The *future* of the German automotive industry

Fact Snack 2: Individual mobility has a positive effect on physical, mental and social health – true or false?

Health as integral part of society has a high relevance for the German automotive industry

In the Western hemisphere, health as part of societal thinking caught increasing attention throughout the last years, yet its elements and consequences are still lacking behind in the automotive context.

As part of a series of Fact Snacks on the "Future of the German automotive industry", Capgemini Invent sheds light on the need for higher attention on health dimensions in the automotive industry. In this second feature story, we are assessing whether it is true that "Individual Mobility has a significant positive effect on the physical, mental and social wellbeing of its passengers".

The increasing relevance of a holistic and extending view of health

According to the German Federal Statistical Office, the per capita expenditure on health in Germany has increased by over 60 % from 2011 (€ 3,695) to 2021 (€ 5,699) (see figure 1).[1] The main reason is demographic change due to higher life expectancy on the one hand and lower birth rates on the other. The share of people above the age of 65 has increased from 10% in 1950 to over 20% in 2021.[2]

The term "health" has evolved from a solely physical to a more holistic point of view well-being also considering mental, social and even environmental factors. According to Zukunftsinstitut (2023), health as a trend is highly influencing other megatrends.[3] Based on this assessment, we have identified eight trends with direct influence on mobility and therefore on the automotive industry (see figure 2).

Since the Covid-19 pandemic consumers try avoiding germs, pay more attention on their well-being before issues occur and increasingly tend to pay holistic attention on their whole being during buying decisions. It becomes clear that consumers are extending their understanding of what is influencing their health and therefore are increasingly demanding healthy solutions, not only in specific areas, but rather encompassing all aspects of life.

Figure 1: GER health expenses per capita[1]

2021	5.699
	+ 60 %
2011	3.695

Figure 2: Health trends with implications for OEMs[3]

Sportivity — Preventive health
Holistic health — Life quality
Health
Self-care — Mindfulness
Germophobia — Medical matching

How individual mobility can serve today's and future health demands

Trends as "germophobia", "life quality" or "preventive health" changed perceptions and preferences in health regards. Individual mobility can partially comfort these needs. Therefore, it can be implied that individual mobility either maintains or even strengthens general health of its consumers. Automotive players must take this chance and include health aspects more presently in their development and service processes to catch this opportunity to increase sales.

But where can automotive players take concrete actions to address this trend in customer demand? For our assessment, we are applying the "Biopsychosocial Model" by George L. Engel (see figure 3).[4] The model focuses on the interdependencies between biology (physical dimension), psychology (mental dimension) and socio-environmental factors (social dimension) and their effects on humans' health and well-being.[5]

We collected car elements and features, which show high potentials for satisfying customers' needs and categorized the respective implications on health according to the covered dimension. With this assessment, OEMs can directly infer which car elements satisfy specific health aspects of the modern customer.

Figure 3: Biopsychosocial Model[4]

Physical

Mental

Social
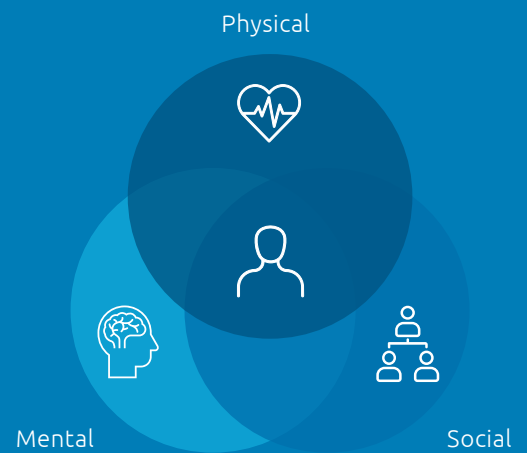
Relevant elements for vehicle design and development covered by Engel's three dimensions of health

Physical health aspects

The use of individual mobility should not harm physical health, but rather contribute to its preservation through supportive elements and services in the vehicle that tackle typical desires of passengers. The following is an excerpt of elements that can be considered:

Seat ergonomics
Premium OEMs provide health-focused car seats with features as massage and adaptability to different body shapes. In times of increasing average sitting time, smart seats aim to elevate comfort and safety.[6,7]

Road safety
Advanced features like emergency braking, lane departure warnings, and ADAS (advanced driver assistance systems), autonomous driving, help prevent accidents and contribute to preserve health.[8]

UV ray & heat exposure
Climate change necessitates protection against heat and UV rays. Possible approaches include insulating/reflecting car windows or advanced solutions for car paints and coatings.[9]

Air quality
Despite spending only 5.5% of their time in cabin vehicles, commuters face significant exposure to pollutants.[10] Improved cabin air filtration can reduce health risks associated with air pollution, particularly in highly polluted environments, while it helps protecting passengers against allergies.[11]

Health monitoring
Car sensors detect driver fatigue suggesting breaks. At the same time wearables such as smartwatches for tracking heart rate and body values can connect with the car. Autonomous driving cars can indicate emergencies, safely stop and notify emergency services.[12]

Mental health aspects

Though driving can cause stress (e.g., due to traffic, noise and behaviour of other drivers), it offers many chances to boost mental health by creating a relaxing, stress-free, feel-good driving environment, such as:

Immersive infotainment
Intelligent systems offering personalized music, podcasts or audio books are a versatile tool for promoting mental well-being by providing entertainment, relaxation, cognitive stimulation and social connection.[13]

Noise pollution
Incorporate active noise cancelling interior and exterior noise reduction technologies (e.g. low-noise tyres) to minimize noise pollution and related increasing levels of stress, e.g. indicated by rising burnout rates.[14,15]

Interior design
Ergonomic interiors improve comfort, reduce stress and increase overall well-being.[16] For example adjusting lighting conditions promotes alertness and minimizes fatigue. It has a positive effect on mood and favors relaxation.[17]

Driving assistance systems
Autonomous driving and advanced features enhance road safety and allow for more social interactions.[18]

Social health aspects

Individual mobility also can enhance social connections through unsurpassed flexibility and a new sense of community. AI could be a key enabler:

AI (Artificial Intelligence)

AI, respectively GenAI (Generative AI) could reduce social isolation of drivers (e.g. truckers) by providing a "Virtual Passenger" that functions not only as a conversation partner but also as a virtual best friend.[19]

Community

Traditional Brand Clubs such as Porsche Clubs, foster a community of like-minded brand enthusiasts.[20] Modern tech like AI, streaming or social media in connected cars could be used to create an immersive experience of the brand by not only creating a sense of belonging for the driver but also strengthening his/her bond with the brand.

Social participation

Cars ease movement, promoting social activities, especially for older individuals or those with limited mobility – particularly in rural environments.[21]

Social and ecological route planning

Socially preferable routing to avoid residential areas, considering social responsibility as well as ecofriendliness to minimize overall impact on society.

Our recommendation

The trend towards healthiness is undeniable. It is further fueled by an aging society and sub-trends such as mindfulness. It is also becoming increasingly relevant for the automotive industry, which must provide answers and take health aspects into account in vehicle and service development. OEMs should integrate features and offer services in cars that consider health aspects that encompass physical, mental and social well-being. Features in the car should contribute to maintaining physical as well as mental health. With increasing individual traffic and thus increasing social isolation, OEMs should also focus more on social health aspects. German car manufacturers are facing challenges in respect of new sales models, e-mobility/connectivity and increasing competition from China. While health is currently not first priority, it could be a strategic differentiator such as Volvo's reputation as the OEM with an exceptional level of road safety.

If you want to learn more about what exciting opportunities are out there and how to seize them, then contact the authors.

Contact information

Tim Eberhard
Senior Director
Invent Germany
Lübecker Straße 128
22087 Hamburg

+49 151 5447 6486

tim.eberhard@capgemini.com

Dr. Ralph Hemeier
Senior Manager
Invent Gremany
Olof-Palme-Straße 14
81829 München

+49 151 4025 0762

ralph.hemeier@capgemini.com

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