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Introduction to Sustainable Supply Chains

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APEC
Alliance for Supply Chain Connectivity

Introduction to Sustainable Supply Chains

MIT Center for Transportation & Logistics

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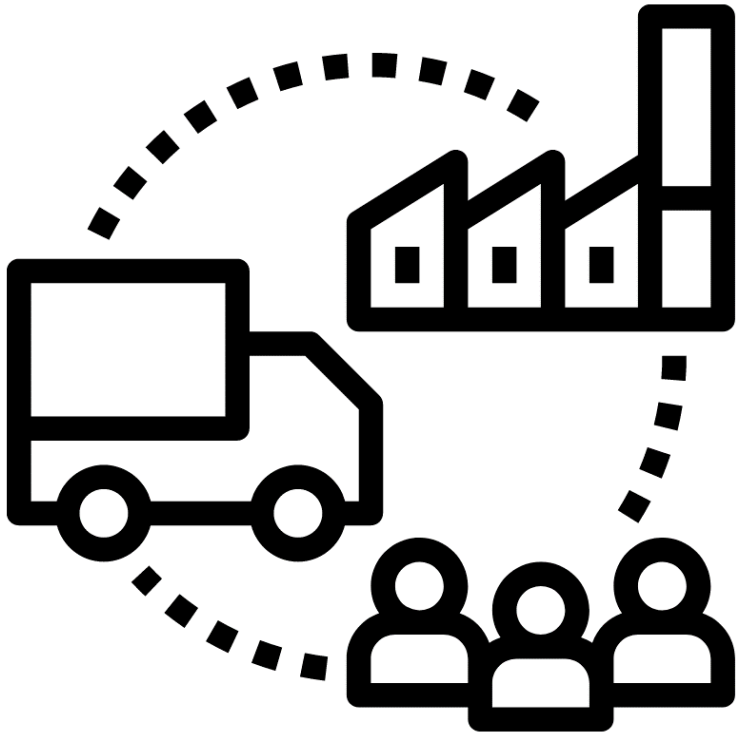
Supply Chain Management, where dreams com true…

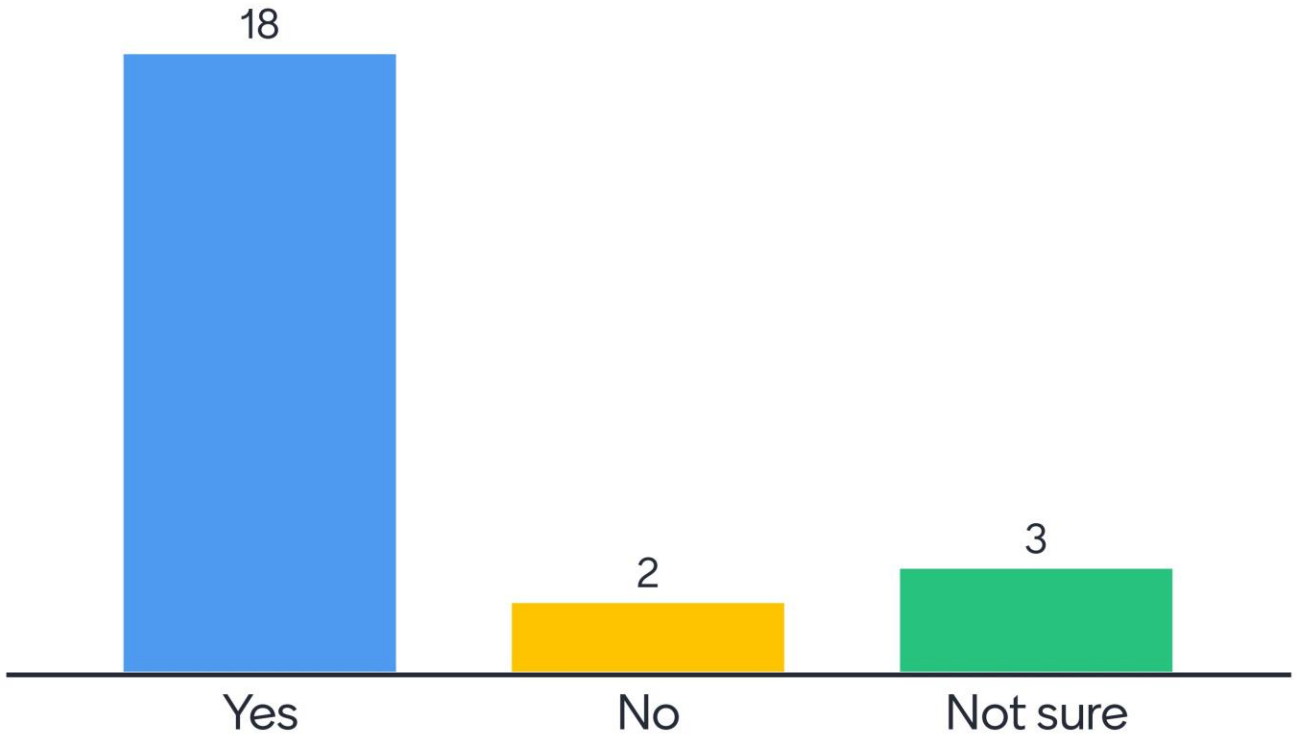


Material ⟷

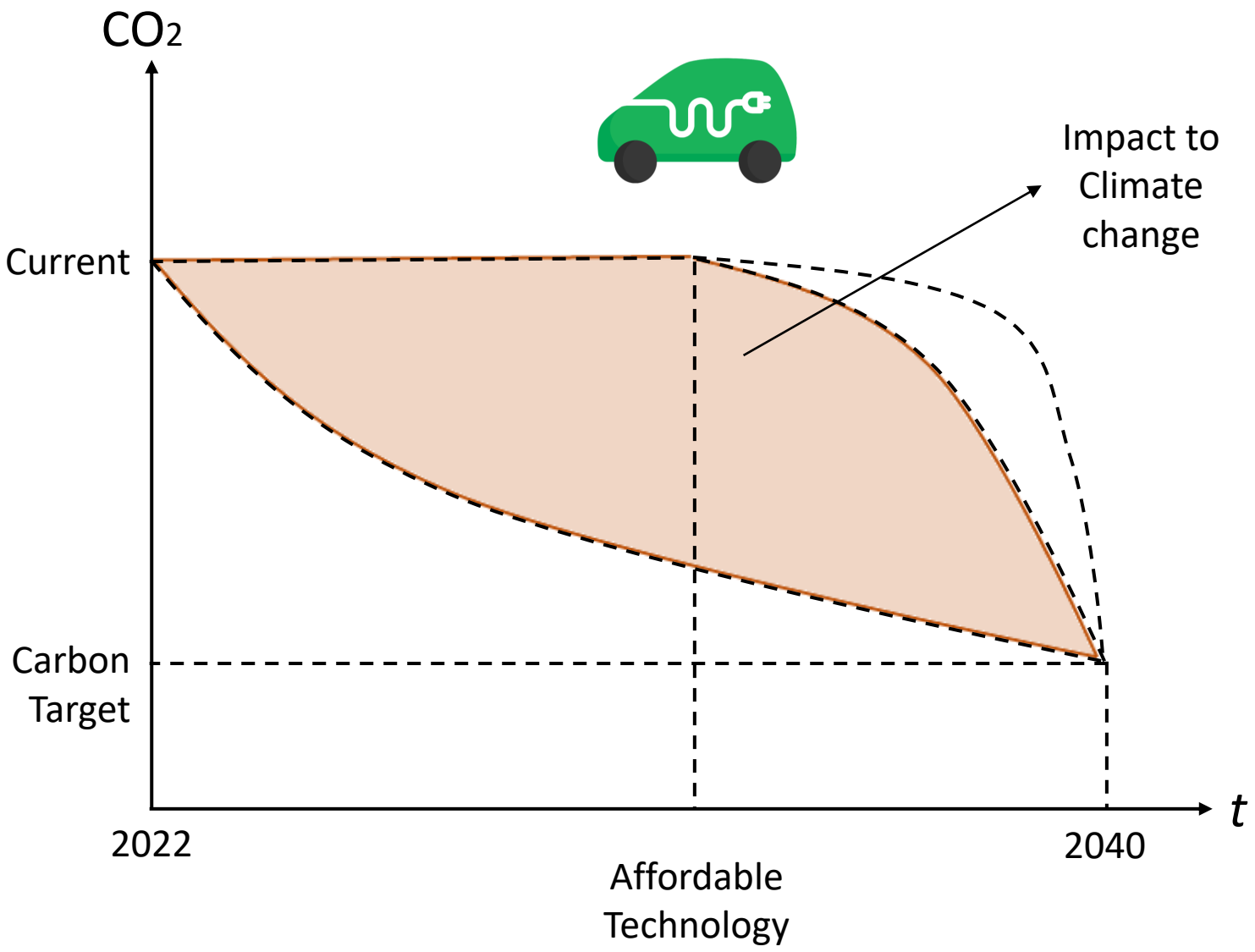
Money ⟷

Information ⟷

Does your company (or key customers) have established clear carbon reduction targets for the next 10, 20 or 30 years?



“The path is more important than the goal”



Impact

+

Focus on Supply Chain Decisions	**Investment on Equipment (energy, network, etc.)**
Don’t waste time	Don’t waste time

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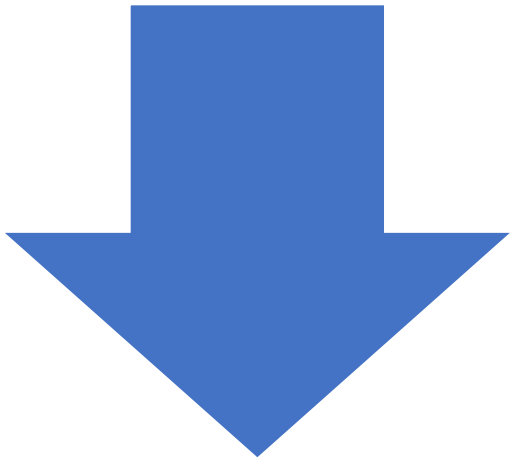
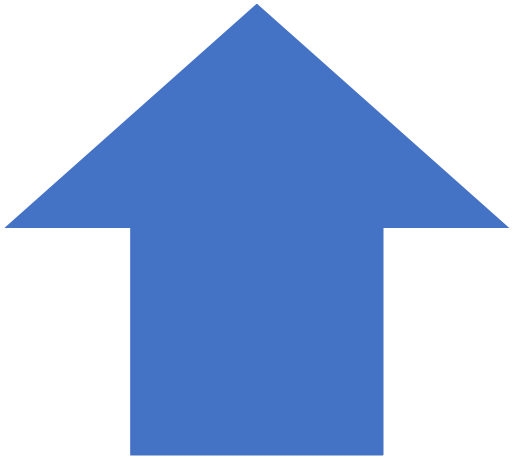
Effort

The How

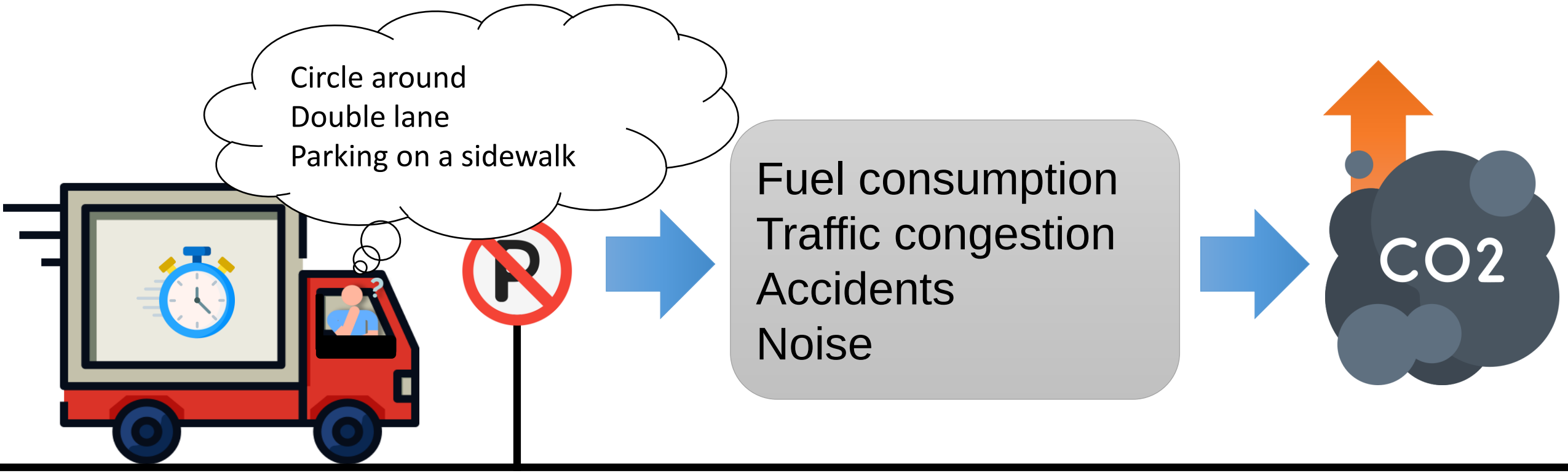




Focusing on operations & current decisions - *Example*

Lack of dedicated unloading areas for freight vehicles

- The UN projects that close to **7 billion** people will live in **urban areas** by 2050
- In emerging markets **urbanization** is accompanied by a **high fragmentation**
- The number of freight vehicles performing **last-mile deliveries is rising**



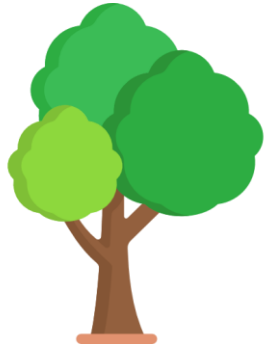
Mora-Quiñones, C. A. (2022). The impact of dedicated loading-unloading areas for freight vehicles on the last-mile logistics performance for nanostores in emerging markets. Doctoral thesis. Tecnologico de Monterrey.

EZ Parking – decarbonizing urban logistics

- **RQ.** What are the social, environmental, and economic benefits of creating dedicated loading-unloading areas for freight vehicles in emerging economies?

EZ Parking (2022) EZ Parking - Logística Eficiente y Sustentable de Última Milla - Ext. Sub. YouTube https://youtu.be/FcuqZQ3lX7I

Reduction 1000+ tons of CO2e/year



18K+ urban trees/year

Savings of USD 250 per route/year

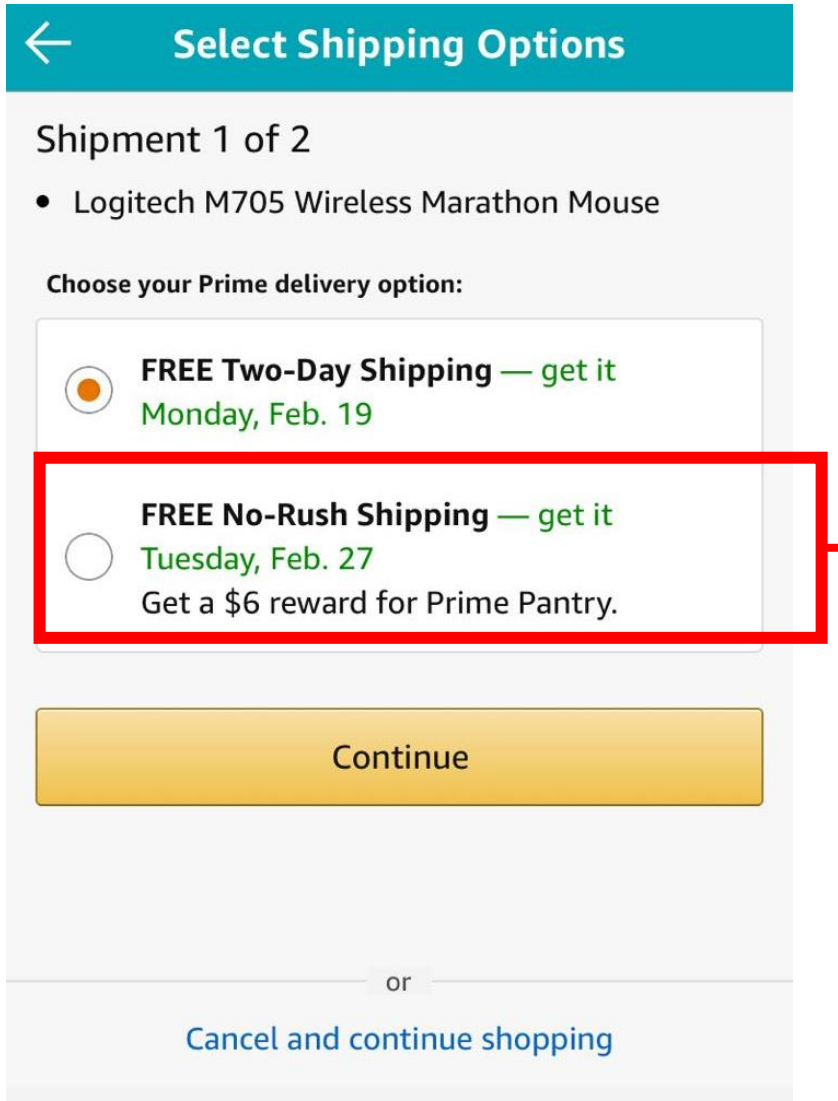
97% fleet are personal vehicles

~50% fleet is 10+ year old

90% travel on foot

Mora-Quiñones, C. A. (2022). The impact of dedicated loading-unloading areas for freight vehicles on the last-mile logistics performance for nanostores in emerging markets. Doctoral thesis. Tecnologico de Monterrey.

Involve Consumers - *Example*

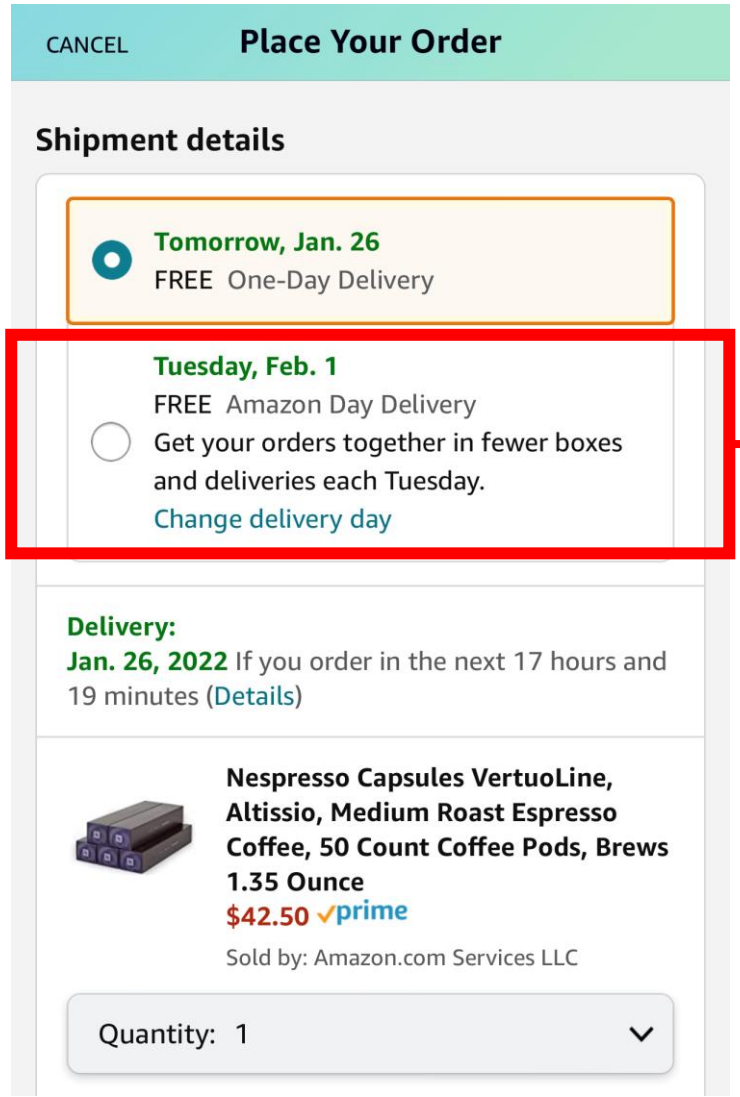


amazon

"No-Rush" shipping
(~8 days more)
for an economical incentive

Are customers only sensitive to economic incentives?

What are companies currently doing?



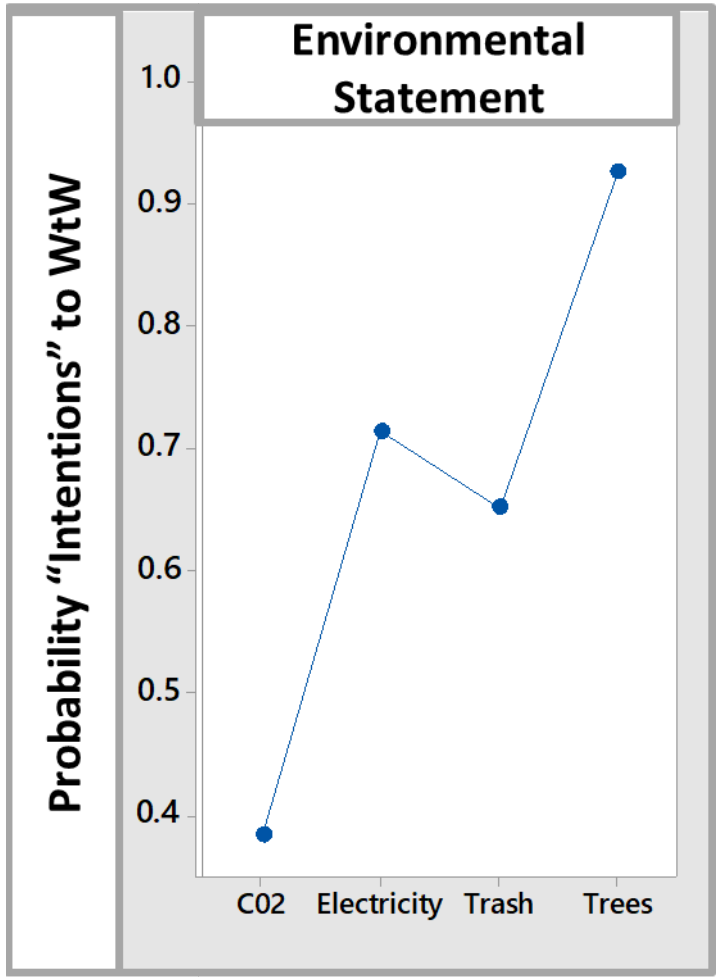
amazon

"No-Rush" shipping
(~6 days <u>more</u>)
for "fewer boxes"

What drives consumer willingness to wait?

Example in ecommerce fast shipping

Binary Logistic Regression Model Results



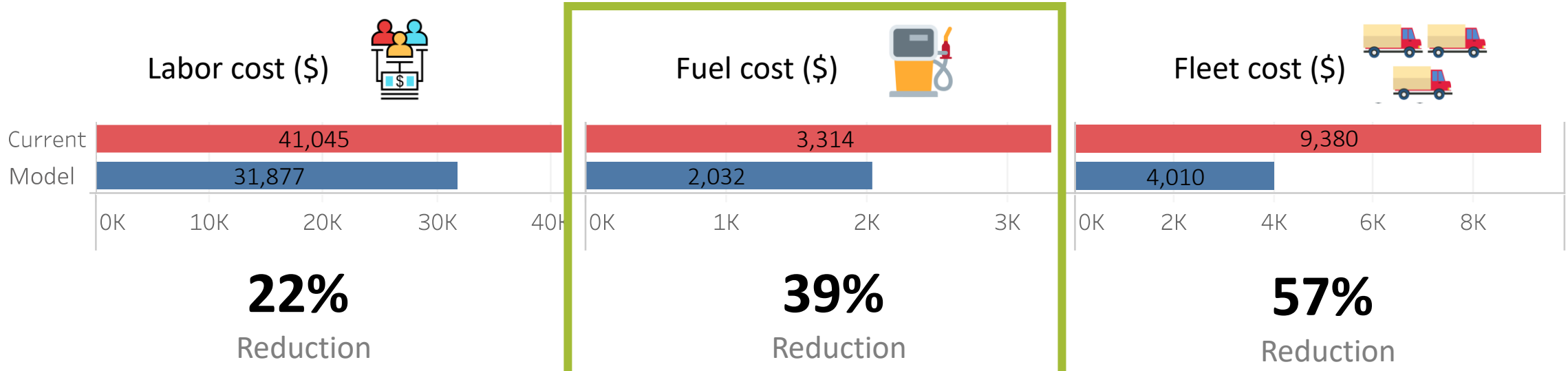
The main effects plots for the Intention of WtW

The odds ratio shows that the intention of willingness to wait is larger when we use **trees** as an environmental incentive





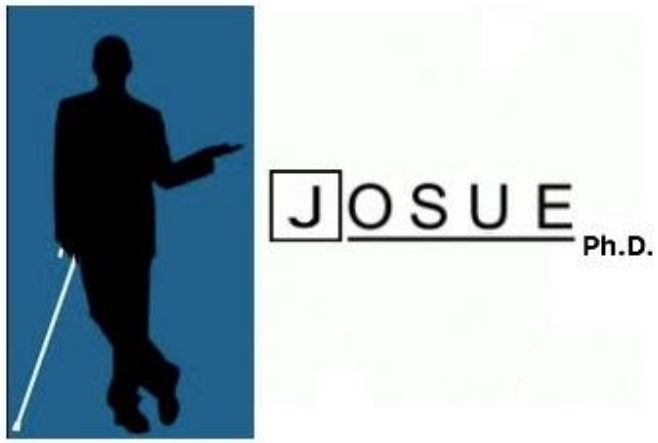
How much can we gain by having more days to deliver?



Key learnings - Where to put the incentives?

- Focus on incentivizing companies to conduct a comprehensive supply chain carbon footprint estimation – key foundation.
- Incentivize supply chain transparency – disclosure to both governments and consumers.
- Focus on creating consumer awareness (it matters how we communicate environmental impacts of the supply chain), and involve them into the sustainability strategies
- Focus not only on the carbon target, but on the path. Continue incentivizing technology development and early adoption to mitigate the impact of climate change

Thanks!



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