UBC Social Ecological Economic Development Studies (SEEDS) Sustainability Program

Student Research Report

Grounded Strategies: Proposal for Reducing Air Travel Emissions through Behavioural Intervention

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University of British Columbia

Course: GPP 581

Themes: Climate, Transportation, Community

Date: April 10, 2020

GROUNDED STRATEGIES:
PROPOSAL FOR REDUCING AIR TRAVEL EMISSIONS THROUGH BEHAVIOURAL INTERVENTION

PREPARED FOR:
**SEEDS SUSTAINABILITY PROGRAM
UNIVERSITY OF BRITISH COLUMBIA**

APRIL 2020

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April 10, 2020

SEEDS Sustainability Program
University of British Columbia
Centre for Interactive Research on Sustainability
2260 West Mall, 2nd Floor
Vancouver BC V6T 1Z4

Attention: Rowan Waldron

Project: Final Project for UBC GPP 581 Behavioural Foundations of Public Policy
Regarding: Proposal For Reducing Air Travel Emissions Through Behavioural Interventions

Dear Rowan Waldron:

We are pleased to submit this proposal to SEEDS on behalf of our project team and the University of British Columbia in fulfillment of our GPP 581 - Behavioural Foundations of Public Policy course requirements.

We trust that this proposal meets your needs and we look forward to following the progress which is made on this initiative going forward. If you have any questions or comments regarding this proposal, please do not hesitate to contact us.

Sincerely,

SIGNED ON HARD COPY ONLY

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Emily Enright
Student, Public Policy and Global Affairs

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Rasmus Dilling-Hansen
Student, Public Policy and Global Affairs

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Encl.
cc: Jiaying Zhao, Professor Department of Psychology, UBC

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INTRODUCTION

UBC faculty members continue to fly to meetings and conferences, despite greenhouse gases (GHG) emissions from air travel being one of the primary sources of emissions for the University. This trend can be explained by two key behavioural gaps.

First, the dissonance gap refers to the disparity between awareness of air travel emissions on climate change, and actual positive behavioural change.[1] UBC faculty members continue to choose air travel as their mode of transportation, despite the significant environmental impacts of air travel. Second, the value-action gap, refers to the divide between pro-environmental behaviours at home and the suppression or reduction of these behaviours when travelling.[1] Those who engage in pro-environmental behaviours at home are less likely to continue these behaviours when travelling for leisure, holiday or work.[2]

While there is research on behavioural incentives and nudges to reduce air travel, virtually no experiments have been conducted on reducing demand for air travel for academic institutions.
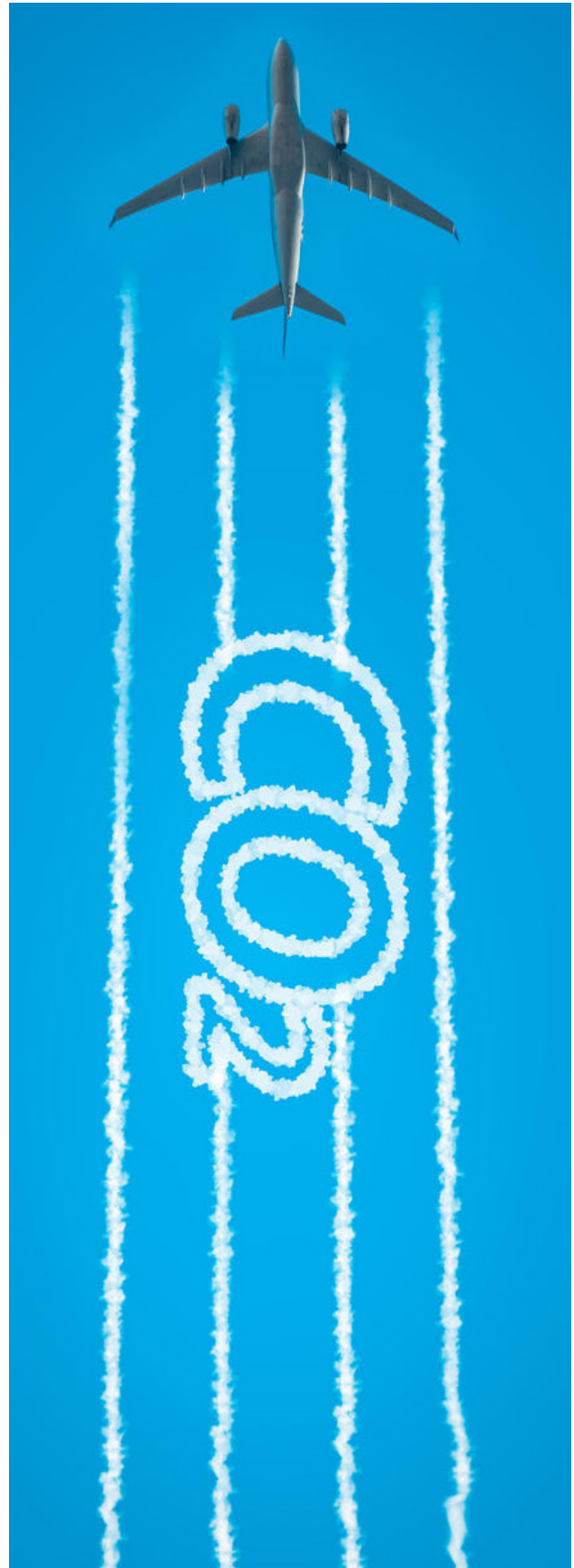
POLICY EXAMPLES

FLIGHT EMISSIONS OFFSET

UCLA AIR TRAVEL MITIGATION FUND PROGRAM

UCLA attempted to reduce air travel emissions through their Air Travel Mitigation Fund Program, which aims to offset carbon. The funding program charges a fee for domestic ($9) and international ($25) travel.[3] The fee is deducted when travellers submit reimbursement requests. Fees collected go to local, on-campus environmental projects. UCLA argues that the prices are low enough for researchers to continue their work but also high enough to somewhat contribute towards offsetting carbon.[3]

First, the intervention does not challenge current behaviour or social norms, but instead attempts to justify behaviours through carbon-offsetting. Second, the intervention does not reduce emissions from air travel, and thus is ineffective.

CARBON EMISSIONS

Created by — Reduced by

Flight +

Fly Greener −

Carbon Neutral
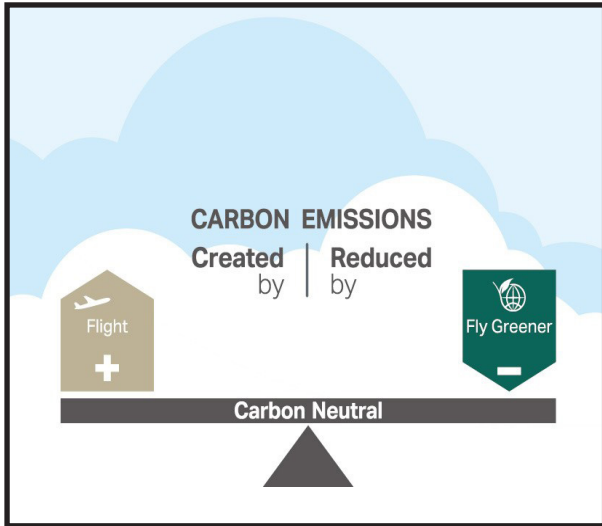
SOCIAL NORMS TO REDUCE ENERGY CONSUMPTION

OPOWER HOUSEHOLD ENERGY CONSUMPTION

In contrast, OPOWER successfully decreased household energy use through Home Energy Reports. The reports provide feedback to customers on their energy use and tips on how to save energy; and compares the household's energy use with neighbours, providing information on 100 of the nearest houses of similar size and energy use.[4] Electricity consumption decreased by 1.9-2% for over 15 million homes. Therefore, valid behavioural assumptions have been made in this case.

The intervention actively uses social norms, competitiveness, feedback, convenience and efficiency to change households' energy consumption, resulting in a positive change of consumers' energy use.
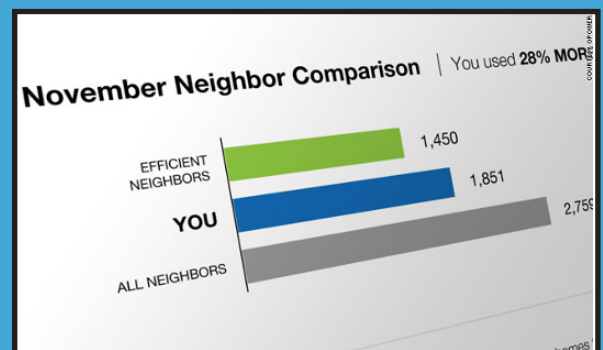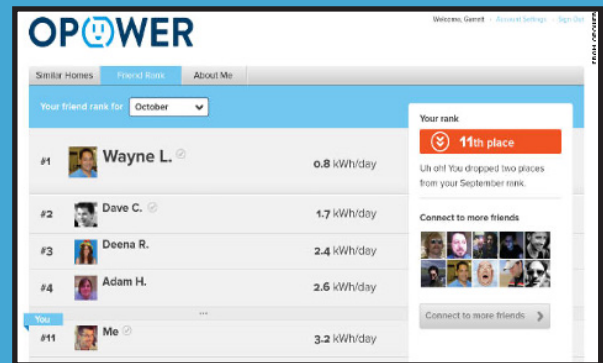
TARGET BEHAVIOURS

The identified target behaviour is that UBC faculty members frequently travel by air. This is problematic because air travel emissions at UBC were equivalent to 41% of on-campus emissions in 2018.[5]

Furthermore, the following **psychological processes,**[6] together reinforce the problematic target behaviour, leading to air travel remaining a prevalent mode of transportation.
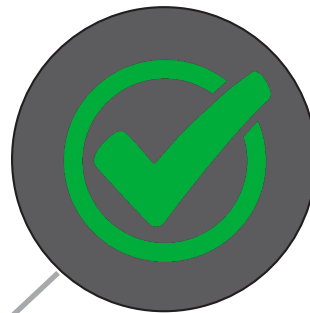
CONVENIENCE: the option to fly has been made extremely convenient, making other modes of transportation less attractive.
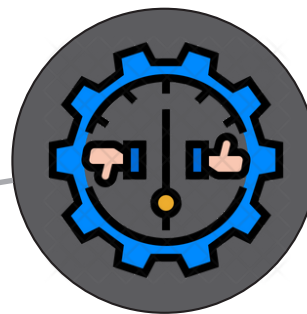
EFFICIENCY: there is a sense of efficiency behind flying to a conference or meeting relative to bussing or carpooling. Additionally, having conferences in person tends to feel more productive.
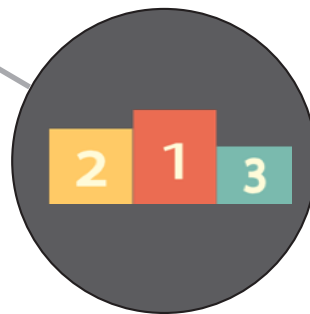
COMPETITION: faculty members are not rewarded for smaller carbon footprints relative to their peers. Additionally, tenure requirements foster competition to fly abroad.
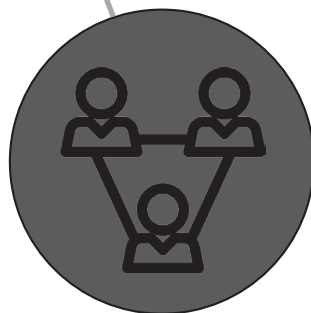
SOCIAL NORMS: due to the simplicity and convenience of flying, it has become the social norm.

FEEDBACK: people are unaware of how much GHG emissions they emit when making transportation

BEHAVIOURAL INTERVENTIONS

The proposed intervention consists of two parts:

- **PART 1:** Quantifies the **emissions generated** through providing feedback in order to influence social norms.

- **PART 2:** Quantifies the **emissions avoided** through providing information about the carbon savings from teleconferencing.

PART 1:
SOCIAL NORMS AS FEEDBACK ON EMISSIONS GENERATED

Feedback will be provided to individual faculty members and the entire community through a dashboard that is embedded within the UBC Management Systems Portal (MSP). The MSP is where UBC faculty and employees go to view and update their personal information such as expense reimbursements.

The dashboard uses the psychological processes of convenience, efficiency, and competition. Providing information automatically reduces the obstacles to obtaining information on emissions making the dashboard convenient and efficient for faculty members. Second, feedback informs the community on aggregate departmental emissions, which will help provide a cultural shift and a sense of healthy competition. This will ultimately improve knowledge, awareness, and transparency while influencing new social norms around modes of transportation.

Temporal discounting refers to the idea that individuals psychologically tend to postpone problems and losses to the future. It also points to the idea that present rewards are given greater weight than future rewards. In this context, if feedback reports are only provided annually, there is the potential that faculty members may not care to be aware of their behavior and the amount of emissions they consume until year end. Additionally, any success in reducing emissions is an immediate incentive to continue the behaviour rather than waiting until year end for this reward. Hence, it is advised that feedback reports also be sent to faculty every 3 to 6 months.
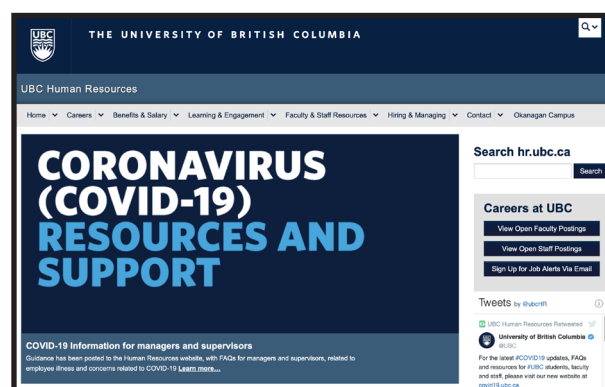
The dashboard on the MSP provides faculty members with feedback on the following:

- The emissions target per year for faculty members. This target will be set in collaboration between SEEDS and each faculty based on emissions from previous years and minimum travel requirements.

- SEEDs feedback report on individual & departmental emissions will be provided every 3 to 6 months (due to **temporal discounting**). The report will include:

    - Calculation of emissions per trip upon reimbursement application.

    - Data on how much individual faculty members are emitting relative to their departamental average and UBC average.

    - Data on individual and departmental emission improvement/regression relative to previous report(s).

    - Calculation on where individual faculty members and department aggregate stands relative to the target.

PART 2:
FEEDBACK ON EMISSIONS AVOIDED (VIA TELECONFERENCING)

Data collected on reduction of emissions by faculty should be framed positively when feedback is provided. Integrating a distance calculator into virtual conferencing platforms at UBC will allow faculty to proactively calculate GHG emissions avoided by meeting online. This emissions calculator would be at the bottom or top of the page when members log into the teleconferencing platform.

In order to calculate the emissions, several assumptions will be required. We propose the following as a starting point:

- Distance will be calculated between the individual participant and the host of the meeting.

- The location for each participant would be self-declared at login. Alternatively, the IP address could be used but would require geospatial analysis to determine the nearest airport.

- Only air travel emissions will be included which excludes other transportation emissions such as travel to and from the airport.

- Economy class air travel will be the default.

The following sections provide details on how this intervention will work to change behaviour through improving salience of the provided feedback.

HIGHLIGHT LOCATION
INCREASE SALENCE THROUGH DISPLAYING PARTICIPANT LOCATION

A visual reminder, the local skyline could be set automatically as the background of each participant, similar to Zoom. Confidentiality of their location should be an option for privacy purposes.

VANCOUVER, CA

FEEDBACK

EQUIVALENTS

CONVERT RESULTS TO SIMPLE EXAMPLES

It is likely a challenge for most citizens, including faculty, to relate their actions to the impact of one tonne of CO2 equivalent emissions. The proposed intervention seeks to improve understanding and GHG emissions literacy through converting emissions into relatable contexts.

In order to support this objective we recommend including multiple formats of emissions reductions data to improve salience and maintain novelty. For example, the tonnes of CO2 could be translated into the distance that could be travelled in a Toyota Prius.
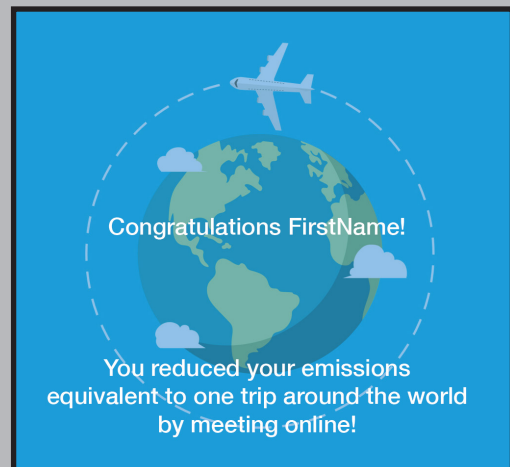
NICE WORK FIRSTNAME!
MEETING SAVED X.XTONNES OF CO2

THAT IS EQUIVALENT TO DRIVING A TOYATO PRIUS X,XXX KMS!

MILESTONES

APPLAUD THE CUMULATIVE SUCCESS OF ACTIONS

Recognition should be offered when an emissions reduction milestone is achieved (see example below). These personalized announcements can be shared with the individual and also the participants of the meeting.

This will incentivize competition and influence social norms. Injunctive norms such as "Great job! You're in the top 10 best faculty members", will encourage reduction of emissions through promotion of positive social behaviour while reducing the likelihood of the rebound effect occuring.
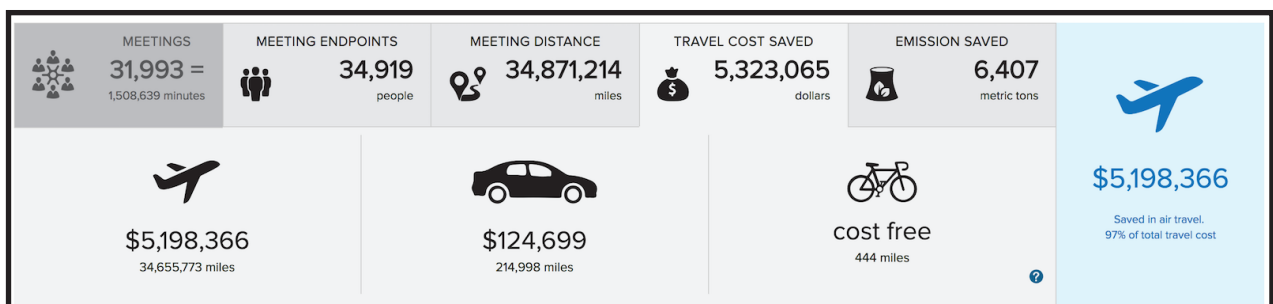

Congratulations FirstName!

You reduced your emissions equivalent to one trip around the world by meeting online!

EXAMPLE: BLUEJEANS TELECONFERENCING

ECONOMIC AND ENVIRONMENTAL BENEFITS OF TELECONFERENCING SHOWN IN DASHBOARD

BlueJeans teleconferencing is providing users information on how using teleconferencing reduces expenses which would have otherwise been spent on airfare and hotel stays.

The 'Command Center' (see image below) is a meeting performance and analytics dashboard. Users can easily track the decline in their carbon emissions along with the amount of money saved on travel.

MEETINGS	MEETING ENDPOINTS	MEETING DISTANCE	TRAVEL COST SAVED	EMISSION SAVED	
31,993 = 1,508,639 minutes	34,919 people	34,871,214 miles	5,323,065 dollars	6,407 metric tons	
$5,198,366 34,655,773 miles	$124,699 214,998 miles	cost free 444 miles			$5,198,366 Saved in air travel. 97% of total travel cost

ANALYSIS & OUTCOMES

Integrating a dashboard into current UBC teleconferencing platforms will provide faculty members with an efficient and convenient way of obtaining emissions feedback. This feedback will incite healthy competition amongst faculty, changing social norms and ultimately promote the reduction of GHG emissions.

SUCCESSFUL behaviour change is:

- Reduction in frequency of flights
- Intermittent and sparse flights per faculty member
- Change in social norms between departments and amongst faculty on awareness of emission target when flight booking

TARGET successful outcomes are:

- Reduction in frequency of flights, both on individual and aggregate scale, over the years
- Increased use of improved and up-to-date facilities, as well as better IT support for setup and use.

METRICS TO MEASURE SUCCESS

- **Number of flights** per faculty member

- **Distance travelled** per faculty member

- **Annual emissions** to observe progress and cultural shift

- **Dashboard logins** measure active faculty interest

- **Email engagements** measures interest in feedback reports
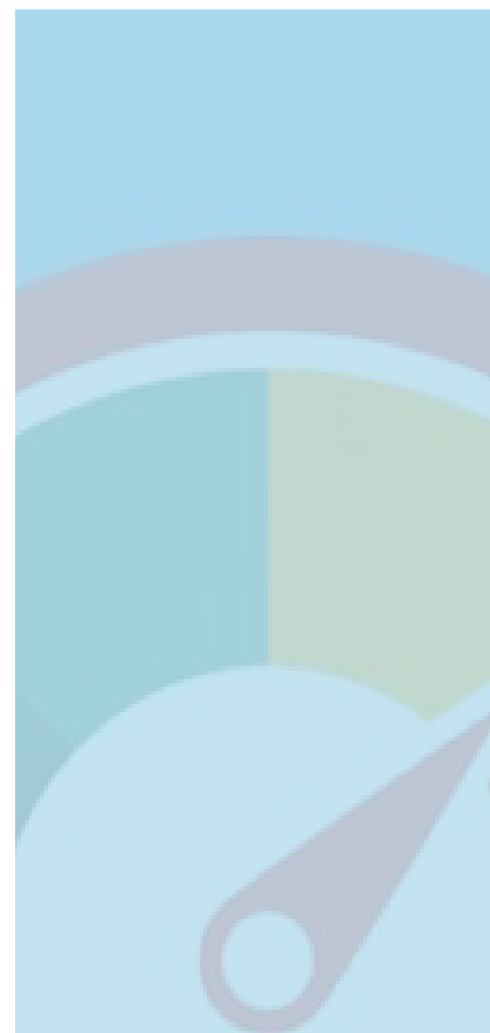
LOWERED GHG EMISSIONS

COMPETITIVE GHG ECONOMY BETWEEN FACULTY

EXPECTED RESULTS

INCREASED AWARENESS OF GHG EMISSIONS

INCREASED DEMAND FOR TRAVEL ALTERNATIVES

IMPLICATIONS AND SCALING

Currently UBC faculty do not see teleconferencing as a viable alternative to air travel due to inadequate telecommunications infrastructure and IT support. A combination of behavioural incentives, institutional regulations, technological innovations and knowledge dissemination are required for effective long-term behavioural change. The following complementary policies aim to support alternatives to recurring travel.

TELECONFERENCING SUPPORT

Teleconferencing platforms can be an anxious experience for new faculty users. We propose the following to improve convenience and efficiency of teleconferencing:

- **Provide UBC IT staff** support to faculty who are currently required to contact TELUS for support with teleconferencing. We propose that UBC setup teleconferencing support within the IT Department. Staff should be available on demand or as meeting moderators to ensure that important events go smoothly.

- **Provide training and encouragement** including initial setup, tutorial services by appointment, and internal UBC staff meetings should be encouraged to have a teleconferencing option.

Improve quality of communication through training, which is not solely focused on the software but, to also include best practices on how to collaborate effectively online. Most importantly, training should focus on how to maintain enthusiasm towards the meeting, the technology and the opportunities which it provides.

Although we believe that these behavioural interventions are likely to be effective based on our understanding of behavioural science, these interventions have not been tested in this context.
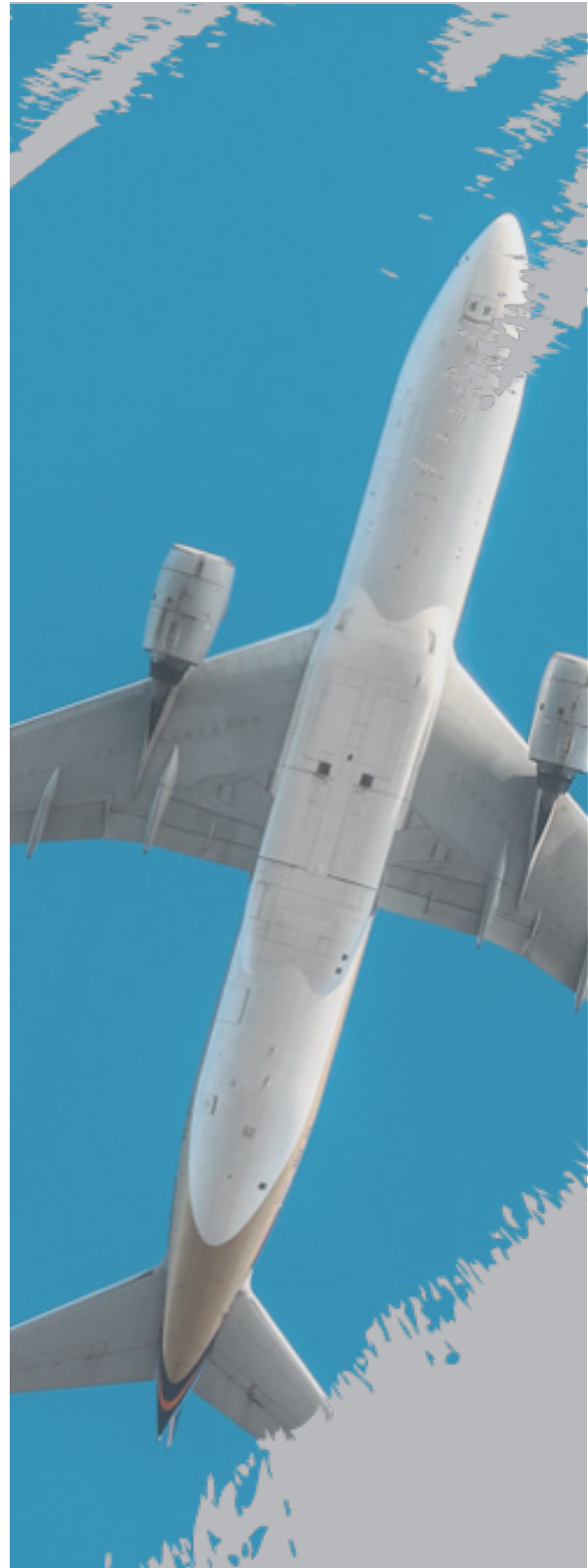
CHALLENGES OF SCALING

There are a few challenges that we anticipate will be encounted when attempting to scale these interventions.

FUNDING

Disseminating reports every 3 - 6 months and calculating the emissions per trip upon reimbursement application from faculty members will require more staff and funding, as data collection will grow.

COMPETITION

Social norms take time to form, and because funding for work-related travel is a public good within departments, a free rider problem may occur with regard to flight opportunities. Some members may take advantage of a faculty member implementing self control when it comes to opportunities to travel for work. This could lead to uneven development of careers across faculty members during the transitionary period of old social norms to new ones. Therefore, self-control regarding flight opportunities should be implemented on a large scale to incentivize people to reduce flying and the consequences of the free rider problem.

Furthermore, once UBC faculty members and departments adjust to the new social norms after the transitionary period, competition is going to remain a challenge between universities. Although UBC faculty will be properly rewarded through new social norms for cutting back on their emissions, faculty and departments at other universities will not be; they have yet to develop new social norms around reducing work-related flights. As a result, UBC faculty could find themselves at a competitive disadvantage relative to their peers. This is particularly important considering GHG emissions by faculty members are currently not factors in university rankings. This could have implications for UBC's status if the rate of publishing academic papers lowers as a result; or if sought after faculty members consider the lack of flight opportunities as a sizeable disadvantage when selecting a school; thus reinforcing the need for strong teleconferencing and project management mechanisms is particularly crucial.

EFFICIENT TRAVEL STRATEGIES

We recognize that there are some meetings that greatly benefit from in-person interaction. We believe that faculty currently lack alternatives to avoid recurring travel, which will be required to scale the use of teleconferencing. We recommend:

- **Introduce travel efficiency into project planning** through integration into the approval process. Discussions about the most efficient means to carry out an academic project, be it research or otherwise, should be reviewed and discussed to condense trips into longer but less frequent trips; this will reduce the total amount of travel.

- **Provide best practices for project planning** including a focus on the joint benefits of efficiency through travel time reduction and reduced carbon emissions.

The **Design Sprint**, developed by Google team members is a five day process for answering crucial questions through testing ideas. By dedicating the five day work period, groups have found that they reach better outcomes and are more efficient. This is achieved because the process avoids the inefficiency and distractions of trying to balance multiple projects at the same time and lost momentum between meetings.

Although design sprints are traditionally used for product development, there is potential for the method to be adapted to apply to collaborative research work.

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