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Accelerating the Market Uptake of Hydrogen Fuel Cell Vehicles

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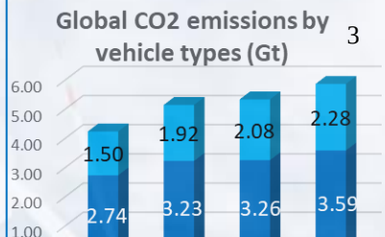
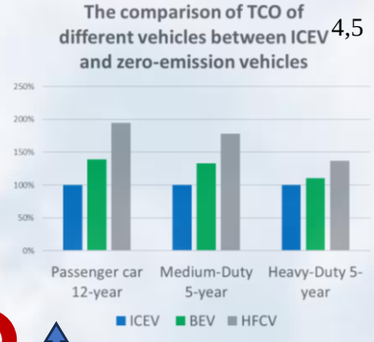
Project Introduction

Motivation: (a) Hydrogen Fuel Cell Vehicles (HFCVs) are a key enabler in the decarbonisation of transport[1], but they cannot reach cost parity without interventions. **(b)** Small and medium cars may benefit the cost reduction of HFCVs[2].





Spillover ?

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Demand-pull Policies

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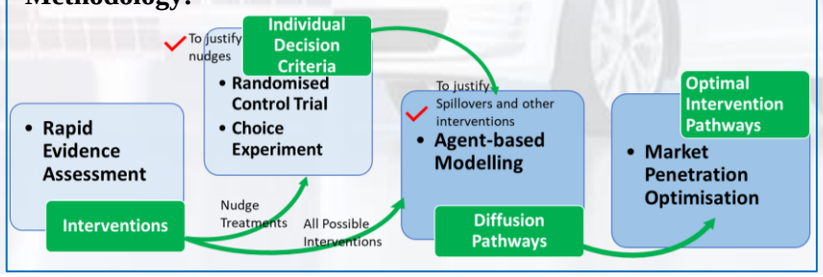
Gaps: 1. Interventions on HFCVs remain ambiguous.
2. Nudges for HFCVs have not been studied.
3. A cost-effective policy mix has not been researched.

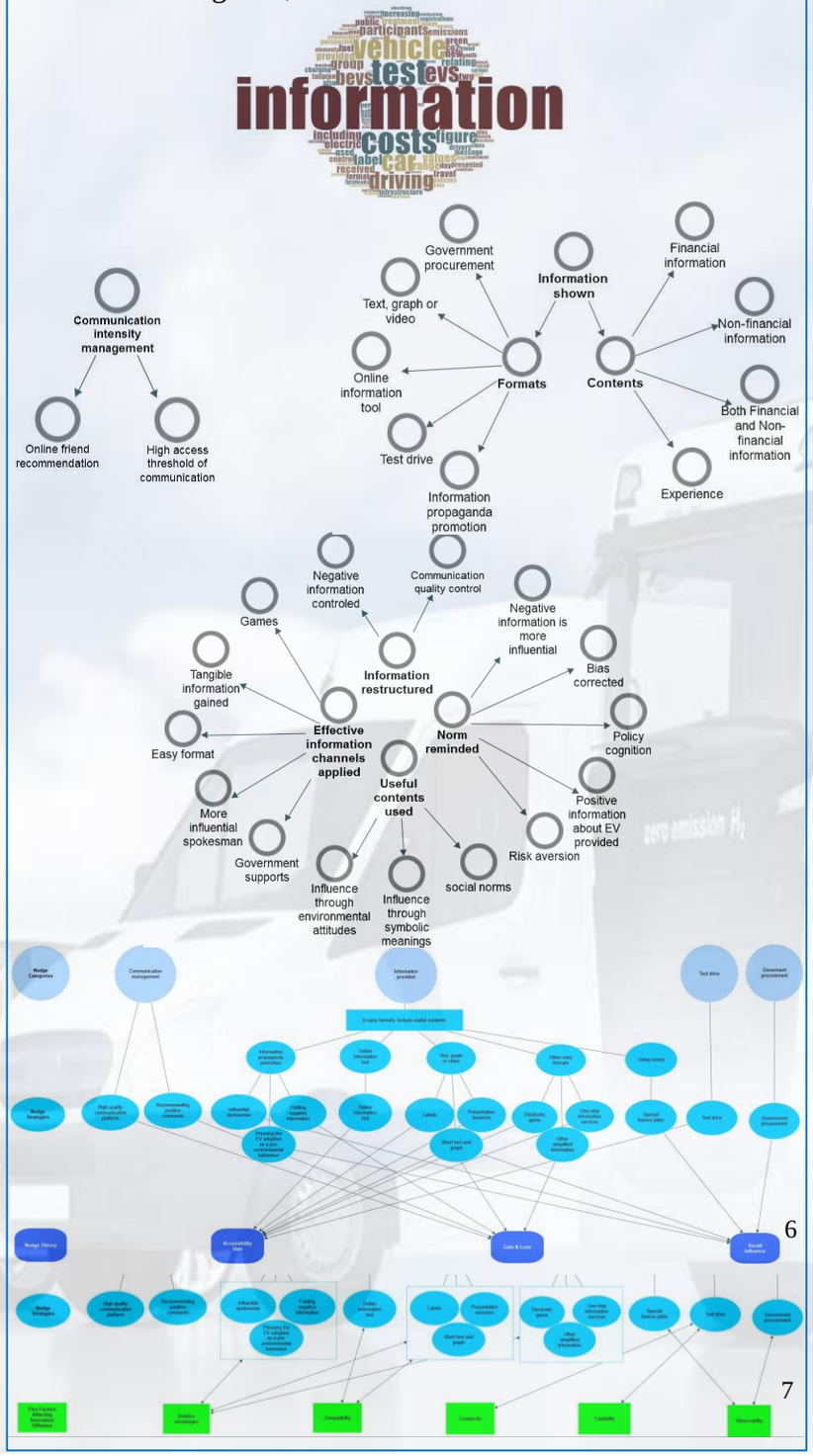
Question: How can people cost-effectively shorten the timeline of HFCVs from demonstration to market deployment?

Methodology:



Progress to Date

An REA has been conducted to find nudge interventions.
Lessons were drawn from the EV market:
1. Nudge strategies exist.
2. Found 2 categories, 4 reasons and theoretical bases.



Research Plan

REA
Obtain all possible interventions

ABM for commercial HFCV adoptions
Justify those interventions

Design specific nudge strategies
Obtain treatments for the RCT

RCT
Justify those nudge strategies

ABM for individual and commercial HFCVs
Justify spillover effects

MPO
Obtain optimal intervention pathways

Reference

1. IPCC 2023. Summary for Policymakers. In: *Climate Change 2023: Synthesis Report*
2. Cano, Z. P., et al. 2018. Nature Energy, 3, 279-289.
3. IEA, 2023a. Global CO2 emissions from trucks and buses in the Net Zero Scenario, 2000-2030
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5. Grube et al., 2021. Passenger car cost development through 2050
6. Thaler, R. H. & Sunstein, C. R. 2008. Nudge: Improving decisions about health, wealth, and happiness
7. Rogers, E. M. 2003. Diffusion of Innovations.

Background Picture: Fuel Cells Works, 2022. https://fuelcellsworks.com/subscribers/hydrogen-vehicle-production-and-sales-numbers-from-around-the-globe-jan-sept-2022/