

Whilst IDAG supports advancements in technology that aim to better mobility and connectivity, we note that the development of Autonomous Vehicles (AVs) must be carefully considered to ensure full and equal benefit to every member of society. IDAG therefore supports the establishment of new policies and legislation to mitigate new and unforeseen risks arising from the research, development, and implementation of AVs. Primarily, in the research and development of AVs, IDAG encourages the involvement of diverse testing groups, including the comprehensive and ethical testing of the impacts of AVs on minority groups, including those with a broad range of disabilities. Moreover, such testing must not only consider the safety risks of AVs on these populations, but must also review and improve the affordability, accessibility and data security of such a technology.

Simply, the outcomes of these developments must, as well as being accessible for those with any disability, aim to benefit everyone that directly or indirectly interacts with them, regardless of age, gender, ethnicity, ability, income, or location. IDAG presents the following as examples of the challenges that AVs may present, and that must be considered throughout the lifespan of AVs:

1. There must exist a comprehensive register of road traffic risks to all users and pedestrians, irrespective of their physical and cognitive characteristics, such as those defined by ethnicity, age, or gender. This includes the ability of AVs to detect items such as prams, wheelchairs, white canes, and other mobility aids. Indeed, a study by Wilson et al. (2019) at the Georgia Institute of Technology has highlighted the predictive inequality between individuals with different skin tones in the object detection systems utilised by AVs. Simply, it was demonstrated that an AV's effectiveness of pedestrian detection decreases as skin tone darkens. It is therefore imperative that such a discrepancy in pedestrian safety is eradicated and that all risks to AV users and pedestrians are mitigated as effectively, and as equally, as possible.
2. AVs can present a transformative impact for those with impairments that restrict their ability to mobilise or drive independently, but AVs must also ensure an equal opportunity for all users to benefit from this technology, and that no user is discriminated or unable to use this system as a result of their ability.
3. The data collected by AVs and their associated technologies must not infringe on the ownership and privacy of any of those included in these data sets, including, but not limited to, disability, income, ethnicity, and any other physical or cognitive attributes.
4. Any additions or modifications to infrastructure required to facilitate the operation of AVs, including roads, crossings, and other features of the built environment, must consider and mitigate impacts to all new and existing users, regardless of ability and usage scenario.
5. AVs should aim to present reasonable affordability as to not purposefully disadvantage any income groups.
6. Any frameworks implemented to ensure the safety, accessibility, and affordability of AVs must anticipate and be updated to reflect any circumstantial changes in the future, such as the impact of aging populations, and new wayfinding and positioning systems used by pedestrians.

IDAG affirms that this is not a comprehensive list, and that considerations regarding disability and inclusion must be holistically applied throughout all aspects of the research, development, and implementation of AVs.

Reference:

Wilson, B., Hoffman, J. & Morgenstern, J. (2019) Predictive Inequity in Object Detection. *Preprint, Georgia Institute of Technology*. Available from: <https://arxiv.org/pdf/1902.11097.pdf>