autonomen Provinz Bozen in Betrieb genommen werden konnte. In der Schweiz wurde eine Reduktion der Energiepreise für den Schienenverkehr umgesetzt, um weitere Anreise für die Verlagerung zu setzen. Im Bereich des Personenverkehrs (Pfeiler 4) konnte 2018 ein starker Fokus auf den Bereich der grenzüberschreitenden Mobilität beobachtet werden sowie neue Ansätze zur Förderung alternativer Antriebstechnologien im Personenverkehr.

Entwicklungen auf der europäischen Ebene – Mobility Package und Budget 2021-2027

Die Aktivitäten von iMONITRAF! werden nicht nur durch die regionale und nationale Ebene beeinflusst sondern auch durch die Rahmenbedingungen auf europäischer Ebene. Mit dem „Mobility Package“ hat die Europäische Kommission ein umfassendes Paket zur Transformation hin zu einer sauberen, wettbewerbsfähigen und vernetzten Mobilität veröffentlicht. Zwei Pakete mit Fokus auf die Rahmenbedingungen für schwere Nutzfahrzeuge wurden bereits im Jahr 2017 auf den Weg gebracht, ein drittes Paket folgte in 2018. Insgesamt stellen die Änderungsvorschläge des „Mobility Package“ einen großen Umbruch in der europäischen Verkehrspolitik dar, der eine Vielzahl von Rahmenbedingungen beeinflusst. In 2018 wurden einige Kern-Dossiers des Mobility Package mit Relevanz für iMONITRAF! im Europäischen Parlament diskutiert: die Revision der Wegekosten-Richtlinie, die Rahmenbedingungen für den kombinierten Verkehr sowie die erstmalige Einführung von CO₂-Grenzwerten für schwere Nutzfahrzeuge. Zusätzlich legte die Europäische Kommission einen langfristigen Plan für ihre Klimapolitik bis 2050 vor und die Eckwerte für den nächsten EU-Haushalt (2021-2027) wurden festgelegt. Die Connecting Europe Facility als Finanzierungsinstrument für die TEN-T Verkehrsinfrastrukturen soll im zukünftigen Haushalt beibehalten werden, mit ähnlichem Budget wie in der laufenden Periode.

Outlook: Fortführung der Zusammenarbeit 2019-2020

In der Vorbereitungsphase zum LogistikDialog in Altdorf im Oktober 2018, einigten sich politische Vertreter aus den iMONITRAF! Regionen zu einer Fortsetzung der Zusammenarbeit für die Phase 2019-2020. Die Fortführung wurde dann am LogistikDialog von den dort anwesenden Politikern offiziell bekannt gegeben. Sowohl die Aktivitäten zu Toll Plus als auch die Ergebnisse aus dem Review zu innovativen Technologien zeigen Anknüpfungspunkte für weitere Arbeiten auf und das erfolgreiche Kooperationsjahr 2018 zeigte klar den Mehrwert der regionalen Zusammenarbeit.

In der Phase 2019-2020 soll weiterhin ein starker Fokus auf die Entwicklung gemeinsamer Maßnahmen gelegt werden, jedoch mit einem stärkeren Fokus auf den kombinierten Verkehr. Mögliche Maßnahme hierzu sollen gemeinsam mit dem AlpinnoCT Projekt entwickelt werden. Als wichtigster Fokus ist jedoch ein Review der iMONITRAF! Strategie vorgesehen, auf Basis der Erkenntnisse zu innovativen Technologien. Insbesondere die Umweltziele der Strategie sollen weiter fortgeschrieben werden und die gemeinsamen Maßnahmen sollen im Hinblick auf technologische Trends auf ihre Wirksamkeit hin überprüft werden.

iMONITRAF! nel 2018: L'essenziale in breve

iMONITRAF! 2018 - un'attività di networking efficace a livello politico attraverso una voce comune

Negli ultimi anni, le condizioni economiche favorevoli hanno comportato un aumento del trasporto merci attraverso le Alpi: se si considera il dato aggregato riferito ai principali corridoi di transito (il Brennero, il Tarvisio, il Gottardo, il Sempione, il San Bernardino, il Monte Bianco, il Fréjus e Ventimiglia), tra il 2016 ed il 2017 i volumi registrati sono ulteriormente incrementati di 5.9 %. Di conseguenza, nonostante il passaggio a veicoli commerciali pesanti più puliti e più efficienti, le pressioni ambientali legate al trasporto transalpino di merci e di passeggeri rimangono elevate. Le regioni alpine hanno sempre più bisogno di adottare strategie efficaci e coordinate per limitare questi impatti.

Nell'ambito della rete di iMONITRAF!, le regioni localizzate lungo i principali corridoi di transito hanno avviato misure comuni per modificare il quadro generale in materia di policy, al fine di attuare una strategia condivisa in materia di trasporti. La definizione di ambiziosi incentivi finanziari, volti al trasferimento modale, rimane uno dei principali obiettivi di iMONITRAF! e la rete ha aumentato, all'interno del panorama europeo, le sue attività di lobby, al fine di sostenere un'ambiziosa revisione della direttiva "Eurovignette". Uno studio sulle tecnologie innovative ha evidenziato la necessità di prendere in considerazione anche le evoluzioni in corso per lo sviluppo di misure comuni ed ha designato la necessità di intraprendere un'azione futura in tal senso.

Toll Plus: un trampolino di lancio per una cooperazione regionale di successo

Sulla base di una risoluzione comune in materia di Toll Plus (Lucerna 2016), nel biennio 2017-2018 è stato posto un forte accento sulle attività di lobby a livello europeo. Il 2018 può essere visto come una tappa fondamentale per iMONITRAF!. Le proposte di iMONITRAF!, infatti, sono state inserite positivamente nella discussione del Parlamento Europeo. Ad oggi, quattro delle cinque specifiche proposte derivanti dalla risoluzione del sistema Toll Plus si riflettono nella versione attuale della revisione della direttiva "Eurovignette" (così come adottata dal Parlamento Europeo nell'ottobre del 2018). Nel gennaio 2018, a Bruxelles, sono stati organizzati da iMONITRAF! due eventi informativi per presentare direttamente le proposte sul sistema Toll Plus ai decisori politici del Parlamento Europeo. Durante questi incontri, ci sono stati contatti e discussioni di approfondimento, così che iMONITRAF! è stato in grado di fornire specifiche proposte su come trattare il trasporto regionale nell'ambito della direttiva "Eurovignette" e il tema dei costi esterni nelle regioni montane – basandosi sulle conoscenze acquisite nel 2017 grazie all'approfondita analisi sul trasporto regionale, nonché sull'aggiornamento dei costi esterni prodotti dai trasporti nelle aree di montagna.

Con gli emendamenti del parlamento Europeo, la proposta di revisione dell'Eurovignetta può ora essere vista come un documento avanzato che darebbe maggiore flessibilità ai Paesi alpini, al fine di adottare ambiziosi sistemi di pedaggio stradale.

Tecnologie innovative ed il loro ruolo per iMONITRAF!

La strategia adottata da iMONITRAF! nel 2012 è tuttora una tappa fondamentale per la rete, dal momento che essa definisce sia obiettivi, nonché una serie di misure comuni. Dal 2012, tuttavia, alcuni specifici punti hanno acquisito nuovi impulsi e la tecnologia si è diffusa molto più velocemente del previsto. Di conseguenza, nel 2018, iMONITRAF! ha avviato un esame delle tecnologie innovative per verificare il ruolo che le future tendenze tecnologiche potrebbero avere all'interno

della strategia di iMONITRAF!, al fine di adeguare le politiche e le misure di sostegno ai nuovi sviluppi.

L'analisi ha identificato cinque principali categorie di innovazione, rilevanti per il trasporto transalpino a lunga distanza: 1) tecnologie di guida innovative per i veicoli commerciali pesanti che percorrono lunghe distanze, compresi i veicoli elettrici, 2) tecnologie rivolte alla sperimentazione di veicoli pesanti autonomi, 3) integrazione nella logistica (Logistica 4.0), 4) soluzioni di trasporto combinato intelligente e 5) Smart Rail. Diverse evoluzioni tecnologiche possono determinare notevoli impatti sul fattore di competitività tra strada e rotaia, sia dal punto di vista ambientale, sia economico. Gli sviluppi legati alla componente stradale saranno fortemente connessi al mercato: i veicoli automatizzati ridurranno i problemi sociali legati al trasporto stradale (in particolare per quanto riguarda gli orari di lavoro) e diminuiranno la pressione del mercato del lavoro. Le soluzioni legate all'elettrico saranno influenzate dalle politiche in materia di cambiamenti climatici, sulla base delle politiche europee e nazionali. Questa analisi, quindi, individua la necessità per iMONITRAF! di favorire le categorie di innovazione numero 4 e 5, sostenendo l'automatizzazione e l'integrazione di soluzioni per il trasporto combinato, al fine di garantire la loro compatibilità con soluzioni logistiche completamente automatizzate e un conseguente aumento del trasferimento modale.

Aggiornamento dei dati di monitoraggio per l'anno 2017

Nel 2017, è stato registrato un crescente numero di veicoli che attraversano i corridoi transalpini. Al Brennero sono stati rilevati in media 6.700 veicoli pesanti al giorno, il 5.3 % in più rispetto al 2016. Anche gli altri corridoi hanno evidenziato un andamento simile. Il dato aggregato relativo a tutti i corridoi transalpini ha rilevato che il numero di veicoli pesanti è aumentato del 5.9 %. Una dinamica simile è stata registrata anche per i veicoli leggeri: il numero di passaggi attraverso tutti i corridoi è aumentato del 3.2 % tra il 2016 e il 2017. Complessivamente anche il volume di merce (misurato in tonnellate) ha continuato a crescere. Mentre il trasporto su strada è aumentato del 4.4 %, quello su rotaia è diminuito del 2.3 %. Ciononostante, il totale delle merci movimentate è aumentato del 2.1 %. Lungo i corridoi ferroviari svizzeri del Gottardo e del Sempione si è rilevato un decremento dovuto alla conseguenza diretta del blocco di 50 giorni per tutti i traffici ferroviari di merci, verificatosi in Germania, a causa di un incidente durante lavori di costruzione sulla linea ferroviaria della Valle del Reno presso Rastatt.

Le concentrazioni annuali di inquinanti atmosferici relative agli indicatori PM₁₀ e NO₂ hanno evidenziato un aumento nella maggior parte dei siti di misurazione, in contrasto con la generale diminuzione delle emissioni legata all'efficacia delle misure di riduzione (passaggio a classi Euro più elevate per tutte le categorie di veicoli). I livelli elevati registrati nel 2017 possono essere spiegati dalla presenza di un'estate calda e giornate molto fredde nel mese di gennaio (con relativo aumento del riscaldamento e combustione di legna). I livelli di rumore non vengono rilevati in tutti i corridoi, ma nel 2017, dove i risultati sono disponibili, essi continuano a mantenere livelli elevati, compresi tra 70 e 80 dB (L_{den}). I prezzi dei pedaggi nel 2017 non sono cambiati di molto rispetto al 2016. Dopo un decremento nel 2016, i prezzi dei carburanti hanno subito un aumento sia nel 2017 sia nel 2018, raggiungendo livelli simili a quelli del 2014.

Buone pratiche 2018 - adeguamento dinamico della combinazione di politiche

Le buone pratiche attuate nel 2018 rivelano la crescente necessità di trovare soluzioni che siano efficaci per raggiungere gli obiettivi di qualità dell'aria. Dal momento che senza un'ambiziosa revisione della direttiva "Eurovignette" il potenziale di ottimizzazione delle misure di tariffazione è

molto limitato, le misure regionali si sono fortemente incentrate su approcci regolatori. Le regioni appartenenti ad iMONITRAF! hanno attuato soluzioni rivolte ad adeguamenti dinamici dei divieti circolazione (Tirolo) e dei limiti di velocità (Alto Adige, Trento e Ticino), ma il margine potenziale residuo è sempre più limitato. In Tirolo è prevista l'estensione del divieto settoriale di circolazione anche per il 2019. L'aumento dei volumi di traffico e le conseguenti minacce per la un flusso regolare del traffico nella parte austriaca del corridoio del Brennero hanno portato al prolungamento dell'approccio basato sul "sistema di dosaggio" (sistema di ingresso a blocchi), al fine di regolare il traffico nei giorni di punta.

Per quanto concerne il trasferimento modale, le misure a scala regionale si sono nuovamente concentrate sul sostegno al trasporto combinato, nonché su un ulteriore sviluppo delle infrastrutture. Lungo il corridoio del Brennero potrebbe essere disponibile un sistema di misure di sostegno complessivo a favore del trasporto combinato, dal momento che nel 2018 è stato avviato anche il regime di aiuti della Provincia di Bolzano. In Svizzera il trasporto ferroviario è ulteriormente incentivato dalla riduzione dei prezzi dell'energia. Sempre nel 2018, nel settore del trasporto passeggeri (4° pilastro), si osservano una forte attenzione alla mobilità transfrontaliera e la messa in atto di nuovi approcci per rafforzare la decarbonizzazione delle autovetture.

Il contesto della politica dei trasporti dell'UE – Il Pacchetto Mobilità ed il futuro bilancio UE

Le attività di iMONITRAF! non sono influenzate unicamente dall'ambito regionale e nazionale, ma anche dal contesto politico europeo. All'interno del Pacchetto Mobilità, la Commissione Europea ha avviato una serie di iniziative normative volte a sostenere il passaggio verso una mobilità pulita, competitiva e connessa. Nel 2017 sono già stati avviati due pacchetti riguardanti la governance del trasporto commerciale via strada all'interno dell'UE. Un terzo pacchetto è stato introdotto nel 2018. Nel complesso, l'intero Pacchetto Mobilità rappresenta il cambiamento più grande in merito alle norme relative al trasporto stradale, riguardando molti aspetti del settore industriale. Nel 2018, all'interno del Parlamento Europeo, sono stati discussi e concordati i principali dossier del Pacchetto Mobilità di interesse per iMONITRAF!, quali: la revisione della direttiva "Eurovignette", la regolamentazione del trasporto combinato, nonché la prima attuazione relativa agli standard di CO₂ per i veicoli commerciali pesanti. Inoltre, la Commissione Europea ha elaborato un quadro di riferimento a lungo termine (fino al 2050) per gli aspetti climatici e sono state fissate le basi per il prossimo Quadro Finanziario Pluriennale dell'UE (2021-2027). In questo QFP, il fondo per collegare l'Europa, quale strumento rivolto alle infrastrutture TEN-T sarà mantenuto con uno stanziamento simile a quello del periodo di finanziamento esistente.

Prospettiva: una nuova fase di cooperazione 2019-2020

In occasione delle attività preparatorie del *Logistics Dialogue* svoltosi ad Altdorf (CH) a ottobre 2018, i rappresentanti politici di iMONITRAF! hanno deciso di prolungare la cooperazione anche per il periodo 2019-2020. Sia le attività legate al Toll Plus, così come l'analisi delle tecnologie innovative hanno portato alla definizione di diversi spunti per l'avvio di nuove attività e la necessità di portare avanti le iniziative della rete, così come è stato dimostrato con il successo ottenuto nel 2018.

Per la fase 2019-2020, la rete punta a concentrarsi nuovamente su misure comuni, ponendo sempre una maggiore attenzione al supporto al Trasporto Combinato, che sarà sviluppato assieme al partenariato di AlpInnoCT. Come obiettivo principale, è prevista la revisione della strategia comune, sulla base degli spunti ricavati dall'esame delle tecnologie innovative. In particolare, gli obiettivi ambientali della strategia devono essere aggiornati (si riferiscono infatti all'anno 2020) e l'insieme delle misure comuni deve essere allineato ai nuovi sviluppi tecnologici.

iMONITRAF! en 2018 – Résumé

iMONITRAF! 2018 – succès politique du travail en réseau grâce à l'expression d'une voix commune

Le contexte économique favorable de ces dernières années a entraîné une augmentation du trafic routier transalpin : entre 2016 et 2017, le volume du fret a encore augmenté de 6 % sur les principaux corridors de transit (Brenner, Tarvisio, Gothard, Simplon, San Bernardino, Mont Blanc, Fréjus et Vintimille). Malgré la modernisation du parc de véhicules, les impacts environnementaux du trafic de passagers et de marchandises restent élevés. La nécessité d'adopter des stratégies efficaces et coordonnées en vue de limiter ces impacts est donc de plus en plus urgente dans les régions alpines.

Dans le cadre du réseau iMONITRAF!, les régions alpines situées le long des principaux corridors de transit ont engagé des actions communes pour influencer le cadre politique général de manière à mettre en œuvre leur stratégie partagée en matière de transports. La mise en place d'incitations tarifaires ambitieuses pour promouvoir le report modal reste l'un des principaux objectifs d'iMONITRAF!. Le réseau a intensifié en 2018 ses activités de lobbying pour soutenir la révision de la Directive Eurovignette, cadre législatif européen pertinent pour les activités du réseau. Une analyse des innovations technologiques a également souligné la nécessité de tenir plus fortement compte des évolutions techniques dans l'élaboration des mesures communes, et permis d'identifier d'autres actions nécessaires.

Toll Plus : le succès d'une coordination exemplaire entre les régions alpines

Sur la base de la résolution commune sur le système de surpéage « Toll Plus » (Lucerne 2016), la période de travail 2017-2018 s'est concentrée sur les activités de lobbying pour promouvoir ce système au niveau européen. L'année 2018 peut être considérée comme une étape fondamentale pour iMONITRAF! : les propositions du réseau ont rencontré un écho positif auprès du Parlement européen, qui a intégré quatre des cinq propositions d'iMONITRAF! sur le système Toll Plus dans la version actuelle de la révision de la directive Eurovignette (octobre 2018). En janvier 2018, le réseau a organisé deux événements d'information à Bruxelles pour présenter directement aux décideurs politiques du Parlement européen ses propositions sur le système Toll Plus. Dans le cadre de ces rencontres, le réseau a noué des contacts précieux qui lui ont permis par exemple d'émettre des propositions sur le traitement du trafic régional dans la Directive Eurovignette ou sur la prise en compte des coûts externes dans les zones de montagne, sur la base d'une étude de fond réalisée en 2017 sur le trafic régional et les coûts externes.

Avec les amendements du Parlement européen, la proposition de révision de la Directive Eurovignette peut être considérée comme un texte progressiste, susceptible de donner aux États alpins une marge de manœuvre beaucoup plus large pour adopter des systèmes de tarification routière ambitieux.

Innovations technologique et leur rôle pour iMONITRAF!

La stratégie adoptée par iMONITRAF! en 2012 reste aujourd'hui encore une référence essentielle pour le réseau, dans la mesure où elle définit des objectifs communs pour la politique des transports, ainsi que des mesures concrètes pour la mise en œuvre de ces objectifs. Depuis 2012, les technologies ont toutefois évolué de manière dynamique et à un rythme beaucoup plus rapide que prévu. En 2018, iMONITRAF! a donc lancé une étude sur le rôle des avancées technologiques au sein de la stratégie iMONITRAF!, afin de mieux aligner les actions communes sur les évolutions technologiques. L'analyse a permis d'identifier cinq pôles d'innovation particulièrement

importants pour les transports transalpins : 1) les technologies de motorisation innovantes pour les poids lourds, incluant les véhicules électriques, 2) le développement de poids lourds autonomes, 3) l'intégration des transports dans les processus logistiques (logistique 4.0), 4) les solutions de transport combiné intelligentes et 5) les systèmes ferroviaires intelligents.

Les avancées technologiques révolutionnaires des dernières années pourraient avoir un impact considérable sur les facteurs de compétitivité dans les transports routiers et ferroviaires, tant en matière de performances environnementales qu'au niveau de l'efficacité des coûts. Les évolutions dans le secteur routier sont conditionnées par le marché : les véhicules autonomes permettront d'atténuer les problèmes sociaux dans les transports routiers de marchandises (notamment en ce qui concerne les temps de travail et de repos), ainsi que les pénuries de main d'œuvre dans ce secteur. Par ailleurs, le développement de véhicules à énergies alternatives s'accélère face à la nécessité d'atteindre les objectifs climatiques actuels. L'étude iMONITRAF! identifie donc d'autres mesures nécessaires pour accélérer le développement des pôles d'innovation 4 et 5, en particulier pour renforcer l'automatisation et l'intégration du transport combiné, afin de lui permettre de rester compétitif dans le cadre de solutions logistiques entièrement automatisées et de continuer à renforcer le report modal.

Mise à jour de l'Observatoire – données 2017

Le trafic routier a continué d'augmenter sur les corridors transalpins iMONITRAF! en 2017. 6 700 poids lourds ont circulé en moyenne par jour sur le Brenner, soit 5,3 % de plus qu'en 2016. Les autres corridors ont présenté des tendances similaires. Sur l'ensemble des grands corridors transalpins, le nombre de poids lourds a même augmenté de 5,9 %. Il en va de même pour les véhicules légers : sur l'ensemble des corridors transalpins, le nombre de passages a augmenté de 3,2 % entre 2016 et 2017. Le transport de marchandises a lui aussi continué d'augmenter. Le transport routier de marchandises a augmenté de 4,4 %, tandis que le fret ferroviaire reculait de 2,3 % dans le même temps. Le volume total du fret a donc augmenté de 2,1 %. Sur les corridors suisses du Saint-Gothard et du Simplon, la baisse du trafic ferroviaire est liée directement à l'incident survenu en Allemagne sur le chantier de construction de la ligne de la vallée du Rhin à Rastatt, qui a entraîné l'interruption du trafic de marchandises en provenance de l'Allemagne pendant 50 jours.

Les concentrations en polluants atmosphériques (PM10 et NO₂) ont augmenté en 2018 sur la plupart des stations de mesure, ce qui contraste avec la diminution continue des émissions liée au passage à des normes EURO plus propres pour toutes les catégories de véhicules. Les niveaux élevés enregistrés en 2017 s'expliquent par un été chaud et des journées très froides en janvier (besoins de chauffage supplémentaires, poêles à bois). Les niveaux de bruit ne sont pas mesurés sur tous les corridors, mais lorsque des résultats sont disponibles, ils restent en 2017 à des niveaux élevés compris entre 70 et 80 dB (L_{den}). Le montant des péages routiers n'a pas changé de manière significative en 2017 par rapport à 2016. En revanche, le prix des carburants n'a pas cessé d'augmenter depuis 2016 et atteint désormais un niveau similaire à celui de l'année 2013.

Bonnes pratiques 2018 – des ajustements dynamiques ont été nécessaires

Les bonnes pratiques mises en œuvre en 2018 reflètent le besoin croissant de trouver des solutions efficaces pour atteindre les objectifs de qualité de l'air. Le potentiel d'optimisation des systèmes tarifaires étant très limité sans une révision ambitieuse de la directive Eurovignette, les mesures engagées au niveau régional se sont concentrées sur des approches réglementaires. Les régions du réseau iMONITRAF! ont procédé à des ajustements dynamiques des interdictions de circulation (Tyrol) et des limitations de vitesse existantes (Tyrol du Sud, Trentin, Tessin), mais

les potentiels restants sont de plus en plus limités. Le Tyrol a décidé également d'étendre l'interdiction de circulation sectorielle. Cette mesure devrait entrer en vigueur en 2019. Le système de « circulation par blocs » a par ailleurs été prolongé au Tyrol pour assurer la fluidité du trafic sur le corridor du Brenner pendant les jours de forte circulation.

Dans le domaine du report modal, les mesures déployées au niveau régional se sont à nouveau concentrées en 2018 sur la mise en œuvre de mesures d'encouragement pour le transport combiné, ainsi que sur le développement des infrastructures. Après le lancement du système de subventions de la province de Bolzano en 2018, le système d'encouragement du transport combiné est désormais généralisé à l'ensemble du corridor du Brenner. La Suisse a par ailleurs baissé le prix de l'énergie dans le transport ferroviaire afin d'encourager le report modal. Dans le domaine du transport des voyageurs (pilier 4), l'accent a été mis en 2018 sur la mobilité transfrontalière ainsi que sur de nouvelles approches destinées à promouvoir les véhicules à énergies alternatives.

Développements au niveau européen – paquet mobilité et budget 2021-2027

Les activités d'iMONITRAF! ne sont pas influencées uniquement par l'échelon régional et national, mais également par le cadre politique européen. Avec son « Paquet mobilité », la Commission européenne a lancé un vaste éventail de mesures destinées à encourager la transition vers une mobilité propre, compétitive et connectée. Deux paquets réglementant la gouvernance des transports routiers de marchandises ont déjà été lancés en 2017, et un troisième paquet a été adopté en 2018. Au total, les propositions des trois volets du paquet mobilité entraînent des changements profonds dans la politique européenne des transports, qui auront de nombreux impacts dans le secteur industriel. En 2018, plusieurs dossiers clés du paquet mobilité pertinents pour iMONITRAF! ont été discutés par le Parlement européen : révision de la Directive Eurovignette, réglementation du transport combiné et introduction des premières valeurs limites pour les émissions de CO₂ des poids lourds. Par ailleurs, la Commission européenne a élaboré une stratégie à long terme pour fixer le cap de la politique climatique de l'Union européenne à l'horizon 2050, et défini les bases du prochain cadre financier pluriannuel (CFP) de l'UE (2021-2027). Le Mécanisme d'interconnexion en Europe (MIE) qui finance les infrastructures RTE-T devrait être maintenu dans le prochain CFP avec un budget similaire à celui de la période en cours.

Perspectives : nouvelle période de coopération 2019-2020

Dans le cadre de la préparation du « Dialogue logistique » d'Altdorf (CH) en octobre 2018, les représentants politiques des régions d'iMONITRAF! ont décidé de prolonger leur coopération pour la période 2019-2020. Cette décision a été annoncée officiellement dans le cadre du Dialogue. Les activités liées au système Toll Plus et l'analyse des innovations technologiques ont permis d'identifier différents axes pour de nouvelles activités, et les succès remportés en 2018 confirment l'importance de poursuivre les efforts entrepris par le réseau.

Durant la période 2019-2020, le réseau continuera de se concentrer sur la réalisation d'actions communes, en portant une attention particulière aux mesures destinées à renforcer le transport combiné. Ces mesures seront développées en partenariat avec le projet AlpinnoCT. L'objectif principal de la prochaine période sera toutefois la révision de la stratégie commune, sur la base des constats de l'étude sur les innovations technologiques. L'enjeu sera en particulier de mettre à jour les objectifs environnementaux de la stratégie (qui se réfèrent actuellement à l'horizon 2020), et de réexaminer l'efficacité des mesures communes à la lumière des progrès technologiques.

1 Background and objectives

iMONITRAF! network – effective policy networking through common voice

Negative environmental and social impacts from transalpine transport remain a common challenge for the Alpine regions. Ambitious modal shift policies and coordinated approaches among the most affected transit regions were able to limit the impacts of transalpine transit traffic – but traffic volumes at European level keep rising and environmental pressures thus remain high in this sensitive region. Thus, the Alpine regions Auvergne-Rhône-Alpes,¹ the autonomous Provinces of Bolzano and Trento, the autonomous Regions of Aosta Valley and Friuli-Venezia Giulia, the Region Piemonte, the Canton of Ticino, the Region Central Switzerland, the Land of Tyrol 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. After two projects in the frame of the Alpine Space Programme, the iMONITRAF! network entered an independent and new phase with the establishment of a Coordination Point financed through the regions.

In its first phase 2013-2016, the Coordination Point focused on the design and implementation steps of short-term common measures as defined in the common transport strategy (Lyon 2012) – with a strong focus on Toll Plus². As result of this phase, political representatives signed a resolution on Toll Plus including some core elements for a specific design of Toll Plus from the regional viewpoint. In order to lobby towards an implementation of Toll Plus in the Alpine countries and regions and to further specific additional common measures, political representatives agreed to continue the cooperation for two more years and to maintain iMONITRAF! as established “trademark” and knowledge-hub.

Objectives 2018 – Networking for Toll Plus and review of innovative technologies

One main objective of the cooperation phase 2017-2018 was the networking at EU level to include the proposed elements of Toll Plus in the Eurovignette Directive as relevant European policy framework. After successful contacts with decision makers in the European Commission and participation in the public consultation phase in 2017, iMONITRAF! activities in 2018 focused on the European Parliament which took up the dossier at the beginning of the year. Specific activities related to Toll Plus and the outcomes are presented in chapter 2.

Furthermore, iMONITRAF! partners identified the need to cross-check the role of innovative technologies for the implementation of the common strategy. The common transport strategy of iMONITRAF! is now six years old and some developments took a more dynamic development than anticipated in 2011/2012 when the strategy and its elements were designed. A first report on innovative approaches was developed by iMONITRAF! in the year 2011, still in the frame of the Alpine Space Programme. Comparing this review with the recent literature and discussion on technological innovations for long-distance freight transport showed the need for reviewing the role of innovative technologies for iMONITRAF!.

The continued activities on Toll Plus as well as the review of innovative technologies brought up several starting points for new activities and have triggered a discussion on both continuing the network and on launching a new larger-scale project to intensify the knowledge on and strategic role of innovative technologies.

¹ Please note that the region Rhône-Alpes has been merged with the region Auvergne during the regional reorganization of France in 2015. The official name of the region as well as its organizational structure were confirmed in 2016.

² Additional charging of heavy goods vehicles for the use of certain roads.

Annual Report 2018 – information source on iMONITRAF activities

The Annual Report 2018 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 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 2018: an overview on iMONITRAF!'s networking activities on Toll Plus and its outcomes (chapter 2) as well as a summary on the findings on innovative technologies (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. Chapter 6 presents the update of Best Practices which are framed by developments at European level (chapter 7). Finally, the report includes an outlook to the next two years and the continuation of iMONITRAF! in a new phase.

2 Successful networking related to Toll Plus

The iMONITRAF! resolution on Toll Plus of November 2016 defines five core elements for implementing a more harmonized and ambitious pricing framework on the trans-Alpine corridors. The implementation of these core elements however requires an adjustment of the relevant legal framework at EU level, the Eurovignette Directive, which currently leaves little room for further developments of pricing systems. The ongoing revision process of the Eurovignette is thus a great window-of-opportunity for iMONITRAF! to present its ideas and to get actively involved in shaping the European framework. Also, the national level needs to be convinced about the need for a further development of pricing systems in the Alpine regions, as the relevant legal frameworks are defined at national level.

The coordination phase 2017-2018 thus put a strong focus on lobbying for Toll Plus at European level and on further developing the iMONITRAF! proposal on Toll Plus. An in-depth study on regional transport in the frame of Toll Plus was commissioned and finalized in 2017, identifying several options on how to avoid negative impacts of Toll Plus for regional transport. Results of this study were shared with decision makers at EU level to develop a specific proposal on how to deal with regional transport in the revision process of the Eurovignette.

Networking at level of the European Parliament

In 2018, the activities as defined in the lobbying strategy on Toll Plus³ were continued – with a special focus on the European Parliament (EP) which took up the dossier of the Eurovignette Directive at the beginning of 2018. As first step, information on Toll Plus was shared with the appointed rapporteur and the shadow-rapporteurs for the dossier, based on bilateral meetings that took place in December 2017.

On 23rd January 2018, two information events were organized by iMONITRAF! in Brussels to directly present the iMONITRAF! proposal to decision makers in the EP. During a lunch event which was hosted together with T&E in the European Parliament, the iMONITRAF! network had to chance to directly present its ideas to the rapporteur of the Eurovignette Directive, MEP Christine d'Allones Bonnefoy, who was present during the meeting. In addition, shadow-rapporteur of

³ For further information on the lobbying strategy on Toll Plus please refer to the Annual Report 2017.

the dossier MEP Michael Cramer as well as other MEPs and their staff attended the meeting, including the Tyrolean and South Tyrolean MEPs Karoline Graswander-Hainz and Herbert Dorfmann. An additional evening event hosted in the Brussels representation of the Euregio Tyrol – South Tyrol – Trentino was also attended by several stakeholders from the EP but also by representatives of the European Commission, relevant stakeholders and the regional councillors of Tyrol, Ingrid Felipe and of South Tyrol, Florian Mussner. During both events, the iMONITRAF! proposals were positively acknowledged and follow-up contacts could be successfully established.

INFORMATION EVENTS ON TOLL PLUS ON 23RD JANUARY 2018

What price to pay for trans-European road transport?

Supporting modal-shift policies in the sensitive Alpine region & decarbonisation of freight transport through the revision of the Eurovignette Directive.

A light sandwich lunch will be served.

Hosted by MEP Michael Cramer & MEP Karoline Graswander-Hainz

23 January 2018, 13.00-14.30
European Parliament A6G306

Presentation of Eurovignette Draft Report by the Rapporteur

The Greens | European Free Alliance
in the European Parliament

S&D Group of the Progressive Alliance of Socialists & Democrats in the European Parliament

TRANSPORT & ENVIRONMENT

iMONITRAF!

Smart freight pricing for sensitive areas - a proposal from Alpine regions

Networking for a "mountain-proof" revision of the Eurovignette Directive as a showcase for coordinated transport policies in the Alpine Region: specific proposals and way forward.

The roundtable discussion of this evening event will gather political representatives of the iMONITRAF! partner regions, MEPs and representatives from the European Commission. Further opportunities for a successful networking on the Eurovignette Directive will be explored, looking the relevant EU policies for the Alps and considering the coordination at regional level with iMONITRAF! and at macro regional level with the EUSALP strategy. As one major objective, the discussion should go beyond current proposals and also consider the potential of innovative technologies and a stronger stakeholder involvement.

23 January 2018, 18.30-21.00
Representation of the European Region Tyrol-South Tyrol-Trentino
Rue de Pascale 45-47, B-1040 Brussels

Languages: EN - DE - IT - FR
Please register by contacting info@alpeuregio.eu

EUROREGION EUREGIO
Tirol Südtirol Trentino
Tirolo Alto Adige Trentino

iMONITRAF!

Figure 1: Invitation of lunch event in Brussels and pictures



Figure 2: Lunch event in the European Parliament with MEP Michael Cramer, MEP Karoline Graswander-Hainz, MEP Christine Revault d'Allonnes-Bonnefoy (rapporteur Eurovignette Directive), Vice-president of Tyrol Ingrid Felipe.



Figure 3: Roundtable discussion with MEP Michael Cramer, MEP Karoline Graswander-Hainz, Vice-president of Tyrol Ingrid Felipe, Director of the Tyrol office in Brussels Richard Seeber, Councillor for Mobility of South Tyrol Florian Mussner, MEP Herbert Dorfmann.

As follow-up to the lunch event, iMONITRAF! has developed specific proposals for amendments to the revision process, partly developed in close cooperation with the decision-makers in the EP. Especially, a specific proposal on how to deal with regional transport in the Eurovignette was developed – based on the in-depth report of iMONITRAF! of 2017.

Outcome: integration of several iMONITRAF! proposals in European Parliament final vote

The European Parliament voted on the amendments to the Eurovignette Directive on 25th October 2018. This vote of the European Parliament (EP) can be seen as a great success for iMONITRAF!, as four out of five specific elements of the initial iMONITRAF! proposal on Toll Plus are reflected in the amendments and as several additional amendments will profit the Alpine regions:

- Amendm. 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 %
- Amendm. 99: New provision to allow for differentiation of charges for short-distance and long-distance transport (to avoid neg. impacts for regional transport)
- Amendm. 114: Revenues from infrastructure charges and external-cost charges shall be used on the territory containing the road section on which the charges are applied
- Amendm. 129: Mountain factor for external costs is increased from factor 2 to factor 4

Two provisions of the TRAN Committee with relevance for iMONITRAF! were however not supported in the plenary vote of the EP. One proposal of the TRAN was to delete the overlap between the mark-up for mountain areas with the external cost charges (as also proposed by iMONITRAF!). The EP plenary however decided to keep the deduction to avoid over-proportional burdens for operators. In addition, the EP plenary decided to limit the phase-out of time-based charges to heavy vehicles, private vehicles can thus still be charged via “Vignette” solutions in the future.

Follow-up: outlook 2019-2020

The revision document will now enter the negotiation phase with the European Council, the exact timing is however not year clear. iMONITRAF! will use its contacts at EU level to keep “in the loop” with new developments and, where necessary, to support the decision making process.

In addition, networking opportunities with the Suivi de Zurich Process will be sought in 2019, as the publication and political discussion of in-depth analysis on Toll Plus of the Suivi de Zurich is still pending.

3 Review of innovative technologies

The iMONITRAF! strategy of 2012 is still a major milestone for the network, as it defines common targets as well as a set of common measures. Since the development of the strategy, however, several developments have gained new momentum and technology has developed at a much higher speed than foreseen. In 2018, iMONITRAF! has thus launched a review of innovative technologies to check the role of future technology driven trends for the iMONITRAF! strategy in order to align the specific policies and flanking measures with the new developments.

Five innovation clusters with relevance for iMONITRAF!

The review identified five major innovation clusters with a relevance for long-distance transalpine transport (see Fehler! Verweisquelle konnte nicht gefunden werden.).

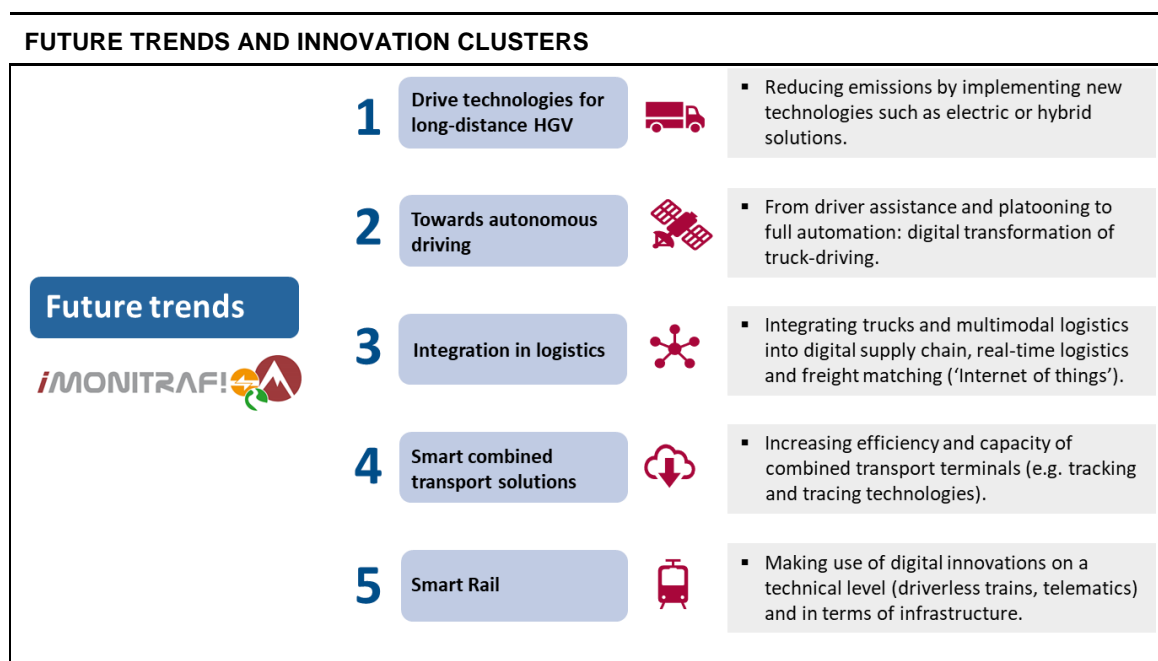


Figure 4: Source: Infras

- **Cluster 1: Innovative drive technologies for long-distance HGV:** Focuses on alternative technologies for heavy goods vehicles (HGV) with potential to reduce emissions on a large scale. Among them, electric freight vehicles serve as a promising option.

- **Cluster 2: Towards autonomous truck driving:** Digitalization has great impacts on road transport. Already today, technological advancements, such as driver assistance systems and platooning, symbolize the potential towards fully automated trucks. According to several studies, fully automated trucks will be available on the market by 2030.
- **Cluster 3: Integration in logistics (Logistics 4.0):** Integrating trucks and trains into the logistics process is continuously improving. Digital technologies will enable real-time logistics data across the entire supply chain. In addition, freight matching is getting easier and logistic service providers will depend on automated services to optimise their processes.
- **Cluster 4: Smart Combined Transport solutions:** Sensors, telecommunication technologies and robotics: already today, combined transport (CT) terminals can operate automatically. By further integrating tracking and tracing technologies and on the basis of standardized trailers and handling equipment, terminals will gain in efficiency.
- **Cluster 5: Smart Rail:** The railway sector is increasingly under pressure and needs to ensure a similar level of digital innovations. This may include further progress regarding driverless trains, telematics or the automatization of shunting services.

Relevance for iMONITRAF! targets and objectives

A SWOT(strengths-weaknesses-opportunities-threats) analysis shows that the five innovation clusters have the potential for disruptive changes in the transport system. They will also affect the iMONITRAF! objectives and target system as formulated in the common strategy:

- Cluster 1 has the potential to reduce environmental pressures for road transport (air quality, CO₂ emissions and noise). It considerably increases the environmental performance of road freight transport and thus has negative effects on modal shift policies.
- Cluster 2 with a focus on autonomous trucks will lead to an optimisation of traffic flows and, especially in later stages, will considerably reduce the costs of road freight transport. Again, this cluster can lead to risks for effective implementation of modal shift policies.
- Clusters 3, 4 and 5 will bring along improvements for combined transport and rail freight transport and will thus have positive effects on modal shift. All clusters will lead towards efficiency improvements of CT.

Overall strategic implementation

The different technology-driven trends might lead to considerable impacts on the competitive situation between road and rail – regarding their environmental but also economic performance. The Alpine regions, with their high share of transit traffic and their long-term policy based on the modal-shift rationale, need to steer the development in a strategic way:

- Developments on the road will be strongly market driven: automated vehicles will ease social problems in the road transport sector (especially regarding working times) and will reduce the pressure on the labour market. Electric solutions will be driven through climate change policy, based on EU and national policies.
→ **In order to maintain and further strengthen the competitiveness of rail transport and to make full use of the new rail basetunnels, iMONITRAF! should put a strong focus on innovation clusters 4 and 5** – supporting the automation and integration of CT and thus guaranteeing its compatibility with fully automated logistic solutions.

- Fully automated HGV will be available by 2030, but their market deployment will depend on political frameworks. It needs to be ensured that these frameworks consider the characteristics of the Alpine regions (safety needs, capacity constraints).
→ **iMONITRAF! needs to develop a common approach towards regulation of automated HGV to shape national and EU frameworks.**
- Electric solutions and other alternative technologies have a strong potential to improve air quality in the Alpine regions, thus incentive systems need to be developed to set strong incentives for their deployment in the sensitive Alpine environment.
→ **iMONITRAF! needs to review its common measures to improve incentives for low-emission vehicles and should support a common approach towards vehicle charging.**

Integration in iMONITRAF! common measures and strategy

Making full use of the chances of technological innovations and digitalisation will require strong cooperation and a common voice of the Alpine regions. If the Alpine regions with the major transit corridors work together and develop common harmonised solutions, they can profit from the different innovation clusters to strengthen their modal shift policy:

- **Regulatory measures and standardisation:** Further dynamic adjustment of driving bans for low-emission vehicles, regulations on automated driving as well as regulations for standardisation of charging infrastructures for electric truck systems, based on a commonly agreed system.
- **Modal shift policy:** Further optimisation of road charging systems (Toll Plus) to set incentives for clean vehicles through strong modulation of tolls as well as integrated incentives for combined transport. With the construction of the rail base tunnels Brenner and Mont Cenis the highest level of connectivity and automation to integrate rail transport in automated logistic processes needs to be ensured. Also, the financial support mechanisms for CT need to be reviewed, with a focus on unaccompanied CT solutions which build on smart CT and rail.
- **Steering instruments:** An Alpine Crossing Exchange might still be interesting to steer capacities on the Alpine motorways, but an undifferentiated approach might have adverse effects on the modernisation of vehicle fleet.
- **Standardisation of CT and rail:** To support the automation of CT and rail services and to maintain the competitiveness of rail transport in a Logistics 4.0 framework, a stronger standardisation of frameworks and technologies is necessary (fully automated terminals, standardisation of trailers and handling equipment).

In general, the review also made clear that further research and pilot activities are needed to guide the effective use of innovative technologies for freight transport in the Alps. Thus, several partners of the iMONITRAF! network agreed to launch a new project proposal in the frame of the Alpine Space Programme to develop in-depth analytical recommendations (for further information see chapters 6.1.5 and 8).

4 Synergies with EUSALP and other networking activities

Synergies with EUSALP AG4

The Action Group 4 (AG4) on Mobility of the EUSALP had a rather ambitious programme for the year 2018, the second full year of the cooperation. The year was shaped by the EUSALP Presidency of Tyrol which put a focus on transport and mobility. Hence, the progress of AG4 led by the European Region Tyrol – South Tyrol – Trentino was given special attention. As described in the previous Annual Reports, several activities of AG4 have a considerable overlap with iMONITRAF!, especially regarding the further development of modal shift policies but also to better understand acceptance and impacts of policy measures and infrastructures. The following activities of AG4 need to be highlighted as they have direct links with iMONITRAF!:

- In its activities on modal shift policies, EUSALP AG4 had the objective to go beyond the Toll Plus approach and to analyse the role of other pricing elements for modal shift. A [study on integrated pricing](#) was commissioned in 2018 and its results discussed during the 9th AG4 meeting in November in Brussels and published during the EUSALP Annual Forum on 20-21 November. The study highlighted once again the need for a harmonised approach on road pricing but also illustrated the potential of harmonising energy taxes and of streamlining charges for rail freight transport. In general, the analysis showed that policies are on the right track to improve the level-playing-field between road and rail transport but that several policies still need to become more ambitious and need to be harmonised to set stronger incentives for modal shift.
- The **conflict map** of AG4 which highlights existing regional conflicts related to freight and passenger transport but also regarding the acceptance of policy measures has been further developed in 2018. The [Conflict Map](#) will be included as additional layer into the EUSALP & iMONITRAF! Web GIS and integrated in the publicly accessible EUSALP Platform of Knowledge.
- The development of a **common methodology to assess infrastructure and operative projects** has been launched by AG4 to derive a common approach for identifying projects with a value-added for the macro-region. The identification of criteria and their assessment will be interesting for iMONITRAF! as well, especially regarding a potential update of the iMONITRAF! DPSIR approach.
- The development of a common **multi-modal information and ticketing platform** remained a core objective for AG4 in the year 2018. A project proposal which includes several AG4 members as well additional stakeholders was submitted under the 4th call of the Alpine Space Programme.
- The [ARPAF project CrossBorder](#), under implementation of the EUSALP AG4 and AG5, addresses the increasing cross-border mobility across the Alpine territory and aims at identifying gaps in the infrastructure and at facilitating sustainable cross-border commuting. A comprehensive study on cross-border commuter flows in the Alpine Region was published in 2018.

AG4 had three meetings in 2018 (Innsbruck, Trento and Brussels) and a Mobility Conference with focus on further developing secondary networks was organized in June 2018. In addition, results and activities of AG4 were presented during the EUSALP Annual Forum in November 2018 in Innsbruck.

Other networking activities

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

- The **Suivi de Zurich** finalised its in-depth analysis on Toll Plus at the beginning of 2018. However, the study has not yet been finally approved as the ministerial meeting which was foreseen for 2018 has been postponed. The Suivi de Zurich process also showed a high interest in the work of innovative technologies and viewpoints could be exchanged during the Logistics Dialogue in Altdorf in October 2018.
- Cooperation with the **AlpInnoCT** project could be improved, a direct exchange with the project took place during the Logistics Dialogue in Altdorf. Especially regarding the further development of the AlpInnoCT wishlist, an intensified cooperation between AlpInnoCT and iMONITRAF! was agreed.
- The Lead Partner of iMONITRAF! also represents the network during the meetings of the Alpine Convention's Working Group Transport. The WG Transport is recently finalising an analysis on external transport costs in mountain areas which needs to be considered in further iMONITRAF! activities.
- As a successful legacy of a former Interreg Alpine Space-funded project, the iMONITRAF! network was invited to present itself at the joint Interreg stand in Ljubljana at the occasion of the TEN-T Days 2018 from 25 to 27 April 2018. With a total of 1,300 participants and over 100 exhibition stands, iMONITRAF! was able to reach out to a large European audience of transport experts, to demonstrate the urgency to act against growing numbers of heavy duty vehicles across the transalpine road freight corridors and to continue the efforts in harmonizing toll systems along the Alpine arch.

5 Monitoring of iMONITRAF indicators

This chapter provides the main findings from the data analysis of the iMONITRAF indicators, which include road traffic volumes, the transported freight tons and modal split, the ambient air concentrations 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.

5.1 Indicator Road traffic volumes

Road traffic volumes can be counted in different ways, according to the national standards, the measuring stations and the methodology 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) is considered. Regarding the **counting systems**, Brenner and Tarvisio corridors 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 used by the Federal Office of Transport (FOT) is considered: vehicles

belonging to classes 2-4 are counted as light vehicles; those belonging to classes 1, 5-7⁴ as heavy vehicles. Finally, vehicles along Italian-French corridors are counted according to the system used by the Italian highways societies: 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).

Figure 5 analyses the **overall annual average daily traffic for all vehicles** in the years 2005-2017. 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 31,912 vehicles per day, the Brenner corridor presents the highest traffic flows, followed by Ventimiglia and Gotthard (24,716 and 17,804). Tarvisio lies in the middle with 14,743 vehicles, followed by the San Bernardino (about 7,428 vehicles). Finally, Mont Blanc and Fréjus present the lowest values, with 5,452 and 4,879 vehicles per day.

The analysis since 2005 shows different trends. The Brenner presents the highest absolute traffic volumes and a general increase of flows until 2017 (+23.2 %), despite a significant reduction in years 2009-2011, which happened due to the international economic crisis. Also Ventimiglia and Gotthard show an overall positive trend (+7.4 % and +10.8 %). For Tarvisio, data are available only from 2012 onwards and register a high increase (+16.7 %).

In the short term (yearly variation between 2016 and 2017), all corridors except for Fréjus registered an increase of vehicles. The highest growth in relative terms has been registered at Brenner and at Tarvisio (in both cases +6.3 %). Also the volumes along the Mont Blanc increased (+5.4 %), while at San Bernardino (+3.2 %), Ventimiglia (+2 %) and Gotthard (+0.9 %) the growth rates are lower.

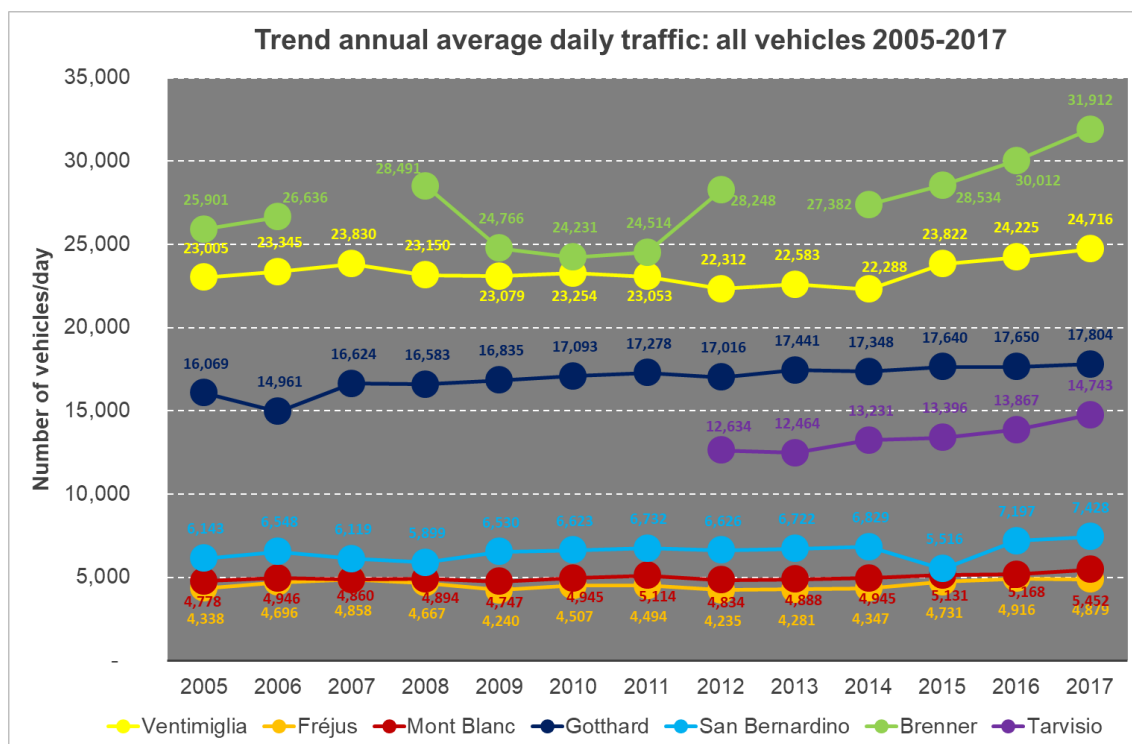


Figure 5: Annual average daily traffic: sum of all vehicle categories

⁴ Swiss vehicle classification: 1 coaches, 2 motorcycles, 3 passenger cars, 4 light commercial vehicles, 5 HDV trucks, 6 HDV truck trailers and 7 HDV articulated trucks.

As far as the **annual average daily traffic of heavy vehicles** is concerned (Figure 6), the highest values are registered again at Brenner, where in 2016 about 6,700 heavy vehicles per day were counted on average (+5.3 % in comparison to 2016). Ventimiglia and Tarvisio follow, with about 5,650 (+6.2 %) and 3,600 (+10.8 %) heavy 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 2,350 vehicles/day in 2017 were registered (+1 % compared to 2016). Finally, the values registered along Fréjus, Mont Blanc and San Bernardino, even if increasing, are lower (between 2,100 and 600 vehicles/day). The restrictive measures and the comparably high toll prices on these four axes (see indicator toll prices) contribute to explain these results. If aggregated over all iMONITRAF! corridors, the number of heavy vehicles increased by 5.9 % from 2016 to 2017.

By analyzing the period 2005-2016, several distinct phases can be distinguished: between 2005 and 2007, the flow of heavy vehicles increased in all corridors. This development was followed by a decline until 2009, reflecting the impact of the economic crisis. The year 2010 showed some recovery (except for Brenner), followed by another general decrease in 2011-2013. In the last four 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 2017 reveals that only two corridors present a ten-year negative trend: Fréjus (-12.7 %) and Gotthard (-13 %); Brenner and Ventimiglia compensated the effects of the economic crisis (+5.9 % and +12.6 %); whereas, other corridors registered a higher increase (San Bernardino +18.4 %, Tarvisio +29.8 %, but in this case the comparison is made with 2012, due to the lack of previous data).

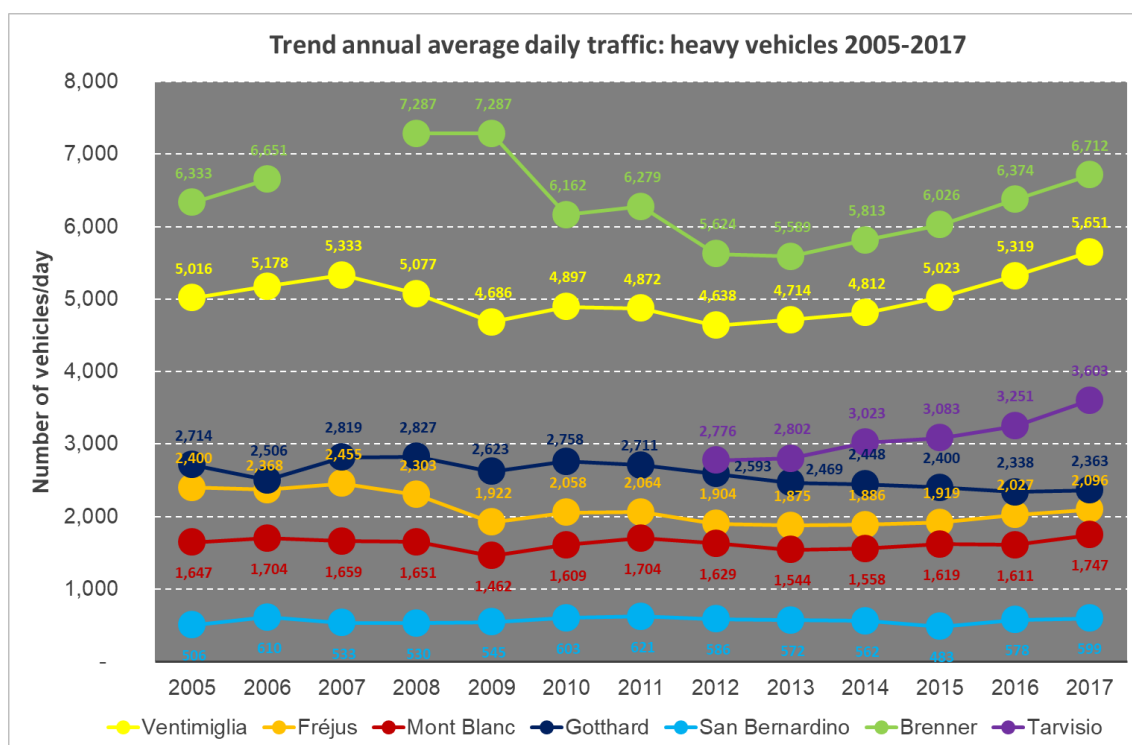


Figure 6: Annual average daily traffic: Heavy vehicles (heavy goods vehicles plus coaches)

The analysis of the **annual average daily traffic for light vehicles** (Figure 7) indicates the highest values again at Brenner, with 25,200 vehicles per day in 2017. Brenner is followed by Ven-

timiglia (19,000), Gotthard (15,400), Tarvisio (11,100) and San Bernardino (6,800), while the number of the transits between France and Italy along Mont Blanc and Fréjus are the lowest (about 3,700 and 2,800 vehicles per day). Compared to the year 2016, the most relevant annual growth is detected at Brenner (+1,550 vehicles, corresponding to an increase by +6.6 %), followed by Tarvisio (+550 light vehicles/day, +4.9 %). Along the other transalpine corridors (Gotthard, Ventimiglia, San Bernardino and Mont Blanc), the increase was lower than 200 light vehicles/day. From 2016 to 2017, Fréjus is the only corridor that registered a decrease (-100 light vehicles/day, -3.7 %). If aggregated over all iMONITRAF! corridors, the number of light vehicles crossing the Alps increased by 7.0 % from 2016 to 2017.

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. By comparing the numbers of 2005 with those of 2017, a general increase of flows along all corridors is monitored. In relative terms, the highest growth is detected at Fréjus (+43.6 %), followed by Brenner (+28.8 %), Mont Blanc (+18.3 %) and the Swiss corridors of San Bernardino (+17.2 %) and Gotthard (+12.6 %).

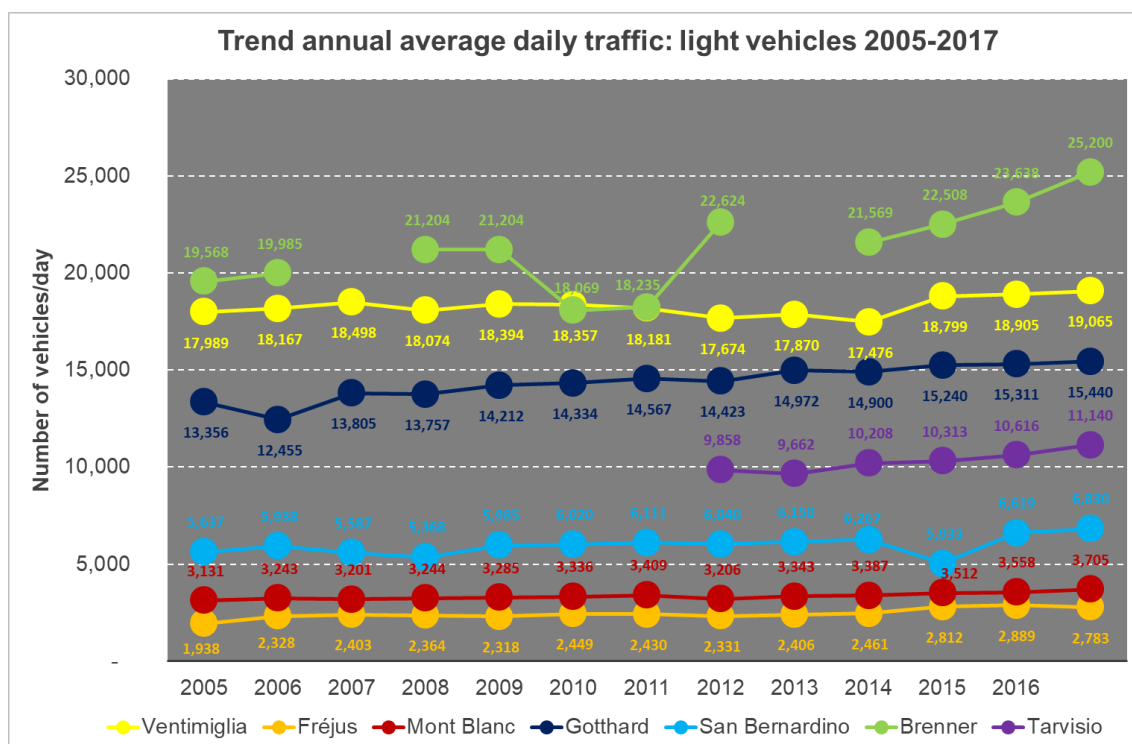


Figure 7: Annual average daily traffic: Light vehicles (sum of passenger cars, light duty vehicles, motorcycles)

5.2 Indicator transalpine freight transport on road and rail

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 Federal Office of Transport, data for all corridors have been collected until 2017 (Figure 8), with the relevant exception of Tarvisio.

Regarding the variation between 2016 and 2017, at Brenner an increase of the overall freight volumes from 46.9 Mt to 49.4 Mt is detected; the increase involved both road (passing from 33.5 Mt to 35.6 Mt) and rail transport (from 13.4 Mt to 13.8 Mt). The trend at Gotthard is inverse: the overall transported tons have decreased, passing from 23.3 Mt in 2016 to 22.1 Mt in 2017. Differently from the previous years, this reduction is due only to the rail component (from 15.3 Mt to 13.6 Mt), while the road transport has increased from 8.4 Mt to 8.6 Mt. The decrease of the rail volumes at Gotthard is a direct consequence of the 50 day blocking of all freight rail in Germany due to a construction accident of the Oberrheinstrecke in Rastatt. Along Simplon, an increase of rail volumes is visible (from 13.4 Mt to 13.6 Mt) and a contextual reduction of road transport (from 1.1 Mt to 1.0 Mt). Along the French-Italian corridors, the percentage of rail transport appears more limited. At Ventimiglia, it counts for about 3 % of overall freight transport (0.7 Mt out of 20.2 Mt). Along Mont Blanc, no rail connection is available and goods are transported only by road (9.4 Mt). Finally, the percentage at Fréjus/Mont Cenis of rail is higher than other French-Italian corridors, where it counts for about 20 % of the total (2.7 Mt out of 13.9 Mt). If aggregated over all iMONITRAF! corridors the results can be summarized as follows: While freight transports increased (in tons) on the road by 4.4 %, it weakened on the rail by 2.3 %. The total freight, however, increased by 2.1 %.

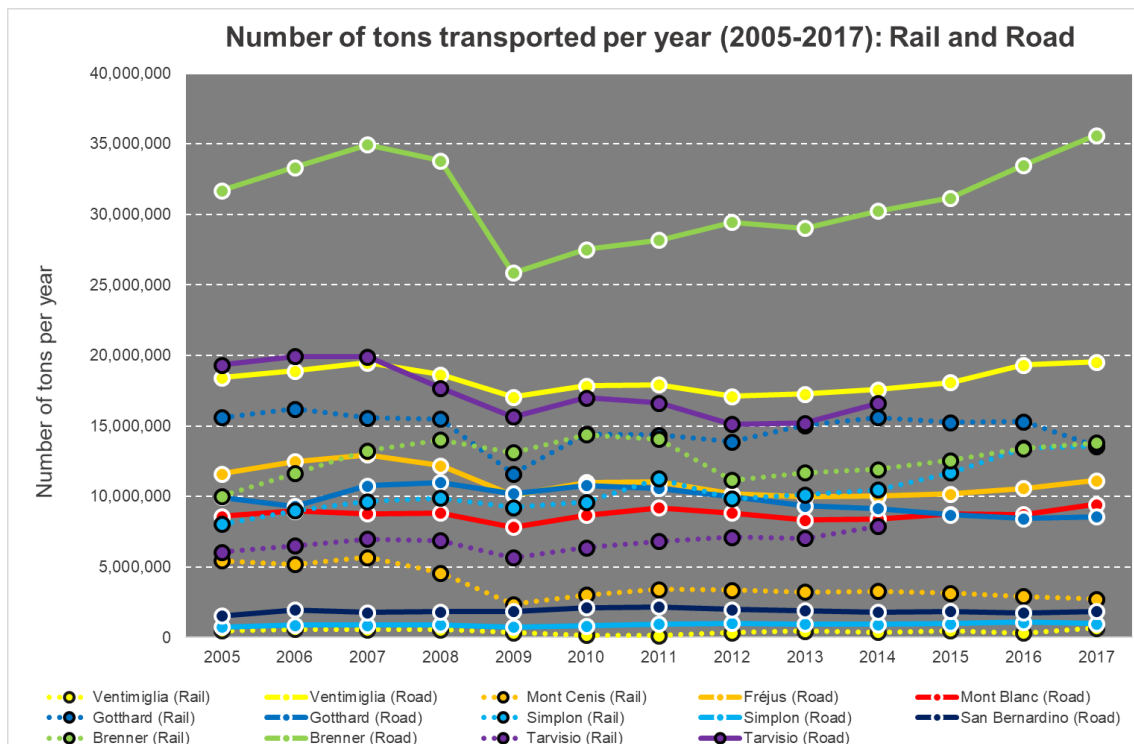


Figure 8: Transported tons per corridor and per transport mode (road, rail)

For the modal split (Figure 9), 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 reason explained above. Simplon presented always values over 90 % and in 2017 it confirmed the share of 93 % registered in the previous year. On the other hand, along Brenner rail transport showed 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 the share decreased again to 28 %. Referring to Fréjus/Mt. Cenis, data of the year 2017 (20 % rail, 80 % road) shows a further reduction of the rail mode. 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, no data has been available for Tarvisio after the year 2014, when the percentage was stable at 32 % for rail.

The railway mode can be distinguished the type of service (Figure 10). Along the French-Italian corridors, conventional rail transport played the major role in last years. However, in 2017 unaccompanied combined transport (UCT) become important, too: along the Ventimiglia line, UCT constitutes 36 % of rail movements (the remaining 64 % is conventional). Along Mont Cenis, UCT counts for about 54%, followed by conventional transport (44 %), while accompanied combined transport (ACT, with the service between Aiton and Orbassano) is limited to 1 %.The condition is different along the two Swiss corridors: UCT is the main component (58 % at Gotthard and 76 % at Simplon), followed by conventional transport (41 % at Gotthard and 12 % at Simplon). ACT is limited along Gotthard (1 %) and more developed at Simplon (12 %), mostly thanks to the connection between Freiburg and Novara. Finally, along Brenner, UCT (connection Wörgl-Brennersee-Trento) counts for 53 %, while ACT and conventional rail count, respectively, for 25 % and 22 % of total rail transport.

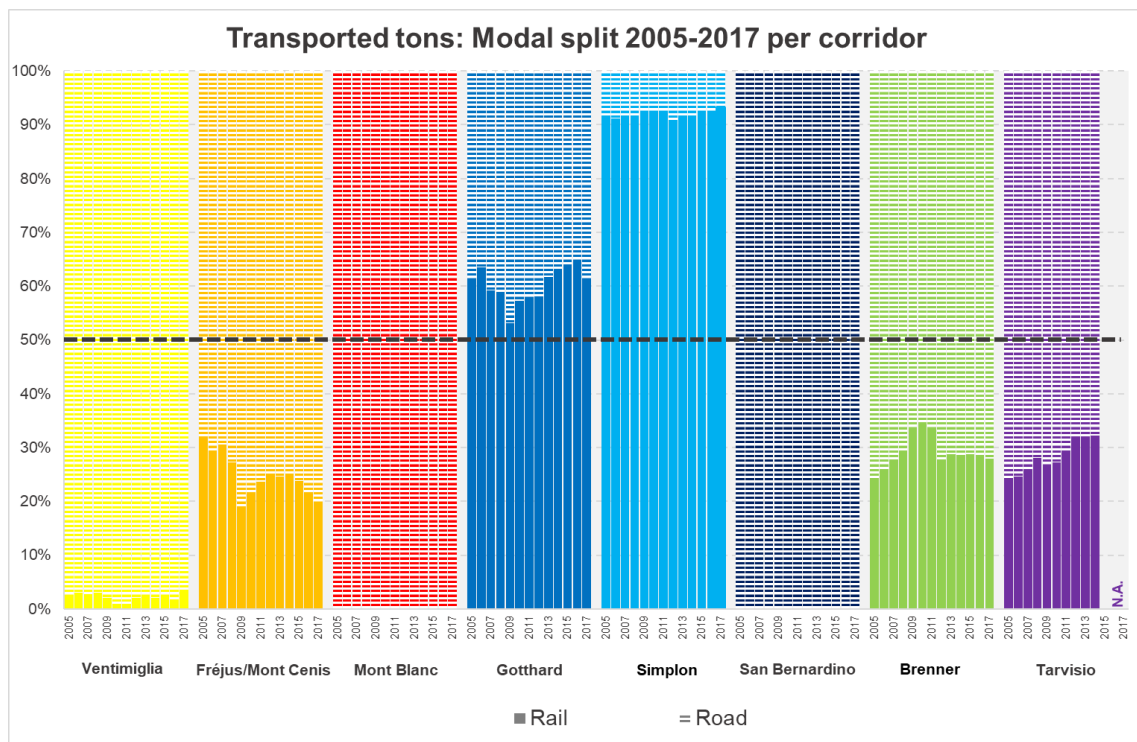


Figure 9: Transported tons, modal split per corridor

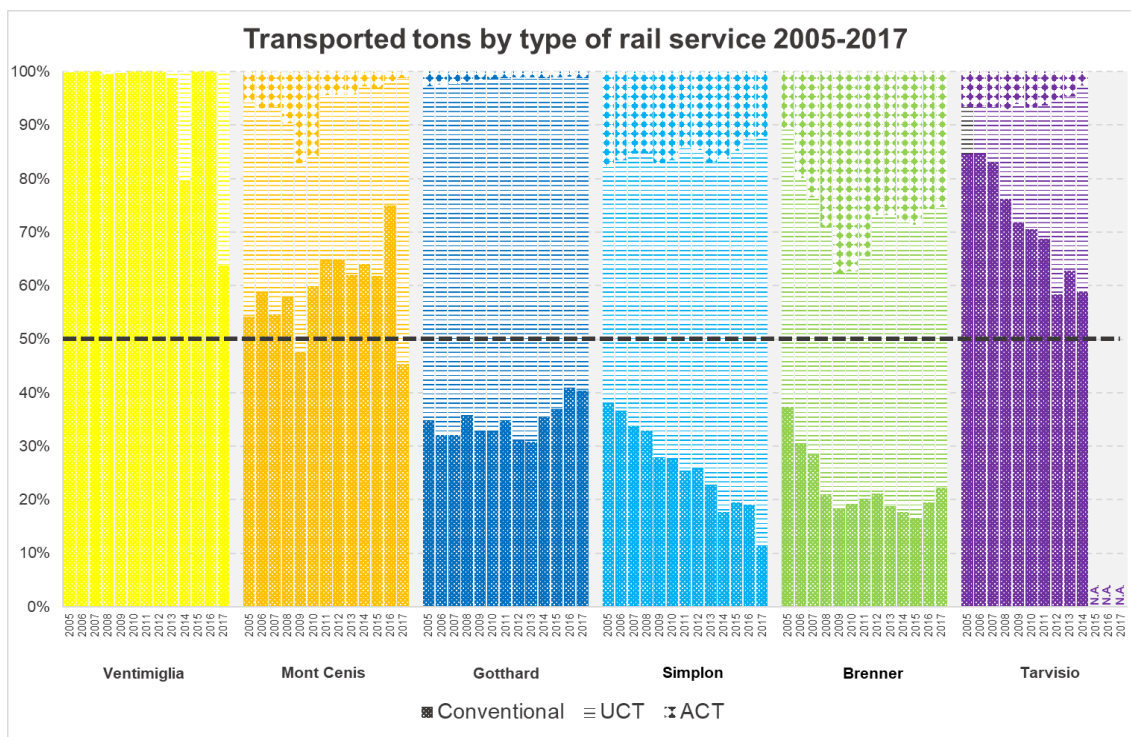


Figure 10: Transported tons by rail per rail and per type of services

5.3 Indicator ambient air concentrations measured

Figure 11 illustrates the trend in annual average for **nitrogen dioxide (NO₂)** concentrations between 2005 and 2017 near the highways, since NO₂ is mainly related to road transport (and particularly to diesel vehicles). After the general decrease of NO₂ concentrations registered by all measuring stations in 2016, a slight increase is visible for the year 2017. In several cases, measurements exceeded the limit values imposed by the EU (40 µg/m³) and by Austria and Switzerland (30 µg/m³).

In more detail, the highest concentrations in 2017 are measured along Brenner (green color scale), Mont Blanc (red) and Gotthard (blue) corridors, while lower values are measured along Fréjus, Ventimiglia, San Bernardino and Tarvisio (orange, yellow, light blue and violet colors). This result is related to the road traffic volumes presented in Figures 5-7, 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 NO₂ exceed the EU annual limit value of 40 µg/m³ for the French station of Chamonix-Bossons (Mont Blanc) and for all monitoring stations along the Brenner corridor: Mutters, Ora/Auer, Vomp and Avio. With 56 µg/m³, this station registered the highest values for 2017. Velturmo/Feldthurns – the station with highest values in previous years – was closed end of December 2016 and from 2017 onwards no more data is available. Along the Gotthard axis, the stations of Moleno and Camignolo exceeded the Swiss national annual limit of 30 µg/m³. Values are below the EU limit in Quiliano (Ventimiglia), Entreves (Mont Blanc), Vallée de la Maurienne and Susa (Fréjus), Rothenbrunnen (San Bernardino) and Tolmezzo (Tarvisio).

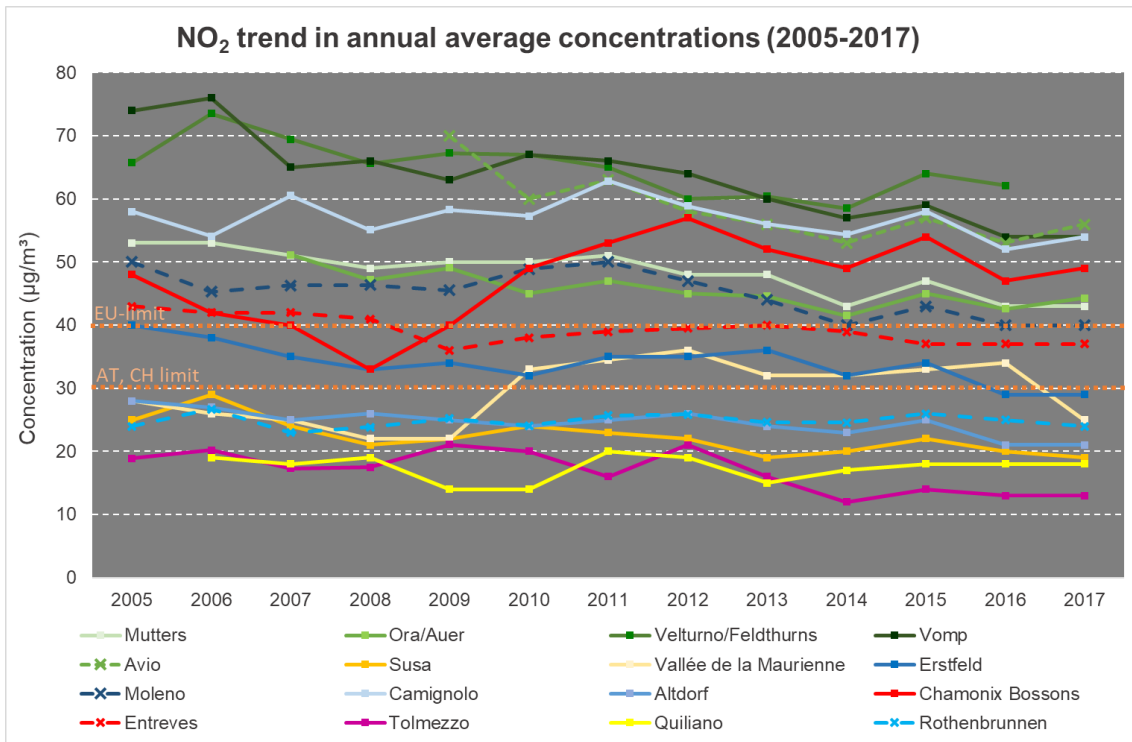


Figure 11: NO₂ trend in annual average concentrations⁵

Similar to the description of NO₂, the analysis of the **particulate matter (PM₁₀)** concentration is restricted to the roadside stations (Figure 12). Compared to the year 2016, in 2017 a general increase of PM₁₀ concentrations is visible. The EU limit value for the annual average (40 µg/m³) is not exceeded at any station. The highest values are registered at Vallée de la Maurienne (Fréjus), with 25 µg/m³. The limit value of Austria and Switzerland (20 µg/m³) is not exceeded in any Austrian or Swiss station.

A time series analysis reveals a fluctuating trend of this indicator. After a significant decrease between 2005 and 2007, concentrations remain overall more or less constant until 2010 (except for the large fluctuations at Chamonix Bossons). A raise is visible again in 2011, followed by three years of decrease, which was interrupted in 2015 due to extreme hot weather conditions in summer. After a further reduction in 2016, the year 2017 has again revealed a general increase, except for some stations (Mutters and Chamonix Bossons, this last presenting a unexplained jump from 15 to 10 µg/m³). The increase in 2017 is caused by warm summer and very cold January (increased heating, wood burning).

A couple of final caveats are necessary: first, PM₁₀ concentrations are also influenced by other sources than transport (mainly such as wood heating installations); second, secondary PM₁₀, built from precursor emissions (NO_x, SO₂, NH₃, VOC), can contribute to half of the concentration measured. Therefore, the fluctuations identified in Figure 12 may not only be explained by the development of the road transport emissions.

⁵ 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.

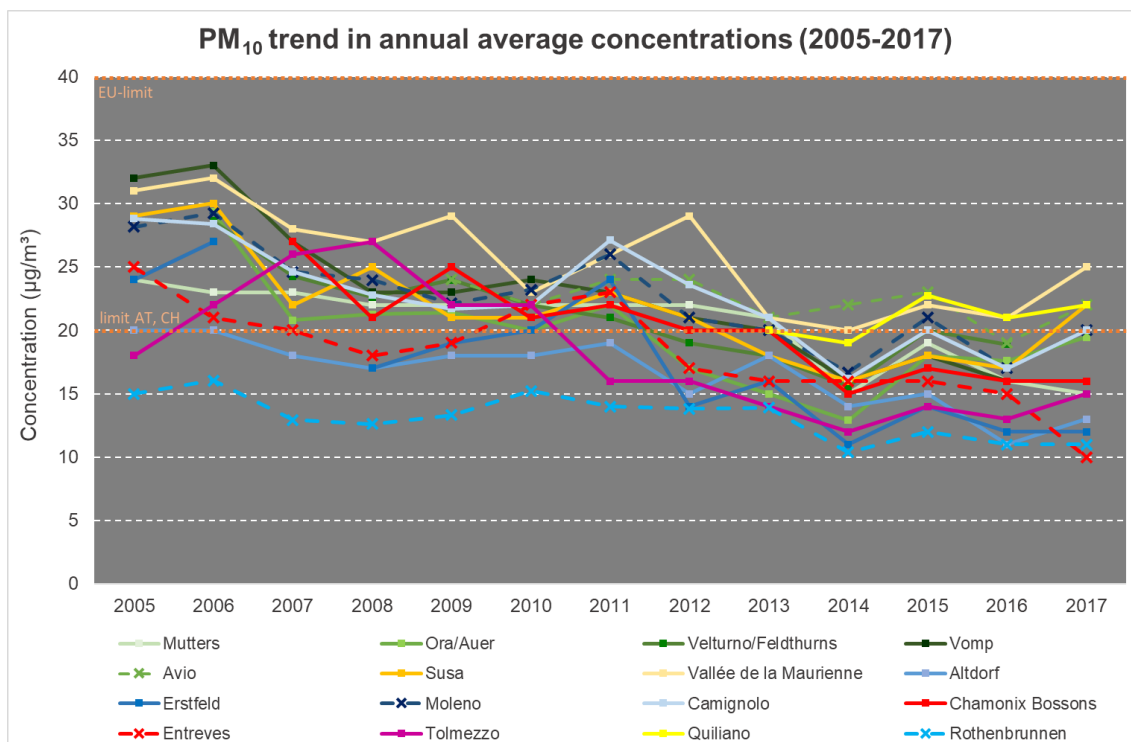


Figure 12: PM_{10} trend in annual average concentrations⁶

5.4 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 annoyance caused by exposure to 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 is normally not adequate, because the distance of the microphones to the streets is not homogeneous. 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 2005-2017 (measuring stations of Camignolo, Reiden and Courmayeur), whereas noise is not monitored along Brenner and Ventimiglia. Only partial data is available along the Tarvisio (Camporosso), San Bernardino (Rothenbrunnen) and Fréjus corridors (Bardonecchia). Regarding the first two stations, data collection started, respectively, in 2011 and 2012, and is currently ongoing; in Bardonecchia measurements started in 2011 and closed in 2014.

Figure 13 and Figure 14 show that L_{den} lies in the range between the 80.0 dB(A) of Reiden and 70.9 dB(A) of Châtillon, while L_{night} lies between the 72.5 dB(A) of Reiden and the 62.9 dB(A) of Châtillon. Stable noise levels are recognized at Reiden and Camignolo for L_{den} and L_{night} , whereas an increase was measured at Camporosso. Along the Mont Blanc, reductions are registered both in Courmayeur-La Palud and in Châtillon. Here, the reduction is particularly evident (from 73.9 to 70.9 dB(A) for L_{den} and from 66.1 to 62.9 dB(A) in L_{night}). This can be explained by the presence of a construction site for the replacement of the central guard-rail, which lasted for most of 2017 and imposed a reduction of the width of the carriageway and, consequently, of the maximum speed.

⁶ The value for Vallée de la Maurienne in 2011 represents the average of the years 2010 and 2012.

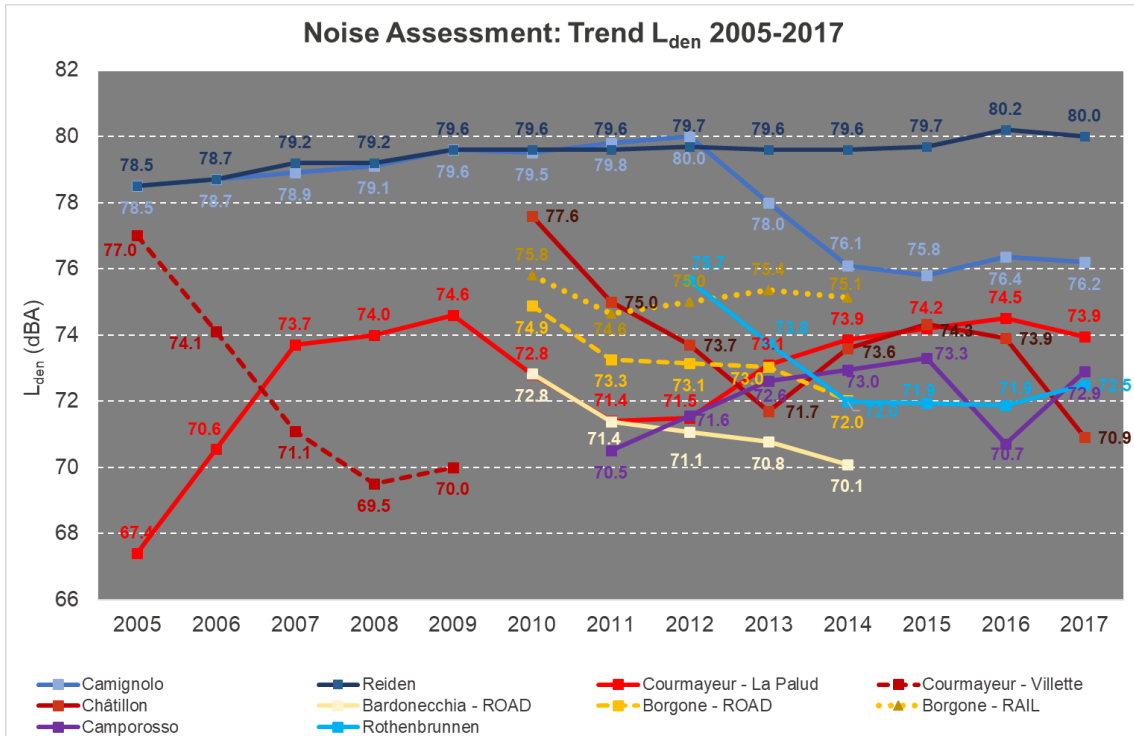


Figure 13: L_{den} trend⁷

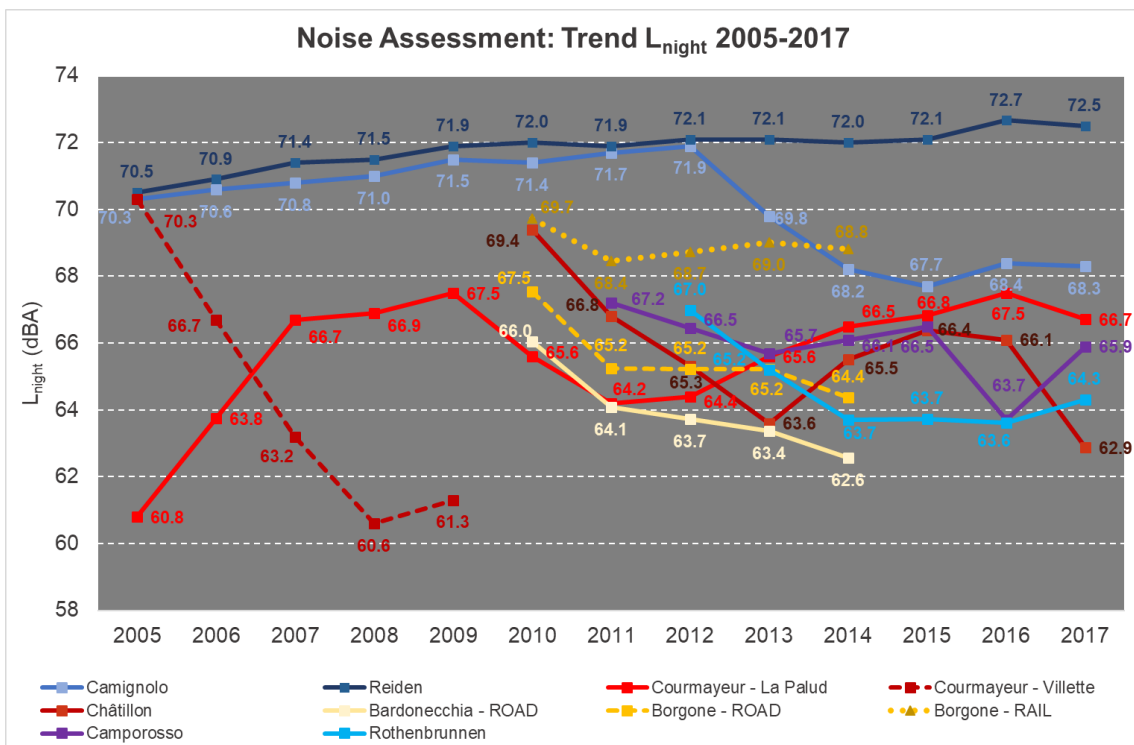


Figure 14: L_{night} trend⁸

⁷ 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.

⁸ 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.

5.5 Indicator Toll prices

Toll prices are calculated based on the distance between the entering and exiting toll stations of sites that are located along the transalpine axis under evaluation and that are relevant nodes of the infrastructural network. Compared to the previous reports, origins and destinations have been redefined as follows, in order to have more homogeneous distances:

- Ventimiglia: from Marsiglia (FR) to Genoa (IT) via Ventimiglia (381 km)
- Fréjus: from Lyon (FR) to Turin (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 (170 km)
- Brenner: from Kufstein (AT) to Verona (IT) via Brenner pass (333 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 Figure 15. The prices refer to the prices for a single passage. This holds for the Fréjus and Mont Blanc tunnels, the Austrian highway 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 € 35.20, while all subsequent passages within the same year are free.

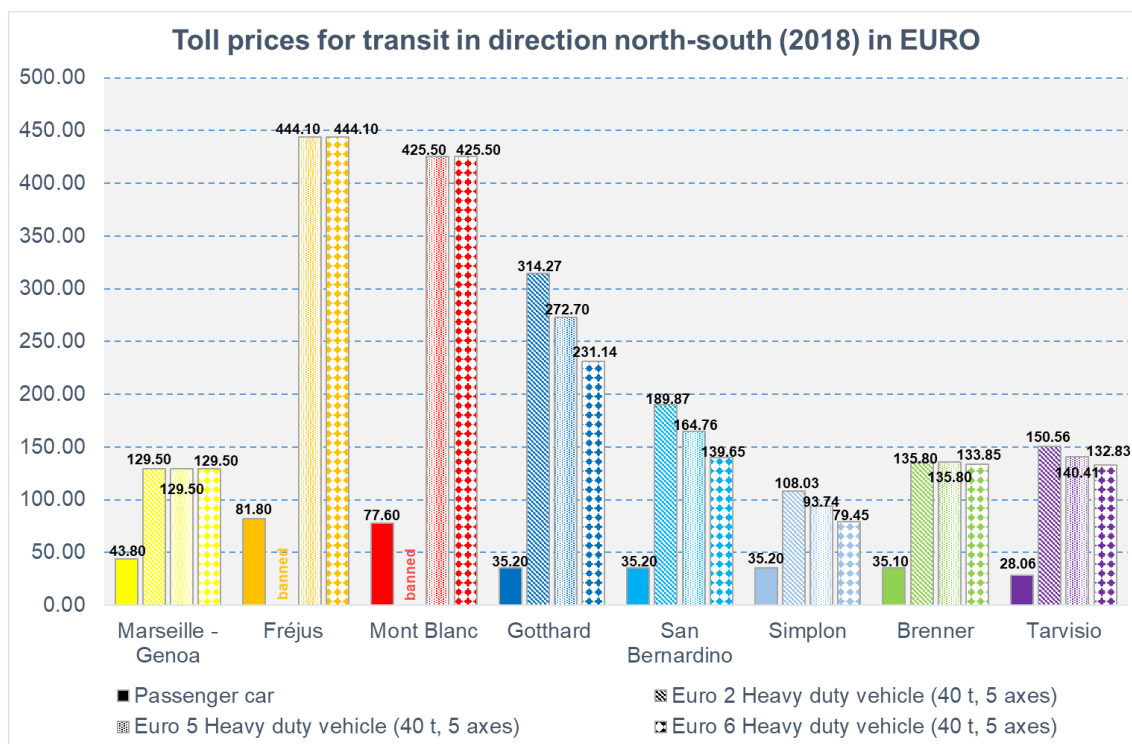


Figure 15: Toll Prices for a single transit on the iMONITRAF! corridors in direction North-South.

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 (€ 45.20 instead of € 44.40 for both Fréjus and Mont Blanc). With € 35.20 and € 35.10, the charges for the Swiss and Brennero highways are in the midrange of the corridors, while the cost for a passage on and Tarvisio are the lowest (€ 28.06).

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 Switzerland 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, Euro V and Euro VI is the same (€ 129.50). The toll of the Italian part of the Brenner corridor (from Brenner to Verona) is € 40.20, also independent from the EURO class. On the contrary, the Austrian system (from Kufstein to Brenner) differentiates the tolls according to the EURO classes (€ 95.60 for EURO II and V HDVs, € 93.65 for a EURO VI HDV), which explains the slight difference in Figure 15. The biggest difference among Euro classes happens at Mont Blanc and at Fréjus, where EURO II vehicles are not allowed to circulate at all. 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 (€ 329.40 compared to € 324.00 for a EURO V or EURO VI truck). Finally, along the Swiss corridors, a EURO V truck pays € 272.70, about 87 % of the charge of a EURO II vehicle (€ 314.27). This percentage furtherly lowers to 74 % when an EURO VI vehicle (€ 231.14) is compared with an EURO II trucks.

This analysis shows the absolute costs of selected trips. For freight forwarders, the specific costs – expressed as costs per vehicle kilometer – is another important criterion for choosing the most convenient corridor and transport mode. To this aim, Figure 16 shows the specific costs, by dividing the costs presented in Figure 15 by the number of kilometers 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 (€ 1.87/veh-km and € 1.49/veh-km), are in the middle for Swiss corridors (€ 0.80/veh-km at Gotthard and Simplon, € 0.83/veh-km at San Bernardino) and are the lowest at Brenner (€ 0.40/veh-km), Tarvisio (€ 0.42/veh-km) and Ventimiglia (€ 0.34/veh-km).

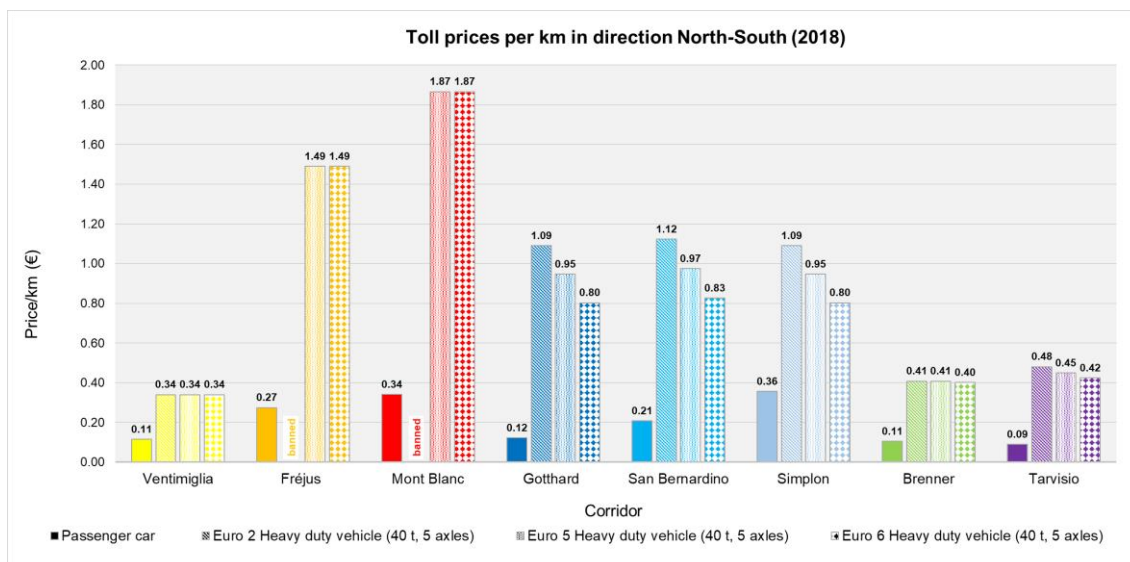


Figure 16: Specific toll prices (€/km) for a transit on the iMONITRAF! corridors in direction North-South

A general feature of absolute and specific costs is that high tolls correlate with low traffic volumes and vice versa: recalling Figure 5 and Figure 15, 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.

5.6 Indicator fuel price

This indicator monitors the average prices of diesel and petrol (normal unleaded petrol) at the National level in Austria, France, Italy and Switzerland. The values shown in Figure 17 are annual averages of the values officially registered in every country on four different dates (namely, on the 15th of January, May, July and October). Data is provided by ÖAMTC for Austria, the Federal Statistical Office for Switzerland, ISTAT for Italy and INSEE for France.

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 dramatic fall of the price of the crude oil. In Switzerland the decrease seems less marked (diesel) or even in countertrends (petrol). However, this result can be explained by considering the unit of currency 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 EUR and to lower the interest rate. If the costs of petrol and diesel in Switzerland were expressed in CHF instead of EUR, the countertrend would disappear, and the value 2015 would lie 15 % below the value of 2014. After four years of decreasing trends the prices in 2017 and 2018 increase again, with the highest growth occurring for diesel in France.

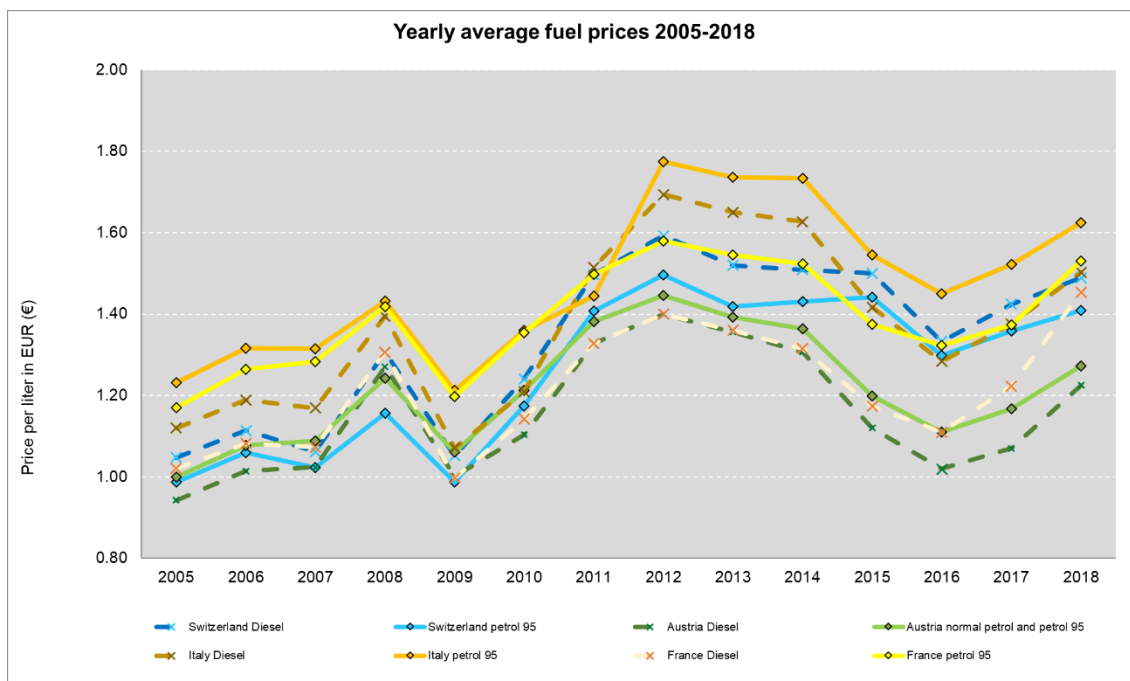


Figure 17: Annual average fuel prices

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

As further update of the Best Practice collection, iMONITRAF! partners and observers have provided information on developments in transport policy in their respective region and country for 2018. The Best Practices implemented in 2018 illustrate the growing need to find effective solutions for reaching air quality targets. As there is very limited potential in optimising pricing measures without an ambitious revision of the Eurovignette Directive (see chapter 2), regional measures have focused strongly on regulatory measures (pillar 2). With respect to pillar 3 modal shift, regional measures have again focused on the further development on support measures for combined transport as well as the further development of infrastructures. In the field of passenger transport (pillar 4) a very strong attention on cross-border mobility can be observed for 2018 as well as new approaches to strengthen the decarbonisation of passenger cars.

When interpreting the measures, it needs to be considered that several important political elections took place in 2018: in Tyrol, the Government coalition of the Austrian People's Party (ÖVP, Österreichische Volkspartei) and the Greens was re-elected which is an important aspect for iMONITRAF! as the Land of Tyrol is leading the Coordination Point. Ingrid Felipe remains Councillor for mobility and regional Vice-President. Similarly, in South Tyrol the government will continue its work with members of the People Party and the new coalition partner Lega. The new Councillor for mobility Daniel Alfreider replaced Florian Mussner who retired. In Trentino, the government is now led by the right-wing Lega party. The new President of the autonomous Province Maurizio Fugatti is responsible for the transport dossier. Also relevant for iMONITRAF! could be the regional elections in Bavaria which also led to a new coalition partner for the Christian Social Union

of Bavaria with the Free Voters association. The election also meant that a new regional State Minister, Hans Reichhart, has taken office.

OVERVIEW: BEST PRACTICE UPDATE 2018

Policy Pillar	Name of measure	Country/region
Pillar 1: Monitoring, Information & aware- ness raising	Set-up of railway noise measurement stations at three sites along the Brenner railway axis	Autonomous Province of Bolzano
Pillar 2: Limiting negative im- pacts of Al- pine transport	Continuation of pilot activities on speed limits within LIFE project "BrennerLEC"	Autonomous Province of Trento and Autonomous Province of Bolzano
	Further development of dosing system for Brenner motorway	Tyrol
	Plans for extension of sectoral driving ban to EURO VI HGV	Tyrol
	Extension of weekend driving bans	Tyrol
	Dynamic adjustment of intervention concept for air quality	Canton of Ticino
Pillar 3: Modal Shift	Modal shift policy mix	
	Launch of combined transport subsidy system for combined transport	Autonomous Province of Bolzano
	Adjustment of CT subsidies due to accident on Rhine-corridor	Switzerland (national level)
	Plans to increase diesel tax and CO ₂ tax in France	France (national level)
	Study to further develop modal-shift strategies on the Brenner corridor	Autonomous Province of Bolzano
	Agreement on concession contract for the A22 Brenner motorway	Autonomous Province of Bolzano, Autonomous Province of Trento
	Reduction of electricity price for rail transport	Switzerland (national level)
	Infrastructure	
	Agreement on continuation of BBT financing	European Commission, Land of Tyrol
	Agreement upon the rail bypass of Trento (Brenner Base Tunnel's southern access route)	Autonomous Province of Trento
	Agreement on further infrastructure development and track optimisation for freight transport	Switzerland (national level)
	Approval on construction of new transshipment terminal road-rail in Basel	Switzerland (national level)

OVERVIEW: BEST PRACTICE UPDATE 2018

Pillar 4: Passenger transport	Further development of public transport infrastructures and services	Autonomous Province of Bolzano
	Study on missing border-crossing links for rail transport (area Munich-Passo Resia/Reschenpass-Scuol-Bormio-Milan)	Autonomous Province of Bolzano
	Integration of timetables South Tyrol and Tyrol	Tyrol, Autonomous Province of Bolzano
	New railway line Mendrisio-Varese	Canton of Ticino
	Subsidy system for purchase of electric cars and set-up of charging stations	Autonomous Province of Bolzano, Autonomous Province of Trento
	Regulation of the access of motor vehicles to Passo Sella (Dolomites Unesco World Heritage)	Autonomous Province of Trento
Pillar 5: Innovative approaches	FutureTrans project proposal	Several iMONITRAF! partners
	Participation in SmartLogi project	Autonomous Province of Trento, Autonomous Province of Bolzano
	Intensified networking along Brenner corridor and active cooperation with EU Commission	Land of Tyrol, Autonomous Province of Bolzano, Autonomous Province of Trento

Table 1: 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).

With the ongoing construction of large-scale modal shift infrastructures, the attention of monitoring and information activities has focused strongly on rail noise. Regarding the environmental impact of regional railway transport, the Environmental Protection Agencies of the **autonomous Province of Bolzano** has been executing railway noise measurements at three sites along the Brenner railway axis since July 2016. The three selected measurement points are located in the railway stations of the Municipalities of Salorno in the southern area, Bressanone – locality Albes in the central area and Colle Isarco in the northern part of the Province. The measurements have a duration of ten days and are executed regularly three times a year, during the months of March, July and November. The main purpose of the monitoring is to observe any change in the noise level produced from the railway traffic directly at the noise source, at a short distance from the railroad tracks.

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. With the further growth of traffic volumes along the Brenner, the pressure to find effective solutions for limiting air pollution remains high. But also other regions have further developed their instrument mix in a dynamic way.

In order to control the number of HGV entering Tyrol during rush hour traffic in the early morning hours causing traffic jams and jeopardising traffic safety, the regional **government of Tyrol** continued its imposed **dosing system** (or block admission system) at the border to Bavaria (in southern direction). On selected days with expected traffic peaks, a cap of max. 300 HGVs per hour to pass the checkpoint on the A12 motorway in Kufstein-Nord in the direction of Innsbruck is ordered. In 2018, the measure was imposed on 25 days. Further dates have already been fixed for 2019 with 17 dates in the first half year. A long term objective remains the reduction of transit traffic on road with a shift to transporting goods on rail which shall lead to less congestion on the motorways and improvements in air quality.

The Tyrolean Regional Council (Tiroler Landtag) further supports the proposed measures to **extend the sectoral driving ban** on the A13 and A12 motorways to include HGV Euro VI for non-perishable goods. This intensification of measures is planned to come into effect in 2019. Furthermore, **weekend driving** bans were extended to entire weekends during busy tourist seasons in summer for HGV (7.5t and above) during busy tourist seasons in summer. This will be again implemented during Winter 2019. An extension of night driving bans to Euro VI HGV is also in the pipeline.

As outlined in the Annual Report 2017, the **autonomous Province of Bolzano** as well as the **autonomous Province of Trento** with their two Environmental Protection Agencies are implementing a LIFE European project "**Brenner LEC - Brenner Lower Emissions Corridor**". Pilot activities in this project have the major objective to analyse the effectiveness of variable speed limits. A first set of pilot tests with variable speed limits (VSL) for traffic and environmental purposes was carried out in the first project phase (April 2017 – April 2018). Variable limits were imposed by means of Variable Message Signs positioned along the test stretch of the highway with positive outcomes. From an environmental point of view the first empirical measurements have highlighted that an average reduction of 15 [km/h] of the average speed of light vehicles, compared with the normal flow of traffic with speed limit at 130 [km/h], determines a reduction of 10 % of the average concentration of NO₂ (nitrogen dioxide) at the roadside of the highway. From a traffic point of view, in nearly saturated conditions, the application of variable speed limits has determined an increase of the capacity of the highway. More specifically, under these conditions it has been empirically estimated an increase of 8 % of the number of vehicles passed through the test stretch. Compared to standard conditions, VSL have confirmed to determine a better traffic fluidity, determining therefore a reduction of the traffic jams, of the stop&go situations and of the travel times.

As mentioned in the two previous Annual Reports, the **Autonomous Provinces of Bolzano and Trento** have also agreed to further develop **noise barriers** along the Brenner railway line. In 2018, further tender procedures for the construction of noise barriers in the municipalities of Colle Isarco/Gossensass and Chiusa/Klausen have been concluded. Works will start in 2019. The project regarding the capital city of Bolzano is going to be revised as some technical criteria has to be changed.

A dynamic adjustment of regulatory measures to improve air quality also took place in Ticino. Already in 2016, the intervention concept for air quality was revised. Two new intervention stages are now defined: if PM10 levels reach a PM10 >90ug/m³, a speed limit of 80 km/h is implemented

on the motorways as well as an overtaking ban for HGV. If PM10 levels reach $PM_{10} > 100 \mu g/m^3$, an additional driving ban for HGV EURO III comes into force.

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

As described in the last Annual Report of iMONITRAF!, the **autonomous Province of Bolzano** and the **autonomous Province of Trento** have the objective to implement a **subsidy system for combined transport** so that financial incentives are extended beyond the existing system on the Tyrolean part of the Brenner corridor.

After the autonomous Province of Trento had been able to implement its financing system in 2017⁹, a similar system was finally approved for **the Province of Bolzano** in mid-2018 which now grants aids to the multimodal transport operators and railway companies which do freight services on rail in the provincial territory. The aids have the objective to further develop provincial CT services. Different aids are provided for the Brenner - Salorno railway line or vice versa according to the different type of service (Accompanied Combined Transport - ACT or Unaccompanied Combined Transport - UCT). Criteria for the system have been notified at the European Commission. By decision of 6th December 2017, n. 8489, the European Commission has decided not to raise objections to the aid on the grounds that it is compatible with the internal market and support measures finally started by mid-2018. The subsidies were however limited to the year 2018 and a continuation for 2019 is still pending and will hopefully be approved with the new budget plan.

In 2017, the autonomous **Province of Bolzano** (Offices for transport and environment) has commissioned a **study focusing on the analysis of modal shift on the Brenner transport corridor**, modal shift data, toll policies, measures and provisions to improve modal shift policies (motorway Brenner A22). The results were presented in July 2018.

Results of this study will also be considered by the new concessionaire of the Brenner motorway. In 2018, the concession contract for the A22 Brenner motorway for the next 30 years was finally agreed by the **Autonomous Provinces of Bolzano and Trento**, the Trentino/Alto Adige region and the provinces of Mantua, Verona and Modena. The contract will be implemented through a new entirely public inhouse company (official finalization of the contract are however still pending). Thanks to the available tolls, the most important projects funded for the Alpine area are: the Brenner Base Tunnel and its related infrastructures, the RoLa motorway, the intermodal terminal of Trento, modal shift measures from road to rail, the installation of noise barriers and the Bolzano bypass.

As a consequence of the construction accident in Rastatt, the **subsidies in Switzerland** for unaccompanied combined transport was slightly increased for 2018, contrary to the long-term planned reduction path. For 2019, however, it will be reduced to the original path.

In **France**, a broad political and social discussion took place around the government plans to **increase diesel fuel tax and the CO₂-tax**. Already in 2017, the French government had published a plan to increase Diesel taxes by 2,6 €/year to reduce the Diesel tax break (compared

⁹ See Annual Report 2017 for further information.

to gasoline). Also, the CO2-tax which affects fuel prices as well, was foreseen to rise further. All in all, Diesel prices were foreseen to increase by 6,5 €/l, gasoline prices by 2,9 €/l. These plans gave rise to large social protests with blockades and general strikes (movement “gillets jaunes”). After these protests became too threatening, the government announced to postpone the tax increase with a six-month memorandum in order to have the possibility to evaluate the impacts of other fiscal measures for tax payers and to assess if the increase of fuel taxes would be an over-proportional burden.

The Swiss Federal Office of Transport (FOT) reduced electricity price for the Federal Railway by 8 % from 2018 onwards. The reduction will relieve regional passenger traffic and long-distance traffic by eight million Swiss francs a year each, and freight traffic by five million francs. The FOT expects the reduction in the rail electricity price to be passed on by the railway companies to their customers. The price reduction increases the competitiveness of rail compared to road transport.

Infrastructure measures

The EU Commission has expressed its commitment for co-financing the next financing period 2026 to 2026 for completion of the 10 billion Euro **Brenner Base Tunnel** project. The breakthrough to the southern Brenner Base Tunnel took place on 4/12/2018 near the station in Fortezza (South Tyrol). 93 of the total 230 kilometres of the BBT system have been excavated. An important milestone in 2018 in the realisation of the world’s longest underground railway connection was the award of the largest construction lot in the Austrian project area, Pfnors to Brenner.

Regarding the southern access route for the Brenner Base tunnel called “**By-pass of Trento and Rovereto**”, on the 17th of April 2018 an agreement was signed among the Province of Trento, the Municipality of Trento and RFI. The aim of this agreement is to prioritize the by-pass of the city of Trento and to analyse the technical aspects of the rail bypass together with a broader urban mobility strategy, that aims to run underground the existing railway and to realize a “surface metro”, called NORDUS, to connect the north and the south of the city centre. A feasibility study has been conducting during 2018.

Along the **Gotthard**, the continuous extension to the 4-metres rail corridor was going on «under rolling wheel» and without restriction of the capacity.

The Swiss Federal Council wants to adapt the rail service to the increasing demand. The railway infrastructure is to be expanded for CHF 11.9 billion by 2035. For the freight transport, the attractiveness on the north-south axis will be increased by additional capacities and shorter journey times (freight transport express network). The highly disruptive restrictions on freight traffic during peak passenger traffic times will be reduced.

The Swiss Federal Office of Transport FOT has positively assessed Gateway Basel Nord AG's (GBN) financing application for the **construction of a large container terminal for rail/road transshipment**. In the first stage transshipment between rail and road transport will be realized allowing transshipment on trains up to 750 metres long in import and export traffic.

6.1.4 Pillar 4: Passenger transport

With respect to passenger transport, a strong attention has been given to the improvement of cross-border mobility – taking into account different target groups (general public, tourism traffic, commuter traffic). Also, further measures to support electric mobility have been developed in several iMONITRAF! regions to support clean mobility in the regions.

The following Best practice measures focus on the improvement of cross-border mobility, both regarding the improvement of services as well as integrated ticketing and information:

- The **Autonomous Province of Bolzano** has commissioned a study concerning the closure of missing border crossing railway connections in the area Munich-Passo Resia/Reschenpass-Scuol-Bormio-Milan. The study was presented in September 2018 to the local governments of South Tyrol (I) and Graubünden (CH) who decided to involve also the Land Tirol (A) and to continue work at a wider political and technical level.
- The public transport system of the **European Region Tyrol - South Tyrol – Trentino** was further developed in 2018. After the introduction of the new tariff system (see Annual Report 2017), a significant increase of public transport users could be observed (by June 2018 every fifth Tyrol resident owned an annual ticket). Since July 2018, public transport users in the Euregio benefit from connected travel information. Timetable data from 3140 bus stops and train stations in South Tyrol have been added to the multimodal travel information platform VAO (Verkehrsauskunft Österreich / travel information Austria). This means that multimodal cross-border journeys can be planned via existing mobile apps such as VVT SmartRide in a user-friendly way. The extension to public transport timetables in South Tyrol makes sustainable transport more attractive to use and allows combining different modes across the Brenner pass.
- In **Ticino**, a new railway line has been put into operation: since January 2018, the railway line Mendrisio – Varese provides a connection between Italy and Ticino by connecting two previously separated railway lines. This new line especially improves the travel situation for daily commuters between Italy and Ticino.
- Ticino also participates in the new Interreg project SMISTO which was launched in 2018. The project aims to improve and integrate the offer of public transport services (in particular the bus network) between Italy and Switzerland.
- The project CrossBorder which has been launched jointly by EUSALP AG 4 and AG 5 (Connectivity) focuses on the improvement of alternative mobility services for commuters (see Annual Report 2017). Considerable progress can be observed for the different activities of the project: a selection of cross-border cooperation models can be observed in an interactive storymap, a toolbox with concrete measures has been developed together with the PEMO project and an analysis of cross-border commuter flows in the Alpine Region has been finalized by the end of 2018.¹⁰

The **Autonomous Province of Bolzano** provides further updates on its passenger traffic projects, especially regarding the electrification of the Val Venosta railway line. In 2018 in different rail stations platforms has been extended and pedestrian underpasses has been built.

Also, several regions have further developed their incentive and support measures for electric mobility, supporting the new incentive systems which have been implemented at national level:

- The **Province of Bolzano** has further extended its financial aid system for electric vehicles. Since 2018, it grants financial aids to individuals, to public bodies, associations and to small, medium and large enterprises (in the branch of craft, industry, commerce, services and tourism) for the purchase of electric vehicles or plug-in hybrid vehicles both for

¹⁰ Further information on the project and all related documents are accessible here: <https://www.cipra.org/de/cipra/international/projekte/laufend/cross-border-mobility>

freight and passenger transport, and charging stations. The Autonomous province of Bolzano/Bozen grants as well aids for electric cargo bicycles (min. 150 kg of total carrying capacity) to enterprises.

- The **Province of Trento** has launched its Provincial Electric Mobility Plan (22.09.2017) which includes financial incentives for purchasing electric vehicles: contributions for buying electric or hybrid private cars (up to 6.000€), for installing private charging stations both for electric cars and e-bikes, for buying e-bikes to be used for commuting (measure addressed to companies; e-bikes have to be used by their employees). Other incentives are planned to be launched in the future months: contribution for companies' electric fleets, for public charging stations and for local public bodies' electric fleets.

The high impact of tourism traffic on the sensitive Alpine environment has also been an issue in the iMONITRAF! regions in 2018. The autonomous **Province of Trento** and the autonomous **Province of Bolzano** together implemented a new measure to limit and regulate **the access of motor vehicles to Passo Sella** during the summer 2018, a crossing between the Provinces of Trento and Bolzano, located in the middle of the Dolomites Unesco World Heritage. The main purpose of this initiative is the promotion of a different and more sustainable way to access mountainous areas, protecting the environment. The specific objectives are the reduction of motor transit by 20 % and the decrease of congestion peaks. Further issues with respect to tourism traffic have been highlighted by other Alpine regions in the conflict map which can be accessed together with the iMONITRAF! monitoring system.

6.1.5 Pillar 5: Innovative approaches

As illustrated in chapter 3, the assessment and discussion of the role of innovative technologies has been a major topic for the network in 2018. Discussions showed the need for further developing specific know-how on the relevant technologies and on specifying scenarios, development pathways and relevant incentive measures.

Several iMONITRAF! partners thus decided to launch a new project proposal under the 4th call of the Alpine Space Programme – FutureTrans “Systems thinking for a Future-proof Alpine Transport Framework”. FutureTrans has the objective to further specify the initial insights of the iMONITRAF! review on innovative technologies and aims at making best use of the potentials of technology-driven changes. The project proposal includes a broad partnership, including several private stakeholders with a link to terminal operators, logistic service providers and industry to better integrate private sector know-how and expertise. The Expression of Interest for the project was submitted in December 2018, the evaluation is foreseen for March 2019.

The aspect of innovative technologies is also considered in several ongoing projects with participation of iMONITRAF! partners. Cooperation with the AlplInnoCT project was strengthened during the Logistics Dialogue in Altdorf in October 2018. The AlplInnoCT project has developed a “wish-list” of potential measures to improve combined transport and, for several priority measures, the policy implementation shall be further specified. For this task, a coordination with iMONITRAF! has been agreed.

With respect to innovative cooperation approaches, the intensified networking of the Brenner regions and the EU Commission can be mentioned. Political representatives from the regions along the Brenner corridor as well as the Transport Ministers of Italy and Austria met together with the EU Commission at two occasions (February and June 2018) to negotiate and find solutions for modal shift on the Brenner corridor.

In addition, political representatives and members of administration have met at several occasions bilaterally with the EU Commission to raise awareness of the increasing freight transit traffic on the Lower Inntal and Brenner motorways. Awareness-raising is also taking place with Chambers of Commerce and the industry in order to find common solutions for modal shift.

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

The Best Practice update 2018 again indicates a high level of activity and on the need for identifying effective solutions to deal with the growing impacts of different traffic modes in the Alps. Existing measures are further developed in a dynamic way to keep up to technological developments and additional new measures have been implemented in the regions. Also, it can be observed that effective measures are transferred to other fields of action, e.g. measures which were up to now used for regulation of freight transport are now tested for regulation of tourism traffic.

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 2018 can be summarized:

- Pillar 1: Few specific regional measures have been reported under this pillar. The common monitoring system as implemented in the frame of iMONITRAF! is still a success story which is recently strengthened as the WebGIS is improved and streamlined with the EUSALP Platform of Knowledge. However, the noise monitoring campaigns in the autonomous Province of Bolzano highlight the need for more detailed information on noise impacts and iMONITRAF! has recognized the need for intensifying its work on noise emissions.
- Pillar 2: With respect to regulatory measures, further optimisation steps have been implemented by iMONITRAF! regions but the remaining potential becomes more and more limited. In Tyrol, driving bans were further extended, especially with respect to extended weekend driving bans. Also, the dosing system (block admission system) has been continued in 2018 to secure traffic flow on the Austrian part of the Brenner motorway. Speed limits as tool for improving air quality were also adjusted in several iMONITRAF! regions.
- Pillar 3: With respect to modal shift policies, view developments were reported in 2018. This is due to current “stand-still” with respect to further developing road pricing systems as the European framework with the Eurovignette Directive is still under revision. Along the Brenner corridor, an extensive system for CT is now in operation as the autonomous Province of Bolzano also took its subsidy system into operation in 2018.
- 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 2018, innovative approaches with respect to new technologies and digitalisation again became a strong focus of iMONITRAF!. New technological developments need

to be considered when further implementing the iMONITRAF! strategy and the need for further in-depth analysis and evaluations became clear.

7 Trends for transport and environmental policies on EU level

The discussion at regional level is shaped not only by developments at national level and along the corridors, but also by European frameworks and legislation. As illustrated in the Annual Report 2017, the European Commission has launched a set of legislative initiatives to support the transition to a clean, competitive and connected mobility. Two packages concerning the governance of commercial road transport in the EU were already initiated in 2017, a third Package in 2018. Overall, the complete Mobility Package represents the biggest change to EU road transport rules, covering many aspects of the industry's activities.

Also, the foundations for the next EU multi-annual financial framework 2021-2027 were defined in 2018, including regulations on future CEF funding. The following section highlights some major developments of European transport and environmental policies.

Update on Eurovignette and EETS

The revision of the Eurovignette Directive has been discussed by the European Parliament in 2018 and several ambitious amendments have been added to the initial proposal of the European Commission (for detailed information see chapter 2). Overall, the current status of the revision reflects the iMONITRAF! proposals for Toll Plus to a large extent.

Also relevant for a well-functioning road pricing system and especially for implementing a differentiation of road tolls for short and long-distance transport (as proposed by iMONITRAF! and picked up by amendment 99 of the EP vote) is the improvement of the European Electronic toll system (EETS). A provision agreement on EETS has been reached between the EP and the Council to enhance cross-border interoperability of electronic tolls, 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. Besides allowing easy collection of tolls, the new Directive will establish a system for Member States to exchange information on the identity of those who failed to pay a road fee.

Revision of Combined transport Directive

The Combined Transport Directive (dating from 1992) set out measures to increase the competitiveness of combined transport against road-only transport. In 2017, the Commission proposed to simplify the existing rules and make combined transport more attractive by means of economic incentives. After several consultation steps, the Transport Council of 3rd December 2018 agreed a general approach on the proposal on combined transport, specifically focusing on the following elements:¹¹

- Extension of scope to national operations: While the original CT Directive applied to transport of goods between EU Member States, the proposed revision broadens the

¹¹ EP Briefing (2018): EU Legislation in Progress: Combined transport directive review
[http://www.europarl.europa.eu/RegData/etudes/BRIE/2018/623553/EPRS_BRI\(2018\)623553_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/BRIE/2018/623553/EPRS_BRI(2018)623553_EN.pdf)

scope to include national intermodal operations (almost 20 % of the total intermodal transport in the EU).

- Definition of CT operations: the proposal simplifies the definition of CT operation, as regards both the non-road leg and the initial/final road leg. The maximum length of the road leg can be 150 km or 20 % of the total distance, for any non-road leg type (rail, inland waterways or maritime). Some flexibility is allowed for specific geographical or operational constraints, to reach the nearest rail terminal.
- Evidence: The revision shall ease the provision of evidence for CT operations as it allows both existing transport documents and electronic means.
- Economic support: Support for CT is extended, Member States will have to support investment in CT infrastructure and facilities, in particular along the TEN-T network. They must coordinate support with their neighbours and the Commission, to avoid overlapping investments and excessive terminal capacities. Further, Member States may adopt additional support measures (such as taxes) to make CT operations more competitive compared to road.

Clean vehicles and automated driving

Meeting in Brussels on 20 December, environment ministers reached an agreement on the proposed regulation on CO₂ standards for HGV. They agreed on the Council position on the text and set the first-ever EU targets for CO₂ emissions of HGV. Their CO₂ emissions should be reduced by 15 % in 2025 and 30 % in 2030, compared to 2019 levels. They agreed their joint position on the EU's first ever truck CO₂ reduction targets this week and will enter negotiations with the European Parliament and Commission in early 2019. The new rules are estimated to reduce CO₂ emissions by 54 million tons between 2020 and 2030.

The EU has also recognized the increasing relevance of automated mobility and related regulation needs and aims at developing a strategy for connected and automated mobility. In November 2018, transport MEPs welcomed the focus on automated mobility but stress that further efforts are needed to ensure that there is sufficient funding to support the sector and that there are appropriate safety and liability rules. MEPs also want the Commission to define standards to enable autonomous train and light-rail systems, they say.

Update on Connecting Europe Facility (CEF)

The transport budget of the CEF 2014-2020 of about € 24.1 billion (consisting of the general envelope of € 12.8 billion plus the Cohesion Fund contribution of € 11.3 billion) can only fund measures contributing to projects of common interest, as identified in the guidelines and programme support actions. Priority is given to creating or improving cross-border connections, completing missing links and removing bottlenecks. The programme also promotes rail interoperability, efficient and sustainable transport systems, enhancing interconnections among transport modes, as well as safety and security.

By mid-term, 91 % from the transport budget available for grants (€ 23.4 billion) had already been awarded. After the 2017 blending call, € 1 billion remains for the 2018-2020 period. In December 2018, the European Commission launched a new call within the CEF addressing cross-border sections and connections and the development of maritime ports within the trans-European transport Comprehensive Network, as well as the reduction of rail freight noise.

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

In May 2018, the Commission put forward proposals for a fair, balanced and modern EU budget for the period 2021-2027 to deliver on the most important issues for Europe's future. The Commission has proposed to simplify the budget in a radical way. The new headings and clusters illustrate more clearly what the EU budget is for and how it supports the political priorities. The number of programmes has been reduced from 58 to 37.¹²

Under the recent proposals, the CEF as instrument for TEN-T funding shall be continued. For the period 2021-2030, the Commission estimates TEN transport investment needs as between € 550 billion for the core network only and € 1,500 billion when the comprehensive network and urban transport are included. In the proposal for the future CEF, the focus would shift to decarbonisation and making transport connected, sustainable, inclusive, safe and secure. The budget would reflect this rebalancing: 60 % of transport resources would go to the development of basic infrastructure and 40 % to modernising the existing network. Co-financing rates would be simplified and priority given to cross-border sections. To reflect growing transport flows and improve connectivity, the core network corridors would be adapted. The proposed transport budget would consist of three parts: as in the current CEF, a general transport envelope of € 12.8 billion and € 11.3 billion earmarked in the Cohesion Fund would be implemented under the CEF for projects in EU countries eligible for cohesion funding. In terms of real value (i.e. adjusted to inflation) this budget proposal would result in a 8 % reduction compared to the current CEF programme.

An additional € 6.5 billion, earmarked in the security and defence budget, would also be implemented under the CEF. Destined for use on projects adapting parts of the transport network to enable dual civilian-military use, this integrates military mobility needs into the TEN-T.¹³

The EU's long-term climate strategy

On 28 November 2018, the Commission presented its strategic long-term vision for a prosperous, modern, competitive and climate-neutral economy by 2050.

The strategy shows how Europe can lead the way to climate neutrality by investing into realistic technological solutions, empowering citizens, and aligning action in key areas such as industrial policy, finance, or research – while ensuring social fairness for a just transition.

Following the invitations by the European Parliament and the European Council, the Commission's vision for a climate-neutral future covers nearly all EU policies and is in line with the Paris Agreement objective to keep the global temperature increase to well below 2°C and pursue efforts to keep it to 1.5°C.

¹² European Commission (2018): Towards a swift agreement on a long-term budget for Europe's priorities. Communication of the European Commission to the Parliament and the Council.

¹³ EP Briefing (2018): Connecting Europe Facility 2021-2027

8 Outlook 2019-2020

The year 2018 clearly illustrated the value-added of the iMONITRAF! cooperation. Especially with respect to their Toll Plus proposal, the common voice of the iMONITRAF! regions is reflected in the recent revision of the Eurovignette Directive – with several proposals of iMONITRAF! directly integrated in the amendments of the EP. However, additional networking activities will remain necessary until Toll Plus can be effectively implemented. Also, the review of innovative technologies highlighted the need for further activities and for aligning the strategy and its targets and measures to technological developments.

During the Logistics Dialogue in Altdorf in October 2018, political representatives of the iMONITRAF! regions thus agreed to continue the cooperation for two more years. This last chapter of the Annual Report provides a short outlook on the work-plan and objectives of the new working phase.

Further focuses of common measures: Toll Plus and measures to support CT

Also in the new working phase, the network will put a strong focus on further implementing common measures. As first focus, the Logistics Dialogue in Altdorf made clear again, that Toll Plus (as implemented in the framework of the Eurovignette Directive) is a crucial element for modal shift policies. Thus, iMONITRAF! has decided to continue its networking and lobbying activities to support an ambitious implementation of road tolls on the Alpine motorways.

The specific activities will be specified together with iMONITRAF! partners when the follow-up process at EU level is getting clearer. Activities will be similar than the ones in 2017-2018, including bilateral contacts with decision makers in the European Parliament and other EU stakeholders. Further, as soon as the new Eurovignette Directive is adopted, contacts to the national ministries need to be taken up.

The discussions in Altdorf also showed a great need to further develop measures that support CT, especially to use existing and unused potentials for efficiency improvements. In this respect, it was decided to work closely with the AlplnnoCT project and to develop a common set of measures for the support of CT. A common meeting with AlplnnoCT project partners has been agreed for the beginning of 2019.

Continuation of Monitoring system and update of WebGIS

The Logistics Dialogue in Altdorf confirmed the importance of the monitoring activities, in order to offer policy makers and stakeholders a reliable system to control the evolution of transport along the main transalpine axes. The focus on innovative technological solutions of the last iMONITRAF! report suggests the inclusion of aspects related to alternative fuels, by analyzing the number of vehicles circulating along the main transalpine corridors and those registered in the different alpine regions. A technical workshop (to be held in the first half of 2019) should discuss about the other aspects that have to be included in the analysis.

The WebGIS is currently object of a deep technical revision in collaboration with the EUSALP AG4, in order to make the visualization of the map and single indicators more user-friendly. Such revision should end by the first part of 2019. Two further aspects are identified for the future. The first one is the inclusion of new monitoring indicators (as discussed in the previous point), but also of data deriving from other studies conducted within the EUSALP AG4 (such as that on the difference of pricing between road and rail) or in other EU projects; the second one is the share of data with users. In Altdorf, a general agreement to make such data public available has been found.

Update of iMONITRAF! strategy

As new task, an update of the iMONITRAF! strategy is foreseen for the working phase 2019-2020. As first step for a successful and meaningful update of the iMONITRAF! strategy, it will be crucial to strengthen the partnership again. In a second working step, the target system as well as the set of common measures needs to be reviewed – based on the findings of the report on innovative technologies as well as discussions with AlInnoCT. Especially, the following elements of the common strategy will have to be updated:

- Environmental targets of the existing strategy relate to the timeframe 2020 (air quality, noise, CO₂ emissions). They need to be extended to the timeframe 2030 and streamlined with the new frameworks at European level, especially to support the development towards climate-neutrality.
- The set of common measures, especially the regulatory approaches needs to be reviewed with respect to innovative technologies. New regulation needs will arise and it needs to be discussed if common approaches would create an added value.
- The modal shift policies need to be reviewed to ensure that incentives are set in an appropriate way and that modal shift maintains the main objective for iMONITRAF!.

It is foreseen to discuss an updated iMONITRAF! strategy with political representatives in 2020 and to lay the foundations for the future of the cooperation.

iMONITRAF! as knowledge and networking hub 2019-2020

Several other networks and initiatives deal with the topic of transalpine transport and iMONITRAF! should continue its role as knowledge and networking hub – building on its long-term experience. Especially, a close cooperation with the following networks, platforms and initiatives seems relevant, in which iMONITRAF! should highlight the specific needs of the core mountain regions:

- EUSALP AG4: iMONITRAF! as knowledge hub for EUSALP on policy measures and monitoring.
- Alpine Convention: The Alpine Convention is recently developing a climate target system which will include sectoral targets with the timeframe 2050. This will include transport targets for both freight and passenger transport and iMONITRAF! could support the implementation process.
- Suivi de Zurich: The Suivi de Zurich Process still aims at bringing its in-depth analysis on Toll Plus to the political level and iMONITRAF! should monitor relevant follow-up activities and should offer its support where necessary.
- Project level: Several projects at Alpine level have broad synergies with iMONITRAF!. For 2019, an increased cooperation with AlInnoCT seems promising – to bring together the different expertise of the two networks for further developing the policy recommendations of AlInnoCT. And, of course, iMONITRAF! will support the further development of the Future-Trans project proposal to ensure that iMONITRAF! needs and experiences are reflected.