**Vehicle sharing Benefits**

1. **THE PROBLEM:**

The planet counts approximately 1.1 billion light vehicles, 350 million trucks, 0.5 billion 2-wheelers

The number of light vehicles on the planet is planned to double by the end of the century if no rectification actions are taken.

In the meanwhile, the light vehicles passenger occupancy rates have been permanently decreasing over the last decades. As an illustration, the EU 28 average vehicle occupancy rate is 1.7 persons per car.

That growing motorized vehicles system accounts for many negative externalities on the environment (soil artificialization, tailpipe emissions…), on public health (particle matters, noise, physical inactivity…) as well as on safety and traffic congestion.

1. **THE SOLUTION:**

Optimising the use of the vehicles to avoid their multiplication (at least) or allow their decrease (at best) is essential. To do so, carpooling and ridesharing, by increasing asset’s passenger’s occupancy rate appears as a low hanging fruit solution to start implementing at the earliest.

**3- THE BENEFITS:**

-Cost reduction (procurement/rental/operation)

-Environmental footprint reduction (co2 emissions, fleet-related waste)

-Improved public health benefits (air pollutants, noise, socialisation)

-Time and resource management optimisation

-Road infrastructure efficiency

-Fuel efficiency

-Reduced traffic congestion

-Reduced risk of road accident

-Increased socialisation/collaboration/coordination

**4- WHERE DOES ‘SHARING/POOLING’ STANDS AGAINST TODAY’S TRANSPORT CHALLENGES?**

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| **Today’s challenges for transport** | **What ‘sharing/pooling’ solves** | **What ‘sharing/pooling’ improves** | **What ‘sharing/pooling’ doesn’t solve** |
| **Too many KM driven**  |  | Sharing allows to reduce the total number of km driven (less vehicles used on the same journey). | The most sustainable kilometre is the one not driven. |
| **Too many vehicles on the road**  |  | Sharing allows to reduce the total number of vehicles on the road and needed to implement operations.Traffic/ congestion/ Safety | Risk of ‘rebound effect’\* |
| **Infrastructure / space** |  | Sharing allows improvement of road infrastructure optimisation: less vehicles on the road limits the need for growing infrastructure (road, parking spaces… that involves soil artificialisation and investments)It also allows to improve traffic congestion. | Infrastructure still needed Parking spaces / traffic |
| **Energy efficiency** | Using a vehicle at its full occupancy capacity allows to achieve its maximal efficiency. |  |  |
| **Global warming / Co2 eq. emissions**  |  | Use phase: Sharing reduces the Co2 emissions as 1 single vehicle is used instead of several initially needed to satisfy transport demand of several passengers. Production and end of life: by optimised use of vehicles, overall less vehicles are needed in the fleet, reducing therefore the emissions induced by production and disposal phases of the asset. | Co2 emissions are not eliminatedFor short distances (<2km) active mobility (walking, cycling…) should always be preferred over motorized vehicles. |
| **Other air quality emission (PM10, PM2,5, NOx)** |  | Sharing reduces the production of the other emissions impacting public health (1 single vehicle is used instead of 2 or more) | Air pollutant emissions are not eliminatedNon tailpipes emission accounts for almost 50% of emissions regardless BEV/ICEV (re-suspension, road wear, brake, weight…) |
| **Noise** |  | less vehicles circulating = less noise  | Noise is not disappearingRisk of ‘rebound effect’\* |
| **Public Health: Lack of physical activity, sedentary behaviours** |  |  | Lack of physical activity, sedentary behavioursFor short distances (<2km) active mobility (walking, cycling…) should always be preferred over motorized vehicles. |
| **Equity** |  | By allowing persons and organisations not owning a vehicle, sharing contributes to improve equity issues inherent to transportation.Such practices also improve alignment of international organization mobility practices with those of the beneficiaries they are serving (exclusivity, colonialism…)  |  |
| **Resources scarcity/depletion**  |  | Optimising utilisation of a vehicle reduces the number of vehicles needed and therefore their respective fuel consumption: that increases energetic dependence, reduces country of operation’s fossil fuel dependency (oil import) |  |
| **Waste generation** |  | Sharing allows to optimise the use of a vehicle and reduces overall the generation of waste as other vehicles are not circulating. | Waste is not eliminated |
| **Costs** |  | Operating 1 single vehicle instead of several mechanically reduces costs.It also reduces costs induced by back office management of the fleet (time for management, admin, dispatching, tracking…) |  |
| **Road safety** |  | Less vehicles on the road mechanically reduces the probability for accident. | Accidents-safetyVehicles on the road |

\*Rebound effect:

According to scientific theory, the Rebound Effect refers to a phenomenon where planned savings due to implementation improvement may be less than expected due to behavioral and systemic responses.

In a facilitated expression, the Rebound Effect refers to a situation where a specific advancement is perceived from a unilateral perspective and ends up being utilized in such great measure that it overcomes the savings in the specific economic, mechanical, or energetical field. ([sciencedirect.com](https://www.sciencedirect.com/science/article/abs/pii/S0301421500000227))

