Managed Lanes worldwide – development, opportunity, trend?

Bachelor's Thesis of Viktoria Klugbauer

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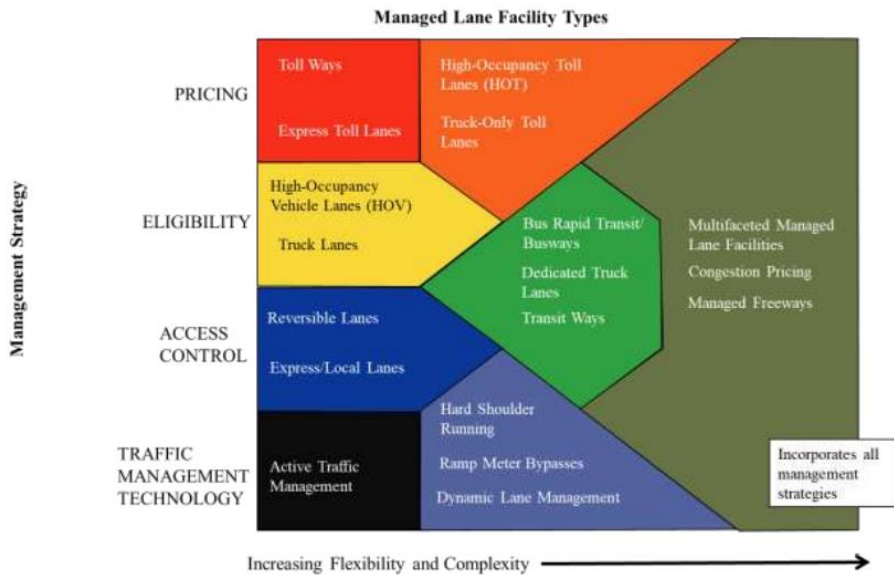
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Figure 1 illustrates the best-known types today transitioning into more complex solutions to traffic. It was noticed that some measures have already been taken to improve the original HOV or toll lanes. There are some guidelines and many studies that can provide more detailed help in specific cases, which are different for each example. The widespread HOT can certainly be an option, but it is not possible without the infrastructure of parking garages, park and ride facilities, good planning and only recommended in few specific cases. This is also supported by the statements of the experts, who are in favor of pricing per se, but also emphasize the hurdles.

In the survey, various experts were asked for their opinion on the original systems and finally on the extensions. The statistic shows that the best potential of the first 3 is HOV, probably because of the improved HOV lanes, which now can be flexible. Another possibility is that it is rated better, because it is used most often in the experts' countries. The 2 charts on the bottom describe the future prospects of ATM in general and especially DTM. Both are rated quite well in the top categories. Overall, it can be summarized that in the short term only few things happen because of slow progress and laws that have to be changed, but car sharing and public transportation will be very important. Also the technology of C-ITS and In-vehicle data will improve immensely. In the medium and longer term, besides Public Transportation, autonomous vehicle lanes will be important, which could be particularly interesting due to the legal aspects. Overall, technology could help, for example through algorithms or pricing systems supported by AI, or smartphone-based pricing options. Although it is strongly emphasized what a major challenge is seen in this context with data protection and legal framework.
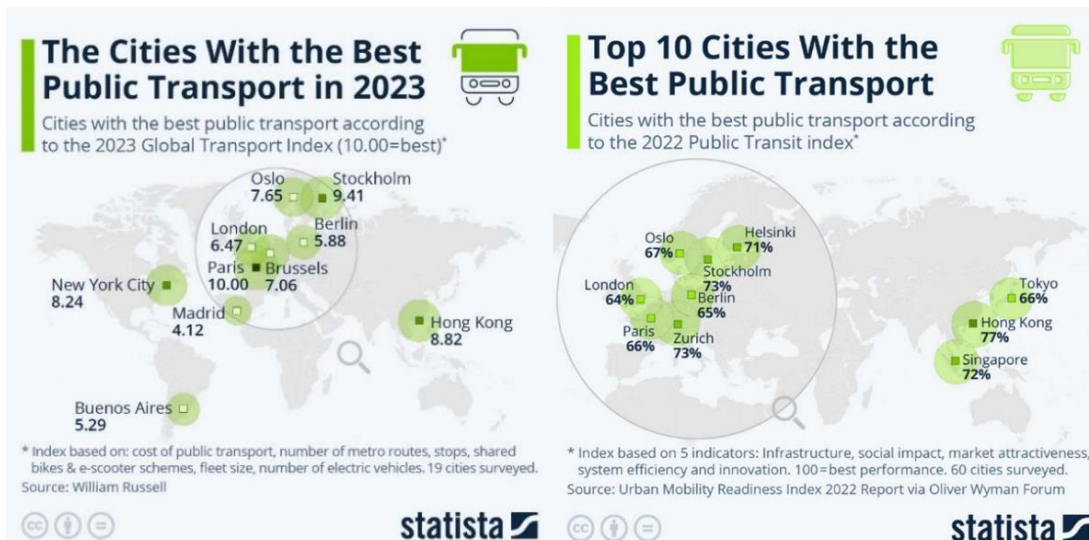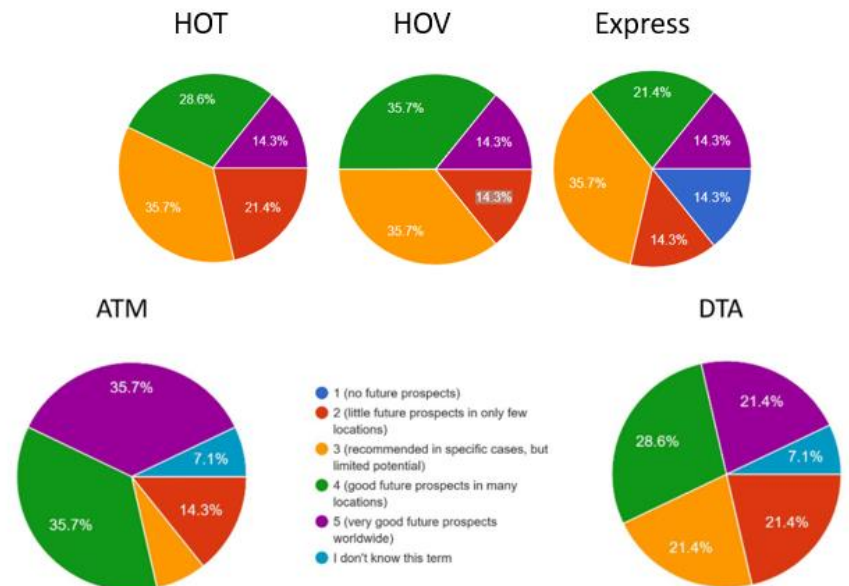
It is also important to consider the alternatives to driving, and the statistics shown in Figure 3 in particular list countries that have very good public transport. Alternatives can be created directly through improved bus systems, subways or similar. In theory, this consideration is particularly interesting, but we must not forget the implementation, which requires an enormous, advanced planning effort and financing. One city that has particularly futuristic planning methods is Singapore. There is already an autonomous fleet to help the city's elderly and disabled residents and electronic road pricing is in service. Different pricing methods seem to work in cities all around the globe but are rather used individual cases. Still pricing such as RUC with area or distance-based pricing seem to be very essential for the future.

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