RE-THINKING WASTE

The Future of Mobility

HSLU IDA Module 210 | Re-thinking Waste | June 2020

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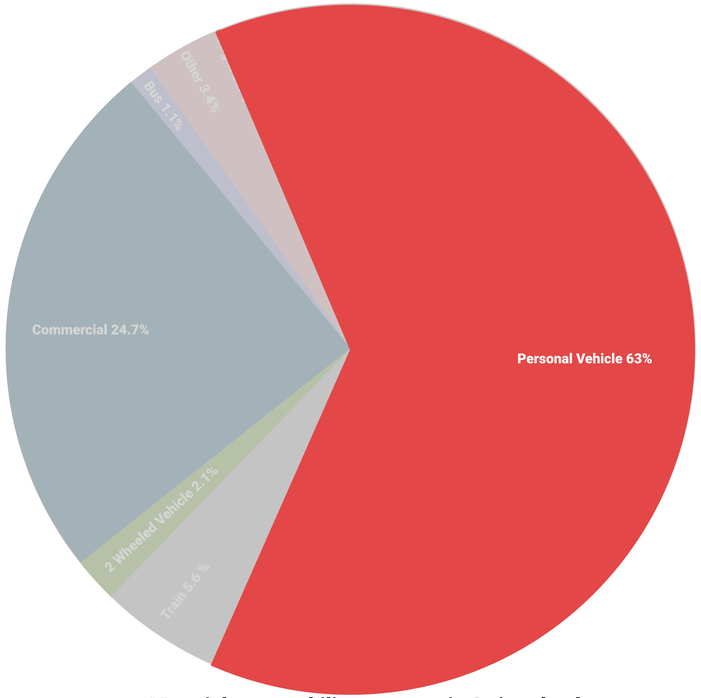
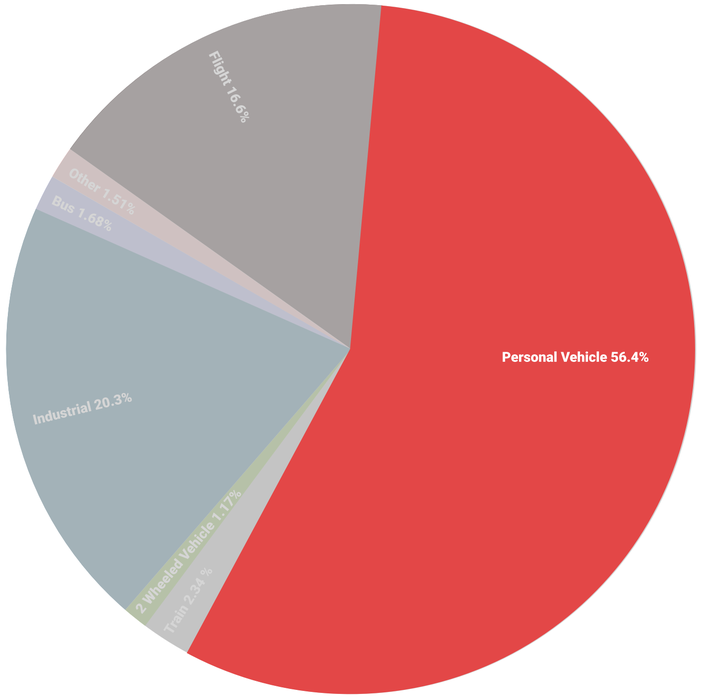
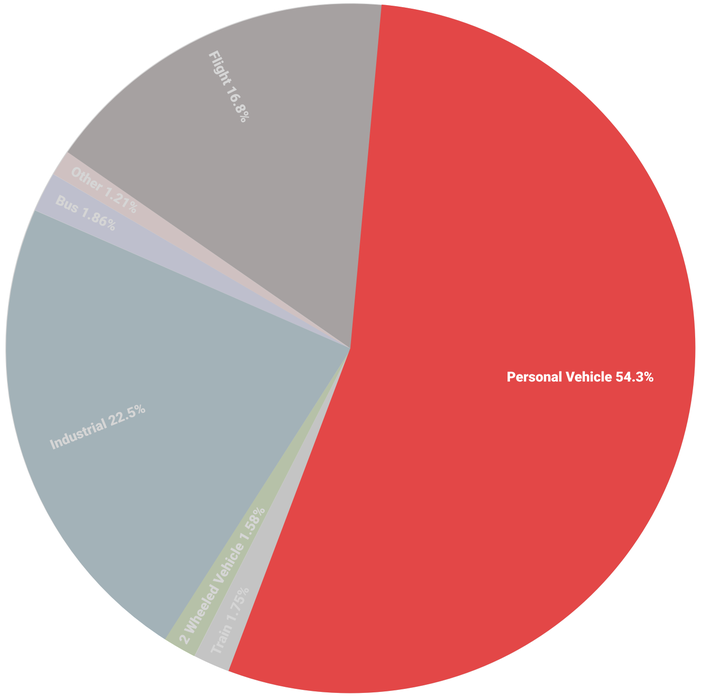
Problem Statement



Materials per mobility category in Switzerland
Total: 11157821 toone



Energy requirement per mobility category in Switzerland
Total: 452815 emissions from use



Environmental impact per mobility category with shares of energy and material.
Total: 31167534 [million UBP/a]

Used the largest share of material and energy
Considerable damage to the environment and humans

Opportunity Area

Ride-sharing Cars

Autonomous Electric Vehicles

Electric Tracks on Highways for energy supply

Traveling individually or with other people

Green-Mile Intervention

A New Mode of Transportation

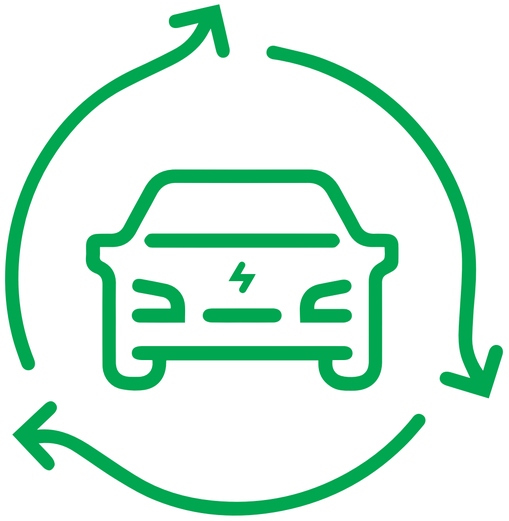
Optimal use of available technology

Less financial and natural resources

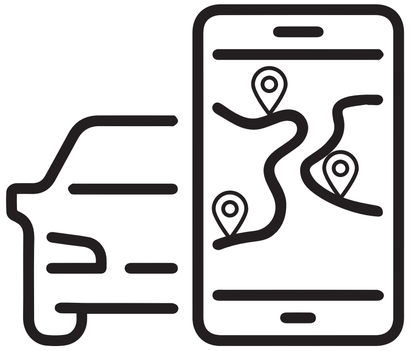
Maximum Benefit for Society

Intervention Feature

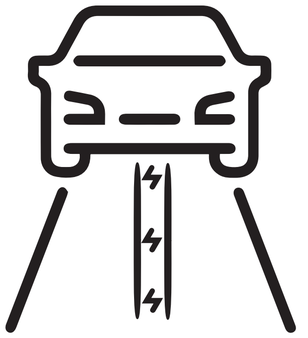
Autonomous and Electric



Ride-share Platform
in Switzerland



Application



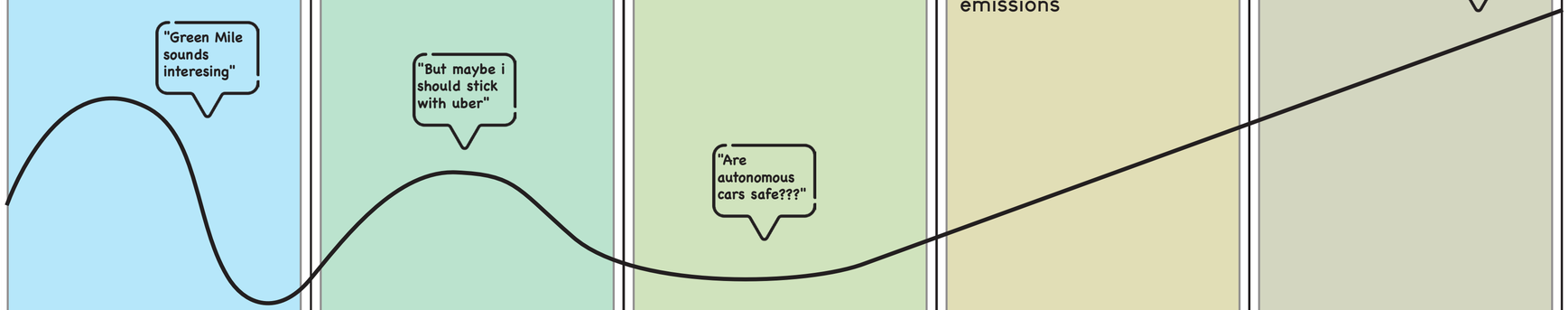
Electric tracks on highways

Intervention Scenario

CURIOUS CANDICE

Scenario: Candice needs to get from home to work however she does not want to driver her car as she wants to explore other modes of transportation

AWARENESS	CONSIDERATION	ACQUISTION	SERVICE	LOYALTY
1. Sees an advertisement about the new ride share company Green mile and is curious to give it a go because of how environmental friendly it is	2. Considers her other options like Uber and mobility 3. Researches on the price of riding with Green mile and how it works	4. Slightly hesitant about Green Mile as she was skeptical about automous cars. However it was cheapest option in the market 5. There was also no need to make arrangements with the driver as the Green Mile cars are autonomous	6. The ride was smooth and hassle free. Green Mile cars are easily acessible and convienent to book. 7. She also felt good knowing that her mode of transportation beneficial to the environment due to less energy consumption and decrease in c02 emissions	8. Decides to continue booking rides with Green Mile. As it's way more flexible and wallet friendly than booking a normal car or car pool.



Framework & Requirements

Switzerland takes an international leading position in the application of mobility innovation

Cooperation between the various levels of government is strenghtened [communal - cantonal - federal]

International Integration of Swiss transport system is optimized

A defined basic service ensures adequate accessibility in all regions and for all population groups

Demand, Supply, Infrastructure

Mobility demand is managed in a way that existing infrastructure is used to it’s limits before further extensions or construction

Overall transport system is safe, reliable, highly available and easily accessible

Users are free to choose which mobility options they use and combine

Financing

Available public funds are used to finance mobility offer and infrastructure cost-efficiently

Users of mobility increasingly pay for the internal and external costs they cause

Environment, Energy, Space

Pollution of environment caused by the effects of mobility is significantly reduced

Transport infrastructures are implemented in a way that conserves space and soil, integrate well into the landscape and settlement areas and their separation effect is reduced

The energy efficiency of transportation has increased significantly

National transport works largely CO2-neutral and if possible without fossil energies

The desired polycentric settlement development is consistently promoted by the overall transportation system

Green-Mile

Efficient Mobility System

Efficient mobility in terms of the optimal use of available technology, requiring less financial and natural resources in order to achieve maximum benefit for society.

Discussion

Green-Mile are autonomous electric vehicles in Switzerland, provide the opportunities to travel individually or with others, minimizing the time of the travel as well as the cost. Green-Mile provides cars based on commutes' demands, people can order a car whenever and wherever they want. Moreover, they can either share their ride experience with other individuals with more stops and cut costs or go to their journey directly with a higher rate.
Green-Mile cars charged by the electric rails implemented on highways, allow the car to travel for longer range idle time. Furthermore, very little emission is originated by Green-Mile cars in comparison to fuel engines cars.

Properties

. Autonomous vehicles
. Electric
. Electric tracks on highways
. Ride-share Platform
. Application

Scenario

The autonomous electric vehicle will be driving around the city picking up passengers uber share. The vehicles are fully automated, hence no arrangements are needed to be made with the driver. There will be electric tracks on the high way for energy supply and recharging to allow for long-range electric travel and more flexibility through the elimination of idle time for stationary charging. Thus maximizing the amount of time the vehicle can fetch customers in a day. Bookings are made through the app where customers can choose if they want to share the journey with somebody else or have the entire care to themselves. Choosing to share the vehicle costs less than booking the entire car, it is more cost-efficient and produces less CO2 per head.

Features

. Convenience of ordering a carpool
. Choice of travelling solo or in a group -> Price varies
. Decrease the cost of the journey
. Environmentally friendly journey
. Low fuel consumption
. Decrease in CO2 emissions
. Reduce of the energy consumption
. Increased Lane Capacity

Framework & Requirements	Demand, Supply & Infrastructure	Financing	Enviroment, Energy & Space
Switzerland takes an international leading position in the application of mobility innovation • • • • Cooperation between the various levels of government is strenghtened [communal - cantonal - federal] • • • • International Integration of Swiss transport system is optimized • • • • A defined basic service ensures adequate accessibility in all regions and for all population groups	Mobility demand is managed in a way that existing infrastructure is used to it's limits before further extensions or construction • • • • Overall transport system is safe, reliable, highly available and easily accessible • • • • Users are free to choose which mobility options they use and combine	Available public funds are used to finance mobility offer and infrastructure cost-efficiently • • • • Users of mobility increasingly pay for the internal and external costs they cause	Pollution of enviroment caused by the effects of mobility is significantly reduced • • • • Transport infrastructures are implemented in a way that conserves space and soil, integrate well into the landscape and settlement areas and their separation effect is reduced • • • • The energy efficiency of transportation has increased significantly • • • • National transport works largely CO2-neutral and if possible without fossil energies • • • • The desired polycentric settlement development is consistently promoted by the overall transportation system