

The International Business Travel Guide

A guide to seriously reduce your international business' travel emissions



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The document in front of you has been developed by the Travel Different Coalition (Anders Reizen) in The Netherlands together with the NGO Nature & Environment (Natuur & Milieu) and the Climate Neutral Group. If you have any questions, please reach out to [Anders Reizen](#) or [Natuur & Milieu](#).



Members of the Travel Different Coalition:



Foreword: The International Business Travel Guide

How can your business facilitate and/or stimulate more sustainable international business travel for its employees? And how do you motivate employees to take the train more often or make a video call with customers instead of taking a plane? What is the effect of compensating, and why would you participate in a corporate biofuel program? This practical 'International Business Travel guide' helps you, as an employer, to make your international business (travel) more sustainable. This guide is based on the original that was developed in The Netherlands by The Travel Different Coalition (Anders Reizen) and the NGO Natuur & Milieu (Nature & Environment). The ambition of the companies joining the Travel Different coalition is to reduce the impact of their (business) travel on the environment, this guide focuses on international travel and more precisely, aviation.

A conference call, the train or flying?

Until the corona crisis of 2020, the business traveler was heavily focused on flying. The crisis forced companies to look for other opportunities to keep international business going. Companies invested more in digital communication, making new meeting arrangements with business partners and adjusted their travel policies accordingly. At the same time, employees became much more receptive to virtual communication and reduced flying than they were before the crisis, according to research by Natuur & Milieu¹ in The Netherlands. Providing plenty of opportunities for effective international work, with a much smaller impact on the environment, climate and people.

'In order to achieve the Paris targets, we need to emit much less CO₂. That is why it is important that companies also contribute by flying less for business purposes, making more use of opportunities to work remotely, and traveling by train. I encourage companies to use The Sustainable International Travel guide to make their business travel policies more sustainable, so that we meet the targets together.'

Marjolein Demmers – Director of Natuur & Milieu

'The Anders Reizen coalition wants to accelerate sustainable mobility. With this Sustainable International Travel Guide we offer actionable perspectives for an updated travel policy. Now that covid-19 makes us even more used to working together via videoconferencing, it becomes clear that international business (travel) will be much less airborne.'

Hugo Houppermans – Director of coalition Anders Reizen

'In November of 2020, we unveiled our new corporate strategy, which lays out the evolution of our passion for improving quality of life. In it, we committed to making a significant, quantifiable, and positive contribution to the achievement of sustainable development. Lowering our carbon footprint is an important part of this commitment and through our partnership with Anders Reizen, we are exploring the best ways to continue serving our clients around the world, while traveling less. I hope this guide will not only inspire you to take steps to reduce business travel but will also provide you with practical tips on how to catalyze change within your company.'

Peter Oosterveer – CEO of Arcadis NV

*The Anders Reizen Coalition (Travel Different Coalition) consists of 60 employers with in total over 500,000 employees. Anders Reizen was founded in 2015 by an initiative of VNO-NCW, NS, Natuur & Milieu, and the Ministry of Infrastructure and Water. The common ambition is a healthier and more sustainable Netherlands by halving CO₂ emissions due to business related (total) mobility by 2030 (compared to 2016). For more practical examples, look for www.andersreizen.nu.

1) <https://www.natuurenmilieu.nl/nieuwsberichten/werknemers-grote-bedrijven-verwachten-aanzienlijk-minder-zakelijke-vlieguren-na-corona-crisis/>

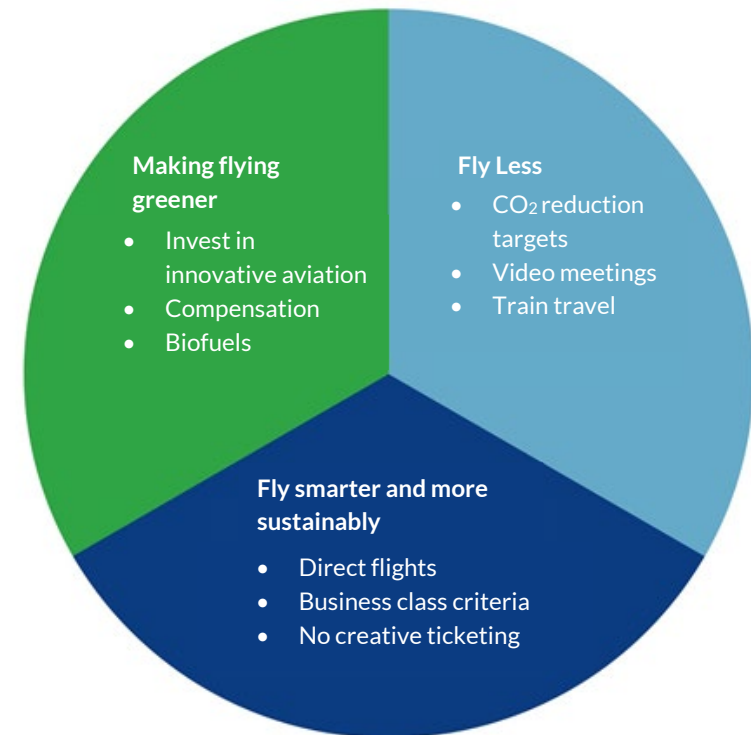
Reading Manual

In this knowledge guide, we offer various options to redesign your organization's flight policy and thereby make international business travel more sustainable. In addition to information on the benefits of reducing international travel and traveling in a more sustainable way for employers, employees and our environment (Chapter 1), this guide provides a roadmap for a responsible international travel policy (Chapter 2) and measures that can be implemented directly (Chapter 3). The measures can be brought back to the three categories as depicted in the figure to the right. A fourth component is behavior of employees, because measures are only successful if they are followed up (section 3.4).

We explain how to put this into practice in this International Business Travel guide on the basis of practical examples and an overview of best practices of organizations/ employers. And yes, most measures are implemented at companies based in The Netherlands, but please let them inspire you also for your (slightly) different context.

Would you rather speak about a responsible flight policy within your own organization? Feel free to contact [Anders Reizen](#) or [Natuur & Milieu](#).

Figure 1: Categories of measures for drafting International Travel policy. These measures will be explained in the report further on.

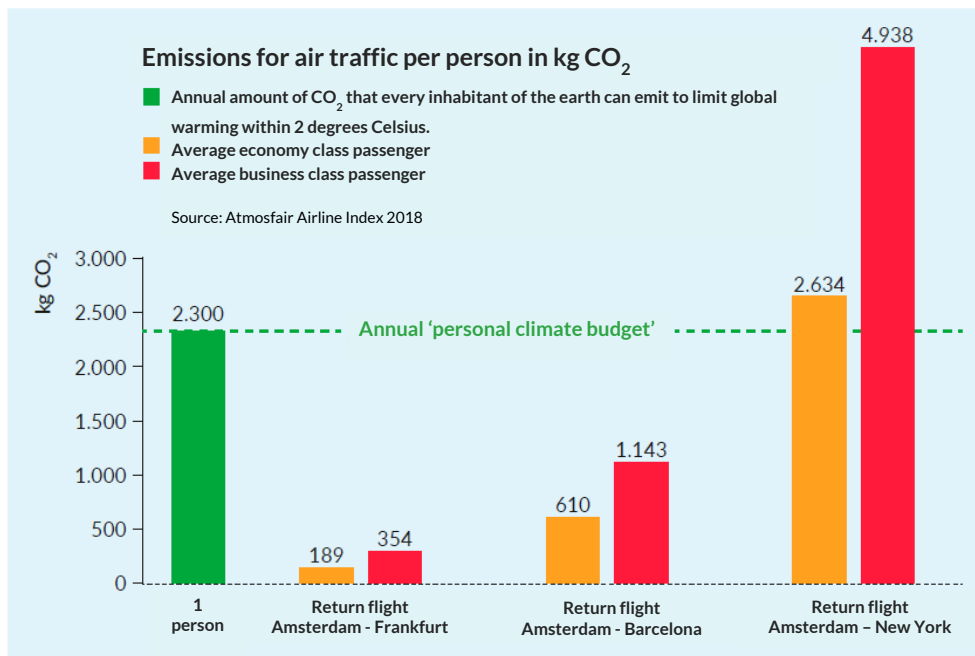


1. The impact of international traveling and flying

Less traveling has benefits for the employee, the employer and the environment. We'll describe them here.

The impact of traveling on climate and environment

- Flying is a big burden on the climate and growing. The worldwide impact of flying is currently 2-3% of the global CO₂-emissions². For the Netherlands this is 7-8% of the national CO₂-emissions. By 2040, CO₂ and NO_x emissions are predicted to increase by at least 21% and 16% respectively.³
- Aviation also has a very large non-CO₂ effect (NO_x, water vapor) on global warming that is estimated at 1.7 times the effect of CO₂-emissions.⁴



- One return economy class flight from Amsterdam to New York (~5.900km) emits 2,634kg of CO₂. This is already more than the annual amount of CO₂ that any individual should be allowed to emit if we want to limit global warming to 2 degrees (Atmosfair Airline Index 2018). In the overview to the left, the emissions of three types of flights are brought into perspective.
- 8% of Dutch people are responsible for 40% of air travel. This small group is therefore responsible for a large part of the emissions.⁵ We suspect these numbers are nearly the same in other western countries.
- 32% of passengers at Schiphol have a business reason to fly.⁶ On a global level that percentage is very different per airport. Around 12% of total aviation passengers are business travelers, though the emissions of those are higher (better class travelers).
- For internationally operating companies, flying determines a large part of their CO₂ footprint. For service providers (e.g. consultancy and finance) this is on average 38%.⁷ Of course for some companies and some regions varies and can be higher or lower, though this percentage will grow due to reduction of carbon on other subjects and globalization.

The impact of flying on the living environment

In addition to CO₂ emissions, aviation also generates emissions of noise, particulate matter, ultrafine particles and nitrogen, amongst other things. The quality of the living environment in the direct surroundings of airports is not very good, with negative consequences for the health of local residents and nature. And in many cases, airports are situated near cities where many people live.

The impact of traveling on workers' work-life balance

2) EASA (2019) European Aviation Environmental Report 2019

3) EASA (2019) European Aviation Environmental Report 2019

4) EASA (23 November 2020) Updated analysis of the non-CO₂ climate impacts of aviation and potential policy measures pursuant to EU Emissions Trading System Directive Article 30(4)

5) KiM (March 22, 2018). The flying Dutchman. Obtained through: <https://www.kimnet.nl/publicaties/rapporten/2018/03/22/de-vliegende-hollander>; Department of Transport UK annual research

6) KiM (December 2018). Aviation facts Overview of numbers of flights, passenger flows and goods flows at Dutch airports. Obtained through: <https://zoek.officielebekendmakingen.nl/blg-868276.pdf>

7) Climate Neutral Group (2019). Business travel: the ten success factors for a sustainable travel policy. Obtained through: <https://met.climateneutralgroup.com/wp-content/uploads/2017/03/vliegen-climate-neutral-groep-white-paper.pdf>

A lot of international travel has an impact on the work-life balance and health of employees. Time differences, early or late flights and a lot of being away from home can be perceived as stressful. Nine out of ten business travelers experience stress during their business travel.⁸

The impact of traveling on cost for employers

Of course traveling and meeting colleagues or clients is needed from time to time to work more effectively together, though the time spent traveling for business costs companies, regardless of the prices of tickets. By clear policies and guidance on how and when to travel, a lot of time and cost can be saved.

8) TU Delft (June 13, 2017). *Tourism and aviation make Parisian goals unattainable*. Obtained through: <https://www.tudelft.nl/2017/tu-delft/toerisme-en-luchtvaart-maken-pariise-doelen-onhaalbaar>

2. Drawing up travel policy

How do you draw up effective travel policies? First of all, you get an insight into your organization's travel behavior (and culture) and the emissions and costs associated with it (setting the baseline). Then you can specifically determine how your organization can balance the benefits of travel with reduction of emissions, cost, impact on staff and travel time.

The steps described in Figure 2 are further elaborated below:

Figure 2: Business Cycle of drafting international travel policy



2.1 Understanding travel behavior, organization and beliefs

In order to be able to steer effectively, it is necessary to understand the travel behavior within your organization and its impact on costs and carbon footprint. Your travel agent can support you in collecting the travel and emissions data. If not you may have to engage with your finance department to get the information you require. The following questions provide insight into your organization's travel behavior:

- Data insights and questionnaires on who travels within the organization and why this travel is essential. Think of sales staff, seminars or conferences, project execution, internal meetings and so on. Who is flying, for what purpose and was it needed to reach the business objective?
- Where are we traveling to? Distances, destinations, frequency, were there other opportunities to travel?
- How do we travel? Direct or indirect flights, within which class of travel, which airlines and what type of aircraft (or even a train)?
- Do we travel alone or with several colleagues (risk mitigation)?
- And figures: think of insight into number of flights, kilometers flown, CO₂ emissions per flight, CO₂ emissions per passenger kilometer, travel time from door to door and of course costs.

How do you determine the CO₂ emissions from flying?

Flying has several 'emission factors' that determine how much CO₂ is emitted. For example, the fuel that is used, the distance you fly and the class in which that happens. Many companies use a standard factor to calculate emissions. The most reliable conversion factors being used are BEIS (UK Department for Business, Energy & Industrial Strategy) and CO₂emissiefactoren.nl (independent Dutch emission factors).

In the table below it becomes clear that there are large differences in emissions between travel classes and distances. The table can be used to calculate the impact of the choice of travel on total travel emissions.

Source: CO ₂ emissiefactoren.nl	Class	kg CO ₂ e/km
Regional Economy: <700km	Economy class	0,3
European Economy: 700–2.500km	Economy class	0,2
Intercontinental Economy: >2.500km	Economy class	0,147
Source: International BEIS Rule 2020*		
Regional <460km	Average passenger	0,24
Short-haul <3.700km	Average passenger	0,16
	Economy class	0,15
	Business class	0,23
Long-haul >3.700km	Average passenger	0,20
	Economy class	0,15
	Premium economy class	0,23
	Business class	0,42
	First class	0,59

*CO₂e is the universal unit of measurement to indicate the global warming potential (GWP) of GHGs, expressed in terms of the GWP of one unit of carbon dioxide. Source: Department BEIS, 17 Juli 2020.
<https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020>

Note the following aspects that affect the result of calculation:

- Please note that when using 'CO₂emissiefactoren.nl' only the environmental impact of economy class is given.
- BEIS distinguishes between Short and Long haul (<3,700km and >3,700km respectively). For a Long-haul flight, a business-class passenger generates almost three times as many emissions as an economy class passenger on the same flight. This is due to more space and use of services resulting in higher energy consumption per kilometer. Especially on these long distance flights this gives much larger absolute CO₂ emissions.
- This table already takes into account the radiative forcing effect. The burning of kerosene at high altitudes creates this phenomenon that reinforces global warming.

Analyze Patterns

Analyze the information and determine if there are patterns to be observed. These include the number of trips per destination (e.g. internal meeting, seminar or customer visit), the distribution of trips to distances and destinations, the number of people traveling by appointment, the travel class being flown and the choice of airline (see next chapter for more information).

Determine how decision-making is organized

Understand how decision-making about flying is organized within the organization; determine who draws up the policy and who owns the implementation. Determine the guidelines and make them known in the organization. Think about who manages the travel budgets and approves travel requests. What is stipulated in the purchasing agreements with travel agents about sustainable travel options (or can they provide travels that are compliant with the internal policies)? And are we following the guidelines in practice (see also the step Analyze patterns); if not why?

Research beliefs and experience of management and colleagues

In addition to the hard numbers, you need insight into the reasons for traveling/ flying and the beliefs and motivations of management and colleagues when it comes to travel and sustainability. What is feasible? For example, do we look at travel time or distance as a determining factor? How can you use your travel time effectively? Is it just the flying time or travel time from door to door? Employees are brought along if they are convinced that it has added value to change their behavior. It is important to emphasize

the benefit to them. With interviews or a survey of employees and management, you can gather these insights, for example in departments that fly the most (usually an 80/20 rule applies). Also look at the circumstances of a team/ department at that moment (for instance for an acquisition or project it might be needed to fly more in a certain period). And try to ask for further detail in your questionnaire (better in person); consider the travelers friction: I do want to travel less (the hoped for answer) but I'm not able to.

2.2 Determine the reduction potential

With the insights obtained, you can determine how to reduce emissions and the reduction potential of specific measures. Also determine the expected costs and revenues per measure. Flying business class has benefits for staff but also immediately impacts spending and environmental emissions (see paragraph 3.2). When investing in digital communication or participation in a biofuel program (see paragraph 3.3), the costs for benefits are assumed and/ or the benefits are not easily measured, as in the form of a marketing advantage. Also take productivity and the costs of door to door travel into account. A taxi from the airport to the city center is also free, and working in a train can be very productive.

Questions that help you make choices:

- How can we travel and fly less?
 - What is the added value of most of our travel? Can this possibly be partly digital?
 - Is traveling for internal (in-company) consultations really necessary (all the time)?
 - After a first personal visit, can the follow-up be done remotely?
 - Which destinations can also be easily reached by train (in Europe, China, Korea and Japan many main cities have direct high speed rail connections)?
- How can we fly more sustainably?
 - Can we make arrangements with our travel agent to book the most sustainable travel based on your policy or let them come with suggestions to support on this? Challenge your agent on this.
 - Are we prepared to incur additional costs for a more sustainable flight (for example, with a more expensive airline, or flying directly instead of switching)?
 - Can employees fly economy (plus) class instead of business class for certain trips (distance/ duration)?
 - Can we select more sustainable Carriers (with lower emissions) as a preferred partner instead of less sustainable carriers?
- What do we think about greening our flights and do we want to invest in initiatives?

- Do we want to participate in a sustainable fuel (biofuel) program of airlines?
- What do we think about offsetting emissions?
- Do we want to financially support the sustainability of aviation (technological innovation)?
- What approach do we take and what does our organization and our CSR policy suit?
 - Do we encourage and inform employees to make sustainable choices? Direct feedback to employees works best, but you should explain why and how it is connected to your corporate policies.
 - Do we set tougher conditions for who travels, when and how they travel?

2.3 Set goals and be ambitious

Set clear and ambitious goals, both in the short and longer term, and express them in terms of reduction in CO₂. For example, the companies participating in the Dutch Coalition Travel Different have stressed that flying is part of their ambition to reduce CO₂ emissions from their business mobility by 50% in 2030 (compared to 2016).

2.4 Enter travel policy

Encourage a culture where the standard steps are (if possible): work remotely, travel less and/ or travel as sustainably as possible. Of course all this must be within the balance of the organizations' needs. Translate your goals and measures into clear international work and travel policies. It helps to invest the responsibility for implementation and monitoring clearly in the organization. Who sets environmental targets? Who is responsible for achieving them and for implementing measures? Who decides whether to fly? And of course keep tracking and reporting back.

Possible measures:

- Translate your goals into measures and approval processes for international travel.
- First, make clear agreements within the company for which (international) meetings may be travelled to, regardless of the means of transport. For example, depending on the value a meeting adds.
- Clarify the conditions for travel. Think of the choice of a mode of transport and travel class.
- Keep communicating the policies and results. In this way, management and employees become aware of the usefulness and necessity of traveling less and traveling more sustainably. Change management is key here!

Good examples: what do companies do?

Eva Warmerdam, Procurement consultant at **ABN AMRO**: 'In order to encourage customer interviews to be conducted remotely more often (in addition to internal meetings with colleagues), we are going to draw up guidelines for this. These are not leading but serve as a tool to make the right choice. Think of; can the follow-up be done remotely after an initial, personal customer visit? We have been forced to not fly during the past (corona) period. This has accelerated working remotely and having virtual contact. It is now understood that it is not always necessary to meet the customer or your colleagues in person. These experiences are taken into account to shape new policies. It not only saves time, money and CO₂ emissions, it also benefits the work-life balance in many cases, which is essential for our employees.'

Jeroen Stoffelsen, HR operation manager at **a.s.r.**: 'Our mobility policy stipulates that every trip must be of added value otherwise it will not be made. With this, a mindset has already been created within the organization and the policy to carefully consider whether a trip is necessary or not. Fly if you must and take the train or organize a conference call if you can. Our policy is based on the responsibility of our employees and is not based on rules and control.'

CGI, IT and consultancy: The CEO personally assesses each flight. In this way, an additional threshold is created for flying.

Steven Breuker, head of group housing at **NS**: 'It's also about gaining momentum: with us, the connection to Travel Different Coalition was a reason for the management to change the flight policy. Take a look at what is and isn't reachable with the individual departments. At stakeholder level it is important to have the management with us, we have informed the Works Council on environmental measures. Then we informed the frequent flyers.'

Case Study PwC

PwC's ambition in the field of international travel policy

PwC is an international assurance, tax and advisory organization with 5,400 employees in the Netherlands. PwC's ambition is to operate fully circularly by 2030: no waste, no emissions and optimal reuse of materials. Their CO₂ emissions per fte⁹ decreased by 32 percent between 2015 and 2020 (pre-corona). But flight emissions fell less sharply- despite several measures: just 5 percent. Reducing CO₂ emissions from flying is one of PwC's biggest challenges.

Wineke Haagsma, Director of Sustainability at PwC: 'Covid-19 brought a stop to our air traffic and with it the associated CO₂ emissions. The abrupt reduction in flights and other mobility led to behavioral change and new insights. There is now a momentum to be able to hold on to some of this changes.'

Analysis of travel behavior and objectives

To determine emissions, PwC formulated environmental indicators so that they can monitor their progress. To determine flight emissions, the kilometers flown are classified in distance categories (short, medium and long) and the associated CO₂ conversion factors (BEIS, including radiative forcing; see box 'How do you determine the CO₂ emissions of flights?').

To put this into action, PwC analyzes travel data, examines the behavior of employees and calculates the financial and non-financial impact. PwC looks for trends in group travel, destinations, type of projects, departments and job levels. With large-scale surveys, the company looks for the correlation between motivation and behavior. This is continuously monitored and evaluated so that they can adjust as needed.

Results for travel behavior

Since 2017, PwC has implemented several measures, including:

- Compulsory travel by train from NL to Paris and Frankfurt and all intermediate stations;
- Standard first class by international train;
- Preference for direct flights (instead of indirect);
- A CO₂ shadow price of 100 euros per ton of CO₂ to invest in compensating, reducing and innovating. For example, PwC has made donations for an electric aircraft and airport charging infrastructure;

⁹) fte = full time equivalent

- Tightened rules for business-class travel:
 - no business class for day flights under 8 hours;
- Preventing 'creative ticketing' to reduce the risk of¹⁰ empty seats;
- Google Meet as a standard option in people's calendars;
- An agreement with SkyNRG to ensure the reduction of bio-kerosene for the years 2021-2025. The decrease is gradually increasing from a minimum of 10 percent to 50 percent of the expected kerosene consumption by 2025.

How does PwC get employees involved in the policy?

With internal messaging and videos, PwC promotes sustainable alternatives. The Board of Management actively communicates international travel policy to staff, as well as changes in policies and performance and developments. In addition, PwC has a CO₂ dashboard in development to provide employees and project leaders with more insight and insight into their decisions in travel behavior. Providing financial and non-financial information is important to enable further reduction.

What does it mean for employees, for travel behavior and for the company?

Employees now look at flying differently than they did three years ago; society is changing and the company is also developing. PwC notes that employees with a more critical eye have started to look at business air travel through a growing awareness about the climate impact. However, in many cases this did not always lead to other behavior. Through Covid-19, PwC has now noticed that things can be done differently; much air travel can be replaced with a video meeting. This is likely to lead to different behavior. At the same time, it remains necessary for PwC to seek out customers and (international) colleagues to strengthen cooperation and the network.

10) Creative ticketing: see for an explanation paragraph 3.2

3. Measures for international travel

In this chapter, we discuss the most common measures to reduce emissions from international business travel. There are many ways to make travel more sustainable and encourage employees to travel less or differently. You can travel less polluting flight kilometers, fly as cleanly as possible, or 'green' the flying. And do you choose to reward, seduce, support or discourage? Or a combination?

You reduce flight emissions by taking measures that lead to:

1. Reduced traveling;
2. Smarter and more sustainable traveling;
3. 'Greening' flights;
4. Adapted travel behavior of employees.

The table to the right describes the measures taken by the Travel Different coalition to make international travel policies more sustainable by category.

These measures are worked out in four sections in this chapter. The first measure, 'Time-related targets on CO₂ reduction of business flying: short and long term (1-10 years)', has already been described in chapter 2 in defining policy and ambition.

Overview measures international travel policy of Travel Different Coalition

Category Measure	Number	Measure Description
Reduced traveling/ flights	1.	Time-related targets for CO ₂ reduction of business flying: short and long term (1-10 years)
	2.	Entering a travel policy with preference for alternatives (such as conference call or train) before a flight is booked
	3.	Virtual meeting room/ conference call standard in the calendar when scheduling an appointment
	4.	In the case of internal meetings: only flights for meetings longer than 3 hours
	5.	Only flights for distances above 700km (i.e. not between cities that have a (high speed) rail connection like Amsterdam to Paris, Frankfurt or London, or the US East Coast Acela trains (Boston - New York - Washington) or the Bullet Trains in Japan)
Travel smarter and more sustainably	6.	Tighten or set criteria for business-class flights
	7.	Taking CO ₂ emissions from specific fleet/ aircraft into the choice of flight
	8.	Direct flights where possible, even if this leads to higher costs
	9.	Completely abolishing creative ticketing
Greening the flights	10.	Purchase of biofuels for business air travel
	11.	Full CO ₂ compensation for commercial (air) travel through CO ₂ certificates
	12.	Taking social costs (shadow price like carbon tax) into ticket price: leads to a better comparison between modalities
	13.	Invest in new CO ₂ reducing technologies for air traffic, such as electric/ hybrid flying or synthetic fuels
Adjusted employee travel behaviour	14.	Introducing (financial) incentives to encourage desired behavior
	15.	Feedback of CO ₂ emissions from flying to individual employees and departments

Case Study Arcadis

Arcadis wants to be an example for other companies

Arcadis is a well-known international consultancy and engineering firm. Due to the company's international growth, employees have started to fly considerably more in the last ten years. Between 2010 and 2019, Arcadis Netherlands' carbon footprint decreased by 49 percent, but the kilometers flown more than tripled in the same period from 1.7 million to almost 6 million. As much as 94% of the current operational footprint comes from mobility (business & commuting); 15 percent of which is air travel. With this, Arcadis faces a challenge: how can it use its knowledge internationally and still emit less CO₂ by flying?

Gert Kroon, Director Arcadis Netherlands: 'Our mission is to Improve the Quality of Life. That's what we do for our customers. In our own business, we want to lead by example. Conscious handling of air travel is part of that.'

Yoeri Schenau, Sustainability Manager: 'In 2019, the Dutch Arcadis-organization flew almost 6 million kilometers. Every year, that's 150 times around the earth. It scared me. How nice it would be if we could reduce that by a third compared to 2019'.

Measures to reduce flight emissions

In 2018, Arcadis Netherlands made their international travel policy more sustainable:

- For trips over 700 km, employees themselves make the assessment whether a flight for a physical meeting is necessary or whether the appointment can take place via a conference call.
- For distances up to 700km, the train is basically the standard. A journey time of two hours or more may be a first-class journey. The employees of Arcadis experience that it is pleasant to work on the train. Flights to Paris, Brussels and Frankfurt have fallen by 95% and flights to London are down with 80%. The number of international train journeys tripled.
- In order to reduce its footprint beyond 700km, Arcadis participates in KLM's corporate biofuel program. In this way they green the flight kilometers they take with KLM.
- Arcadis employees do not fly business class under eight hours.

- To further promote sustainable travel, Arcadis uses a mobility monitor for flights, trains, and car kilometers. Employees have direct insight into the effects of their travel behavior and are rewarded for sustainable choices (Fynch Mobility App).
- The flights they cannot avoid Arcadis compensate with Gold Standard Certified Carbon Credits in cookstove projects in India with Fair Climate Fund.

Covid-19 has made employees aware

Since Covid-19, the number of flights at Arcadis has decreased by 90 percent. The company also expects to see a long-term effect in the form of reduced flights in their Dutch operation. To some extent, Arcadis will continue to fly as an international organization. But even more than before covid-19, colleagues themselves will make even more conscious consideration of whether air travel is really necessary.

3.1 Less flying

In the short term, flying will not quickly become cleaner and more quiet; technological innovations cannot keep up with the growth of aviation. There are good developments by Airbus and Boeing on zero emission flying, but that will take at least ten years before the first of these planes start flying and we will still have the existing planes operational. Technological developments will start to become meaningful between 2030 and 2050.¹¹ The most simple and effective way to reduce your travel emissions is therefore to implement measures aimed at reducing flying.

Decide when to take the train

For short journeys, the train is the best travel alternative. It is more durable and competes with the aircraft in terms of travel time, comfort and price. However, business travelers prefer to fly, including to destinations that are easily accessible by train, such as London, Paris, Frankfurt and even Brussels (seen from the Dutch Perspective). These are also the destinations where most flights from Schiphol go.¹² Though it is of course relevant where people are traveling from ('first mile' to the airport) and where they need to be at for their destination. As mentioned, in many cases door to door by train is quicker than by plane (especially if you count in the work you can do on a train drive compared to during a flight).

11) EASA (2019) *European Aviation Environmental Report*

12) Royal HaskoningDHV (25 May 2018). *Compare flying with short-distance train travel and how we can choose the train more often*. Obtained through: <https://www.royalhaskoningdhv.com/nl-nl/nederland/nieuws/nieuwsberichten/trein-is-goed-alternatief-voor-korte-vluchten-vanaf-schiphol/8122>

A HSL train emits about 90 percent less CO₂ per passenger-kilometer than flying over short distances (www.CO2emissiefactoren.nl). This is a huge difference, while travel time and cost for destinations up to 500km are similar. The train has the advantage of quick check-in, onboard Wifi, room to move, and departure and arrival in the city center.

For example a travel from Utrecht towards Frankfurt: by train will take 3 ½ hours. By plane you have 30 minutes travel to Schiphol, 60 minutes check-in/ wait, 70 minute flight and 50 minutes to go to the city. Total time door to door is comparable, though which travel was more productive and relaxing? The same counts for Washington – New York; By Acela express it will take you 3 hours. If you travel by plane, you travel 30 minutes to the airport, wait/ check in 60 minutes, fly 60 minutes, 60 minutes transport to the city/ get out of the airport. The train is even quicker.

Possible measures:

- Determine the conditions under which the train is mandatory and therefore flying is not allowed: for example, on the basis of travel distance, travel time and/or difference in travel time with flying;
- Determine the minimum travel distance and/or travel time above which you can fly. For example, only allowing flights for distances above 700km.
- Decide which destinations are not to be flown to and how to deal with exceptions. Increase support by clearly communicating the difference in door-to-door travel time and CO₂ emissions from train, car and flying to these destinations. Do not forget the costs; a flight ticket might be cheaper but you have to get to and from the airport by train/ taxi or using your own car with parking fees.
- Make the choice for the train more attractive. This can be done with a reward for CO₂ emission reduction achieved. Or by making first class train travel the standard, and for flying economy class.
- If you work with a travel agent, make arrangements with your travel agent to offer the train on the routes where this is a good alternative. Or to always place train results at the top of the search results, including listing the saved CO₂ emission. Your travel agent can also take an extra check on specific routes to see if the train is a better alternative (in advance of the booking).
- If you do not work with a travel agent or integrated booking system, communication will be key. Communicate to your employees the rules and guide them to take the train for certain journeys instead of the plane (Washington – New York – Boston for example)

Good examples: what do companies do?

Eva Warmerdam, **ABN AMRO**: 'Travel to Paris and Brussels has been mandatory by train since 2019. More comfort and freedom to stretch your legs and be able to work during the journey makes the Paris train route a favorite among employees. At the moment we are also looking at whether we can turn the destinations Frankfurt and London into train destinations. The moment the direct HSL opens with London is a point that weighs in.'

Silke Lepée, Environment Lead at **Accenture**: 'Accenture workers in Belgium, France, Luxembourg and the Netherlands must take the train for journeys that take less than 3:30 by train.'

Steven Breuker, NS: 'With us international trips of less than 700km are made standard by train. There is a maximum travel time of 8 hours by train. The starting point is that travelers should be able to justify their travel behavior to the management.'

Maarten Dansen, Program Manager Circular Economy at PwC: 'Trips to Paris, Düsseldorf and Frankfurt are made by train as standard. There is an excellent business case for this because train tickets on these distances are cheaper than airfares. The journey time by train from Amsterdam to Paris is 3:20 and to Frankfurt 3:55. The arrival for these destinations is in the center, which saves travel time and costs on the spot because our offices and most of our clients are there as well.'

Use of video and teleconferencing

The corona crisis has accelerated digital meetings and work worldwide. Clients, suppliers, governments and consumers have invested massively in digital and remote communication and have become experienced in the use of different software. Persistent taboos on business videoconferencing have been broken. Such as: 'the customer expects me to travel', 'if I don't travel that can be interpreted as a lack of interest', or 'it is less effective'. The crisis has made it clear that even without travel, we can do a lot of our work perfectly well. And of course we have to take in to account the cultural differences as the above works fine in a Dutch context but may be different in an Asian culture.

Possible measures:

- Facilitate remote working
 - Set up enough virtual meeting rooms in the office for larger and more complex meetings or invest in moveable video conference equipment so you are more flexible. But also organize smaller rooms for one on one video-calls with your laptop without disturbing others or being disturbed. Investment in reliable facilities is key.
 - Guide employees in effective online work and meetings, offer training if necessary.
- Agree with external relationships when and why you do and don't travel
 - Include travel costs and CO₂ emissions in quotations to make them visible and negotiable. Or reduce the quote amount precisely by explicitly mentioning that trips for, for example, progress consultations are not made or made less. Set this item to zero euro and CO₂ emissions and increase the CSR score of the quote. This element needs to be used internally as well: outsourcing back office work to a shared service center might save you money, but we might forget that we need to travel towards that location several times. Did we include that in the 'value case'?
 - Make agreements with each other about the purchase and use of software for digital working and communicating.
 - Limit the number of visits to those your business engages with: 'after an initial physical encounter, we communicate digitally with customers and supplier'.
 - Don't travel for short meetings and events.
 - Make remote meetings the standard.
- Limit travel for internal discussions
 - Don't travel for short meetings and events. Travel only for internal meetings of more than for example three hours (or combined meetings).

Good examples: what do companies do?

Silke Lepée, **Accenture**: 'We only travel if necessary, for the customer and if video conferencing would not be efficient.'

Elske de Jong, Manager sustainable operations at **Arcadis**: 'It is considered on a project-by-project basis whether it is necessary for a physical meeting to take place or whether this can also be done online.'

Maarten Dansen, **PwC**: 'We want to devote several meeting rooms entirely to state-of-the-art videoconferencing. The quality of the virtual encounter should hardly be any different than a physical encounter. This needs to be accessible so that it is easy to operate for everyone.'

Simone van Engelen, senior KAM coordinator at **Strukton** (*Rail systems, Civil Infrastructure, Engineering and Buildings*): 'Of course we don't travel now and the experience with the corona measures allows us to better determine whether we meet the first time and whether follow-up appointments are made with videocall. For our employees this is also welcome, in terms of work-life balance. We also had to speed up digital meetings, so now our systems have a standard option for video conferencing.'

3.2 Smarter and more sustainable flying

Flying can't always be avoided. But if you do have to fly, do it as sustainably as possible.

Less business class

Flying in business class – depending on the distance flown – emits on average two to three times as much CO₂ as the same flight in economy class.¹³ A business class passenger consumes more space and services, leading to higher energy consumption per kilometer. A return flight in business class Paris – New York emits around 2000 kilo more carbon compared to the same flight in economy class. That's why many companies choose to agree on the conditions/ policies of when to fly business class.

Possible measures:

- Determine the conditions for business class flying: think of minimum distance, travel time, importance and time of the appointment or a distinction between different functions in the organization.
- Reward employees who choose (premium) economy class instead of business class. For example, return a percentage of the price difference to the employee who refrains from flying business class (of course only if fiscally possible).

Choose the most efficient flight possible

Airlines have an impact on emissions per kilometer. The efficiency of a flight is determined in particular by the type of aircraft used, the seat capacity of the aircraft and the occupancy rate.

By booking with the most efficient airline, significant CO₂ emissions can be saved. The figure to the right shows the difference in emissions for the same return flight, but carried out by different airlines (source: Atmosfair.de). United Airlines has 35 percent more climate impact on this route than KLM.

This data might be hard to communicate through the existing booking systems, but it could be used to formulate a list of preferred airlines to travel with.

Figure 3: Emissions for different airlines

Emissions from various airlines

Return flight 1 passenger Schiphol, Amsterdam - JFK, New York. Flight class: economy class

KLM Climate Impact 2,343 kg CO₂

Delta Airlines Climate Impact 2,854 kg CO₂

United Airlines Climate Impact 3,163 kg CO₂

Average Airline Climate Impact 2,765 kg CO₂

Source: Atmosfair.de

¹³) Department for Business, Energy & Industrial Strategy (4 June 2019). Greenhouse gas reporting: conversion factors 2019

The performance of airlines varies not only by destination, but also by classification of distances: short, medium and long distances. KLM, for example, is relatively efficient on long-haul flights. You can use the https://www.atmosfair.de/en/air_travel_and_climate/atmosfair_airline_index/ to find out which airline is most efficient on flight types made by your organization. This index ranks airlines by efficiency per distance class. General indexations such as the Dow Jones Sustainability Index or Global Reporting Initiative provide information about the sustainability policy and management system of airlines, and little about the actual efficiency of the flights offered. The question here is the accuracy of the data and that it could be different if the airline have made changes to their aircraft.

Good examples: what do companies do?

Zhizhen Wang, Sustainability Program Manager at **Signify**, world leader in lighting: 'In consultation with our travel agent, the CO₂ emissions are proactively mentioned with each travel option and the most favorable option is brought forward or put to default. In this way, we create awareness among our employees and we also make sustainable choices possible.'

Make a direct flight

During a flight, landing and taking off produce the most emissions – and a lot of inconvenience for local residents, therefore, a direct flight is less stressful for the climate and our living environment than the same flight with a stopover. A transferring passenger causes twice as much nuisance to the environment than a direct flying passenger. The CO₂ emissions from a flight to New York with a stopover at London Heathrow emits about 1,400kg of extra CO₂ (Atmosfair.de) than a flight without a stopover.

Possible measures:

- Direct flights if possible, even if this leads to higher costs. This might sound easy from bigger airports, but it might also help to look for another departure airport or nearby end airport. And even if your organization is flying quite often to a certain destination(s), you might consider relocation of your office to a city that has a direct (train) connection to that destination (of course within the band width of your lease contract and where your employees live).

Avoid creative or cross ticketing

'Creative ticketing' or 'Cross Ticketing' is a specific terminology used amongst the travel community which means looking at alternate ways to route an itinerary or issue a ticket to save costs, often used for multi-sector flights or for one-day trips. Sometimes this is cheaper due to the operation of booking systems of travel agents or the airline systems. Due to creative ticketing, seats can remain unnecessarily unoccupied, which means that the emissions per passenger kilometer are higher (though not in all cases, but you have to count them in in your GHG system).

Possible measures:

- Instruct your travel agent and employees to book normal tickets instead of two return tickets.
- Ensure through your travel agent that creative ticketing is not allowed.
- Make sure tickets that are not used, are cancelled on time. This saves on the reported emissions.

3.3 Making Flying Greener

If you have reduced your flight emissions to a minimum, you can still 'green' the remaining emissions. In this section, we describe what is and is not true of the green promises of these programs.

The 'greening' of emissions occurs in the following ways:

- Participation in a (bio)fuel program;
- Compensation;
- Investing in sustainable aviation technologies

Participation in (bio)fuel programs

Companies can participate in airline biofuel programs, such as the **KLM Corporate BioFuel** Program or the **Board Now** program from SkyNrg. This allows companies to reduce the carbon footprint of their business trips and/or air freight because sustainable aviation fuels have a lower carbon footprint than fossil kerosene.

It is not the case that this durable kerosene is fueled directly in your aircraft. However, as with green electricity, it increases the proportion of sustainable kerosene compared to fossil kerosene (the 'book and claim' principle). The companies pay a higher price, because sustainable kerosene is more expensive to make than fossil kerosene. Due to a higher demand in sustainable kerosene, the scale can be increased and the price decreases. Unlike compensation projects, you also stimulate innovation and CO₂ reduction in the aviation sector itself.

SkyNRG has the **Board Now** program, which is linked to the construction of the first European plant dedicated to sustainable kerosene. This plant will be expected to be operational in 2023. Here too, participants pay a premium. The support of the participating companies helps to make sustainable biofuel available in the Netherlands, and to make it economically competitive with fossil jet fuel. The payment and emission reduction take place when the plant actually starts producing sustainable fuel. For more information, see: www.boardnow.org.

In other countries there are also airlines that have similar programs and opportunities. Please investigate in your region and ask your most used airlines.

Please note that participation in a biofuel program can only be incorporated into your CO₂ emissions if the fuel supplier, or the owner of the biofuel program, provides emission figures approved by certifying institutions. The sustainable fuel must also be used before the CO₂ reduction can be claimed. As a participant in a biofuel program, it is also important that you know what the actual CO₂ reduction through the use of biofuel is.

Sustainable Aviation Fuel: not an easy solution

Biofuel is often mentioned as a solution for making aviation more sustainable. It is one of the alternatives to fossil fuels which can largely reduce carbon emissions. An additional advantage is that it can already be mixed with fossil kerosene in current aircrafts today. Sustainable biofuel is made from residual flows, such as used cooking oil, wood, grass, manure and food waste. Depending on the raw materials used, this biofuel provides a 50-80% CO₂ reduction per litre compared to fossil kerosene, however, the non-CO₂ climate effects of flying continues to exist. Dutch aviation has indicated that it only wants to use biofuels that are truly sustainable. It is now estimated that in 2030 the reduction potential in the Netherlands will be 7 percent, depending on the policy pursued. Whether it can be scaled up thereafter depends on standards and regulations, among other things, to develop better technology. There are also sustainability risks associated with the use of biofuel. Biofuels produced from food and feed crops have higher CO₂ emissions than fossil fuels and have disastrous consequences for biodiversity and the living environment. This can be overcome with the help of sustainability certificates such as the Round Table of Sustainable Biomaterials (RSB).

Another sustainable fuel, which is currently under much research, is synthetic kerosene, which is produced by combining CO₂ and green hydrogen. The development of sustainable alternative fuels for aviation still has a long way to go to become cost effective and scalable.

The development of these sustainable fuels for aviation also deserves support in travel policies and must be stimulated alongside the other measures. At the same time, investments must be made in new technologies, such as the production of sustainable fuels in Europe, to make the part that is still flown as sustainable as possible. A good example of an initiative that corporates can support is the biofuel factory that SkyNRG and KLM are realizing in The Netherlands. So 'Board Now'!

Offsetting flying emissions

With CO₂ compensation or climate compensation, you ensure that the CO₂ emissions you emit are compensated in the Netherlands or anywhere else in the world. There are two ways to do this:

- Let nature absorb CO₂. From your compensation contribution, trees are planted or forests protected. These trees absorb CO₂, which reduces the concentration in the air.
- Reduce and prevent CO₂ emissions elsewhere. Your contribution is invested, often in projects in Africa and Asia where, for example, more efficient wood ovens, biogas plants or windmills are built.

When offsetting CO₂ emissions, the central question should always be whether it will actually offset climate change. For example, only protecting forests has no additional effect on the absorption of CO₂. For 1 ton of CO₂ emissions, 50 trees have to grow for a year.¹⁴ The principle of compensation sounds logical and simple: you emit CO₂ and by compensating these emissions you contribute financially to a climate program that ensures CO₂ reduction and/or commitment elsewhere. But indeed, not emitting is even better and therefore compensation is the last step you can take. Compensation is not the final solution. But it is a way to take responsibility for the emissions that you do not want or cannot avoid at this time.

But how do you make the right choice?

Always opt for projects with a quality mark. The Voluntary Gold Standard and the Verified Carbon Standard are the highest international standards out there. They ensure that CO₂ capture and reduction projects are and remain on track.

In addition, it is essential when choosing a project to look at its 'additionality'. In other words: would the project have been there without the funding from the compensation project? Your company's investment in a compensation project should actually make a difference in reducing emissions.

Please note that not every airline or carbon compensation program compensates according to these highest standards and not every organization calculates the CO₂ emitted in the same way. Consider whether it is a possibility for your company to have the CO₂ offset by a third party dedicated for you.

Internal Carbon-price

With a price tag attached, you are stimulated to keep CO₂ emissions as low as possible. The emission of CO₂ is now (still) free for most companies. With an internal CO₂ measurement system, companies process the cost of emissions in their regular accounts. This has a direct effect on investment decisions: sustainable options become more attractive.

For example, if the price of emissions is to be taken into account when renovating an office building or purchasing a machine, it pays to look for sustainable options. This also applies to travel at the customer's request or to a project. By putting a price on CO₂, it becomes more attractive to meet remotely or to consider alternative travel options. The higher the emission price, the more attractive the sustainable option. An internal CO₂ price on flying will make flights with high total emissions less attractive and a train trip more attractive.

How do you determine the internal CO₂ price? The cost mainly depends on why a company does it. For a CO₂ reduction strategy for our own operations in line with the 1.5 degree climate scenario, the price will be at least 100 euros per metric ton of CO₂. The internal price is therefore much higher than that of CO₂ compensation by purchasing CO₂ certificates. This is determined by supply and demand and by the cost of compensation projects.

The CO₂ costs that arise in this way, possibly after deducting participation in compensation or greening projects, are attributed to the internal 'polluter', and possibly ultimately to the customer. This creates a direct financial incentive to travel less and more sustainably. Companies that charge an internal CO₂ price build up a significant climate budget. This can be invested in sustainable initiatives of many kind.

Good examples: what do companies do?

ClimateFocus, an international climate policy consultancy: 'We pass on an internal CO₂ price to the customer. Our CO₂ price is about 70 euros per ton higher than the price of CO₂ certificates, which are often only 10 euros per ton. We do buy CO₂ certificates, but we donate the difference to other climate projects. Our customers love it, they don't hire us for nothing. Some people are surprised at best, but they also realize that this kind of policy should have been introduced already in the world.'

¹⁴) Climate Neutral Group (z.d.) Wat is 1 ton CO₂? Verkregen via: <https://www.climateneutralgroup.com/nieuws-inzicht/wat-is-1-ton-co2>

Investing in sustainable aviation

Flying will also have a major impact on our environment and climate in the coming decades. Aircraft are becoming more efficient at about 1 percent per year and alternative energy carriers such as synthetic kerosene are being developed. But technical developments are slow, Airbus and Boeing may be able to develop zero emission flying options in one or two decades, but we need to act now to reduce emissions. With the climate budget you build up with an internal CO₂ price, your company can invest in innovation projects that contribute to a more sustainable aviation. Think of research projects and participation in production facilities for sustainable kerosene.

3.4 Changing travel behavior

Finally, achieving a change in behavior among your employees is important in making travel policy more sustainable. Behavioral change occurs in three steps:

- Information and awareness;
- Making sustainable choices possible;
- Steer on behaviour.

Informing and raising awareness

A first step in changing travel behavior is to provide information that allows employees to make a more conscious choice. For example, give employees insight into their travel behavior and the CO₂ they themselves emit. Compare this with the emissions of other colleagues or with the average for the company.

Making sustainable choices possible

The facilitator has an essential role to play in managing behavior: the travel manager. It should ensure that travel policy is actually implemented and that workers can make sustainable choices.

Make sure either your travel manager/agent or the booking tools give your employees insight into travel emissions and the most sustainable way of traveling. Determine how you want the travel agent to support in the implementation of the travel policy e.g. in the conditions for traveling with business class, or by making train travel standard. Make sure they can also facilitate this with the necessary tools, such as an app or a dashboard, to provide insight to travellers about travel information, emissions, et cetera.

Good examples: what do companies do?

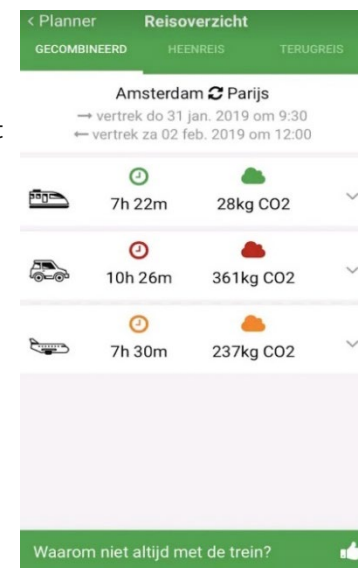
Eva Warmerdam, **ABN AMRO**: 'We are developing a travel dashboard for travel behavior. This is a travel tool that varies by business line. This includes things like CO₂ emissions and long or short flights. It gives an overview of how we stand and where there are still opportunities. This is going to help us manage behavior.'

Elske de Jong, **Arcadis**: 'Through the sustainable travel incentive program (Fynch Mobility), employees can earn points and spend this on gifts in a web shop. You see in the app what your personal target is and if you achieve it, you'll earn points.'

Silke Lepée, **Accenture**: 'Since 2012, we have been holding the "Travel Smart Challenge" every year, so employees can indicate how much travel they have saved in a given period.'

Simone van Engelen, **Strukton**: 'We have developed a travel app called 'Different Travel'. If you want to take a trip, the app shows you options with emissions and travel time. It should make employees more aware and make sure they make a balanced choice for their trip. The app is still being developed.'

Figure 4: Strukton's travel app to the right shows travel time and emissions of different transport options.



Encouraging sustainable travel

There are several ways to control the desired travel behavior of employees. For example, by rewarding desired behavior or by showing exemplary behavior.

Rewarding sustainable choices

Reward employees for their sustainable choices. For example, less flying, more train travel, attending more online seminars and/or flying less in business class. See various measures earlier in this chapter for tips on rewarding desired behavior. For example the recently launched app/ website TripKicks. Tripkicks is a simple add-on that provides actionable insights for trips, guidance on appropriate spend and behavior, and the ability to enhance traveler experience – all while supporting your unique company priorities. <https://www.tripkicks.com/>

Leading by example

When senior figures, such as executives, show that they fly less, about three-quarters of people who know this executive start to think differently about flying.¹⁵

By asking specific people in the organization to become ambassadors of the travel policy, the policy becomes widely known and accepted. For example, ambassadors who use the train to travel to Paris or London can promote the benefits of other means of transport on social media and thus inspire other employees.

The senior members of the company must lead by example and if the travel policy is changed this must apply to all employees across the company. By holding international management consultations digitally this sets a good example.

Limit the incentive of loyalty programs

Most airlines offer a loyalty program or Frequent Flyer Program in order to engage business travelers in particular. Participants of these programs receive frequent flyer miles for each flight which allow them to purchase tickets for private flights or other products. In this way, flying more often is made very attractive. An incentive for non-sustainable behavior which frustrates the policies of employers who are trying to reduce emissions from flying.

Possible measure:

- Establish a code of conduct that agrees that you are not allowed to claim frequent flyer miles for business air travel. If necessary, include such a code of conduct in the employment contract. For example, employees of the Dutch National Government are not allowed to use frequent flyer miles for a private trip or a personal gift. After the permission of an executive, they can be used for new trips. When applying for a foreign trip, employees are reminded in writing.

15) KiM (25 May 2020) On the green tour: the contribution of behavioural interventions to making aviation more sustainable. Obtained through: <https://www.kimnet.nl/publicaties/rapporten/2020/05/25/op-de-groene-toer-de-bijdrage-van-gedragsinterventies-aan-het-verduurzamen-van-de-luchtvaart>



Colophon

This piece is an initiative between Anders Reizen and Natuur & Milieu in cooperation with Climate Neutral Group and Arcadis.

Appearance

DeUitwerkStudio

Contact

Natuur & Milieu

E-mail: info@natuurenmilieu.nl

Telephone: +31 (0)30 233 13 28

Anders Reizen

E-mail: secretariaat@andersreizen.nu

Telephone: +31 (0)34 849 50 47

Knowledge Partners:

