To: The Israeli Smart Transportation Research Center (ISTRC)

Subject: Impressions from the Industrial Ecology Gordon Research Conference 2024

I am writing to express gratitude for the opportunity to participate in the Industrial Ecology Gordon Research Conference held in Les Diablerets, Switzerland, between 25-31.5.24. I presented my research work at a poster session, receiving invaluable feedback, and in the course of the conference had the opportunity to learn from peers and professors alike.

This year the conference focused on 'Action-Oriented Science' in Industrial ecology and covered diverse topics within sustainability from housing, to transport, and consumption in broad. The science of industrial ecology provides critical system-based concepts, methods, and tools allowing us to evaluate the overall environmental impacts of products and services. To illustrate using two of the most widely used methodologies: Life cycle assessment evaluates the overall sustainability impacts of products, technologies, and services, using data on physical inputs and guiding improvements. Environmentally extended input-output analysis connects consumption with distant economic activities and their associated environmental impacts, aiding in the development of consumption-side measures for mitigation through supply chains.

In the conference various aspects which affect transportation environmental impacts were explored, using the above methodologies. A strong emphasis was given to transportation usage and socioeconomic characteristics, among which were the proximity of residential areas to city centers, overall transportation modes used, and the potential for trip sharing to reduce environmental impacts.

Based on unpublished research work to which I was exposed in the conference, here are a few recommendations:

1. Examining distance from the city center, it was found that urban planning had only a mild impact on car ownership and as a result commuting behaviors and emissions. Affluence and population growth contributed to continued increased car ownership.

2. In many global north countries car occupancy levels are significantly lower than vehicle capacity. This inefficiency presents a substantial opportunity for reducing transport emissions by increasing car occupancy through trip sharing. A UK based research used machine learning techniques to cluster trips with similar origins and destinations from a UK dataset, revealing the great potential in trip sharing. Observing different mobility purposes, commuting to work and personal business

trips such as shopping or going to the doctor, showed greatest emissions reduction potential.

3. Looking at different user segments within a car sharing company, different adoption patterns were observed. Around 60% of users changed their modes of transportation, reducing car usage and increasing active modes such as walking, biking and public transportation. Another 30% of users didn't change their habits, substituting cars for car sharing. The last 10% of users increased car usage, as these users gained access to a car, which they didn't have before.

In conclusion, I thank the ISTRC for supporting my conference participation. The experiences gained, knowledge shared, and people I met will have a meaningful impact on my research.

With kind regards,

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