

The future of the German automotive industry

Fact Snack 1:

The passenger car will keep its importance – True or false?





A-S-I Model

The A-S-I approach was initially developed in the early 1990s in Germany and first officially mentioned 1994 in the report of the Germans parliament's Enquete Commission.



The A-S-I diagram contains a non-exhaustive list of measures for illustrative purposes only¹

The mobility of the future should be autonomous, environmentally friendly and flexible. Given the needed changes and the related public discussion around sustainable mobility, the German automobile industry is facing significant challenges for its future. As part of a series of four **Fact Snacks**, Capgemini Invent examines the effects of these changes on the German automotive industry. In this first feature story, we are assessing whether the widespread belief “**Public transport will replace individual passenger traffic**” will become reality.

Climate Change Requires Traffic Turnaround: According to the Federal Environment Agency, in 2021 traffic contributed around 20% to Germany's greenhouse gas emissions². Therefore, in order to meet the objectives of the Paris Climate Accords, it is essential that the transport sector contributes its share to the reduction. Using the A-S-I approach, we want to discuss which area of action should be primarily addressed by the German automotive industry.

Avoid-Shift-Improve (A-S-I): Inspired by the principles of sustainability, the A-S-I Approach for passenger transport (from Avoid/ Reduce, Shift/Maintain, Improve), seeks to achieve significant greenhouse gas emission reductions, reduced energy consumption, and less congestion, with the final objective to achieve environmentally friendly transportation³. Which different strategies and measures are hidden behind these three areas? The classic A-S-I approach follows a hierarchy “avoid” measures should be implemented first, secondly “shift” and lastly the “improve” measures.

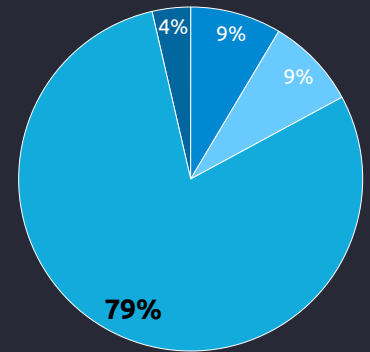


Avoid: Firstly, “**avoid/reduce**” refers to the reduction of transport as a whole³. More home office, video calls could reduce the need for physical presence. However, recent studies show that in future the passenger transport will increase. According to the German Federal Ministry of Transport, the increase in passenger transport amounts to 13%, until 2051⁵. Looking at the overall modal split (figure 2), however, passenger car traffic will lose 11 percentage points while still growing in absolute terms². Amongst others, one main reason for this is the continued increase of vehicle stock in Germany (see figure 3).



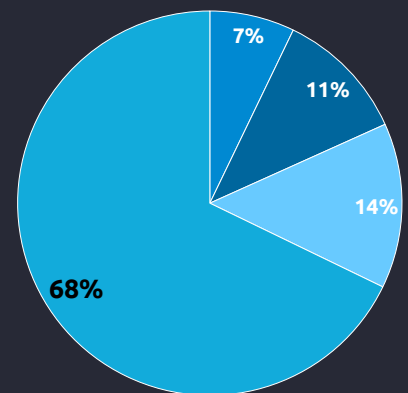
Shift: Secondly, the “**shift/maintain**” instruments seek to improve individual trip efficiency³. A modal shift from the most energy consuming and polluting urban transport mode (i.e. cars) towards more environmentally friendly modes, such as walking, cycling, and public transport is proposed, that will replace individual mobility. However, it should not be overlooked that local public transport is already overloaded in many metropolitan areas.

Figure 1:
Modal Split 2022⁴



+13%
Increase
in traffic

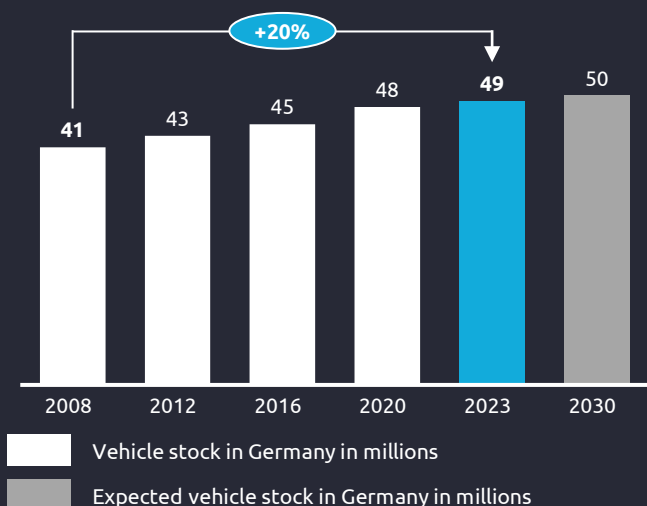
Figure 2:
Modal Split 2051⁵



- Motorized individual traffic
- Airplane traffic
- Rail road passenger traffic
- Public road passenger traffic



Figure 3:
Vehicle Stock will Continue to Increase⁶



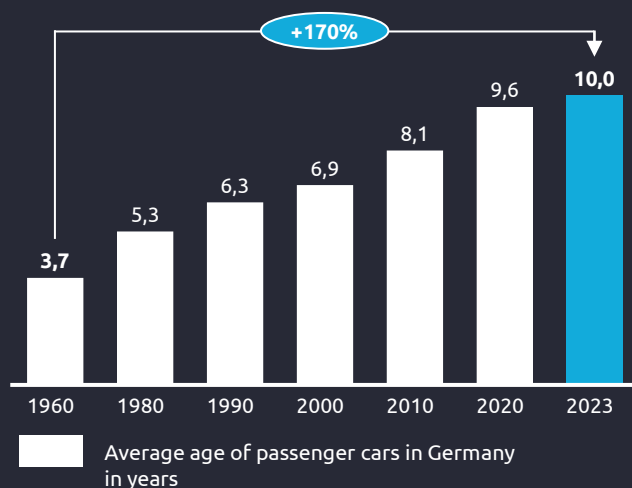
As a look at many large infrastructure projects shows, capacities cannot be built up in the short term – rather, this can only happen in decades. Secondly, in urban areas new mobility offerings (such as carsharing, e-scooters, etc.) produce more traffic instead of shifting the existing one, according to Frankfurter Allgemeine Zeitung⁷. Thirdly, rural areas do not offer enough alternatives to personal passenger cars.



Improve: Finally, the “improve” pillar focuses on improving energy consumption and energy efficiency³. Hereby, energy consumption encompasses the entire product lifecycle – i.e. from design to production, to usage, to second life, and to recycling of the vehicle. Next to the obvious – the reduction of fuel and electricity consumption – this could be achieved by reducing total vehicle weight or emissions. Furthermore, improving energy efficiency should not be limited to new cars, but also to the existing vehicle stock. This is due to the fact, that in Germany, cars are used longer and longer (see figure 4). Given this active vehicle stock, it will take at least another 10-15 years until no more internal combustion engine (ICE) cars are present on German roads.

Conclusion: Based on the facts, we support the thesis that the turnaround in transport will only succeed partially and that the automobile will retain its important role as the most important means of transport for decades to come.

Figure 4:
Vehicle Age is Steadily Increasing⁸



Our Recommendation

Focus on “Improve”: Since “Avoid” and “Shift” measures rather have a long-term effect, the focus should be on “Improve” in the short term. Due to a low ramp-up curve for e-mobility (currently only less than 15% of new registrations are EVs), measures to reduce CO₂ for existing combustion engines and in traffic control through connected services should also be considered.

Further Improving Technology: We believe that the focus for the Automotive Industry should be on “improve” measures first. This means especially focusing on less obvious technology improvements. Topics that are rarely in discussion currently include noise pollution or space requirements. Focusing on such topics can greatly influence buying decisions by customers. With the right governmental initiatives and incentives (such as retrofitting solutions for ICEs or batteries), OEMs and related manufacturers would be encouraged even further.

Moreover, there is a wide range of possibilities to improve the efficiency of road traffic through smart traffic control systems, *Connected Car*, *Car-to-X communication* (e.g. with other cars, infrastructure, pedestrians, smart devices, grids). As an example, BMW has established so called “eDrive Zones”. In 138 cities worldwide, hybrid BMW vehicles automatically switch to electric drive when they enter a dedicated zone of the inner city to further reduce CO₂ emissions in densely populated areas.⁹





Contact us!

If you are interested in how to best deal with these uncertainties, we are there for you:



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Sources

- 1 – [Slocat Partners, ASI Model \(2023\)](#)
- 2 – [German Federal Environment Agency \(2021\)](#)
- 3 – [Gesellschaft für Internationale Zusammenarbeit \(GIZ\) \(2021\)](#)
- 4 – [German Federal Statistical Office \(2022\)](#)
- 5 – [German Federal Ministry of Digital and Transport \(2023\)](#)
- 6 – [German Federal Environment Agency \(2023\)](#)
- 7 – [Frankfurter Allgemeine Zeitung \(2018\)](#)
- 8 – [Statista \(2023\)](#)
- 9 – [BMW eDrive Zones \(2020\)](#)



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