Urban Mobility Systems Upgrade: Case of Lisbon

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Why did we select this research?

This report explores the potential outcomes of the eventual use of self-driving cars shared by potential users, which would represent a radical change in the current mobility system at urban level.

Key findings

A TaxiBot system (self-driving cars that can be shared simultaneously by several passengers) with high-capacity public transport will result in 6% more car-kilometres travelled than today, because these services would have to replace not only those provided by private cars and traditional taxis but also all those provided by buses.

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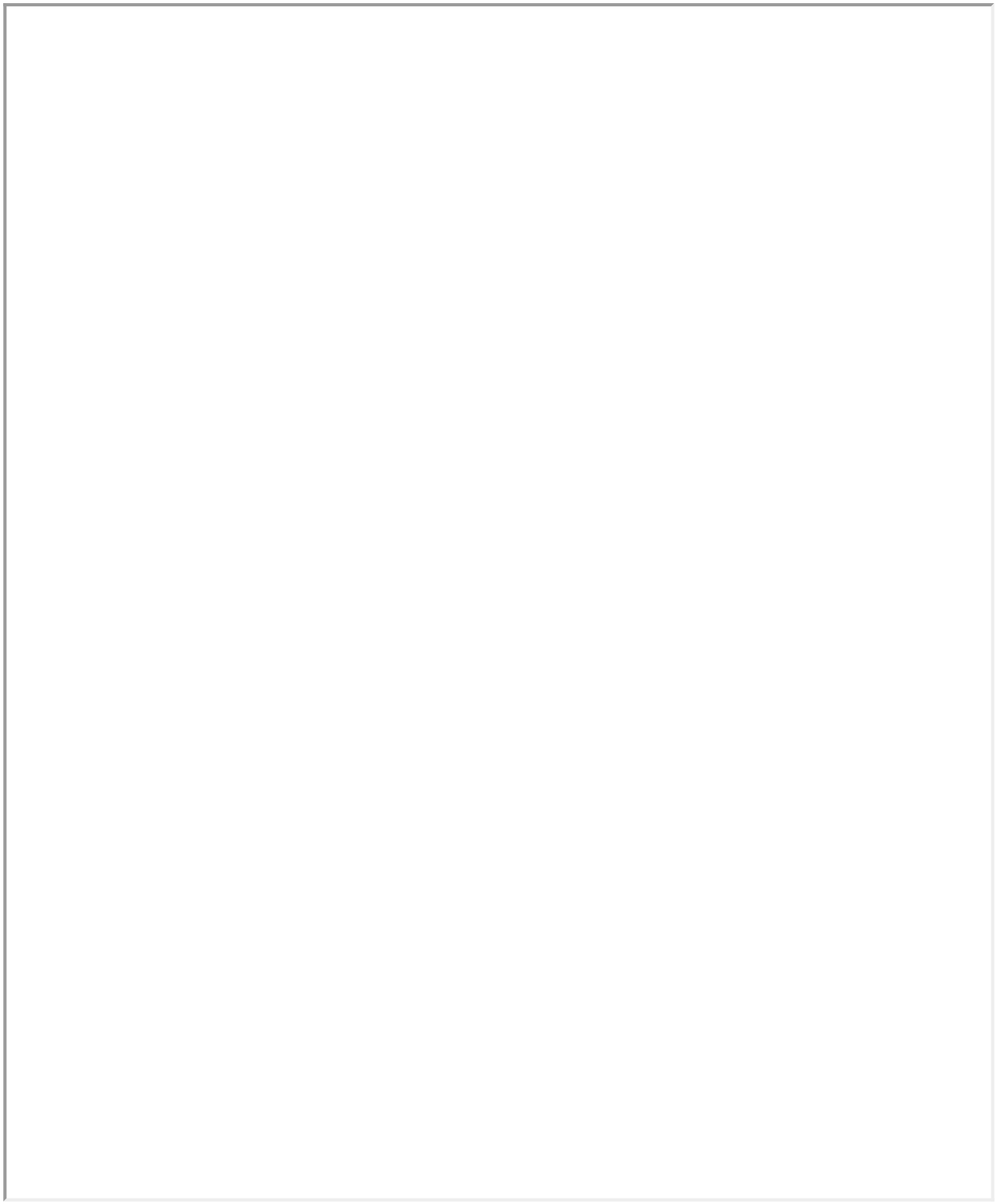
In all cases examined, self-driving fleets completely remove the need for on-street parking. This is a significant amount of space, equivalent to 210 football fields or nearly 20% of the kerb-to-kerb street space in our model city. Additionally, up to 80% of off-street parking could be removed, generating new opportunities for alternative uses of this valuable space.

Policy perspective

For small and medium-sized cities it is conceivable that a shared fleet of self-driving vehicles could completely obviate the need for traditional public transport. Shared self-driving car fleets will directly compete with urban taxi and public transport

services, as currently organised. Such fleets might effectively become a new form of low capacity, high quality public transport. This is likely to cause significant labor issues.

In all fleet-mixing scenarios, overall vehicle travel will be higher. Also, vehicle numbers will increase in three out of four peak hour scenarios. Nonetheless, even in mixed scenarios, shared self-driving fleets could be a cost-effective alternative to traditional forms of public transport, if the impacts of additional travel are mitigated.



Reference