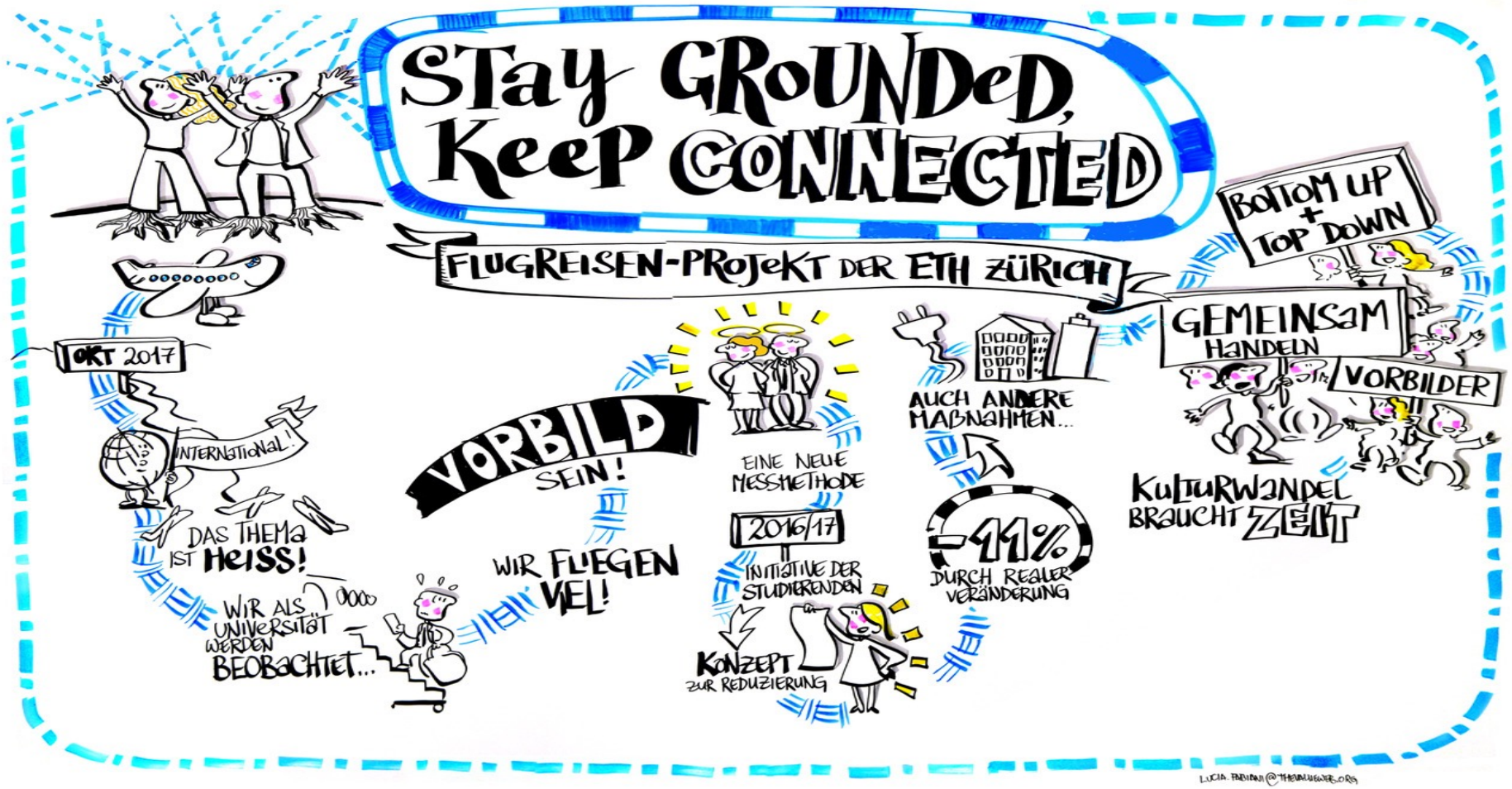
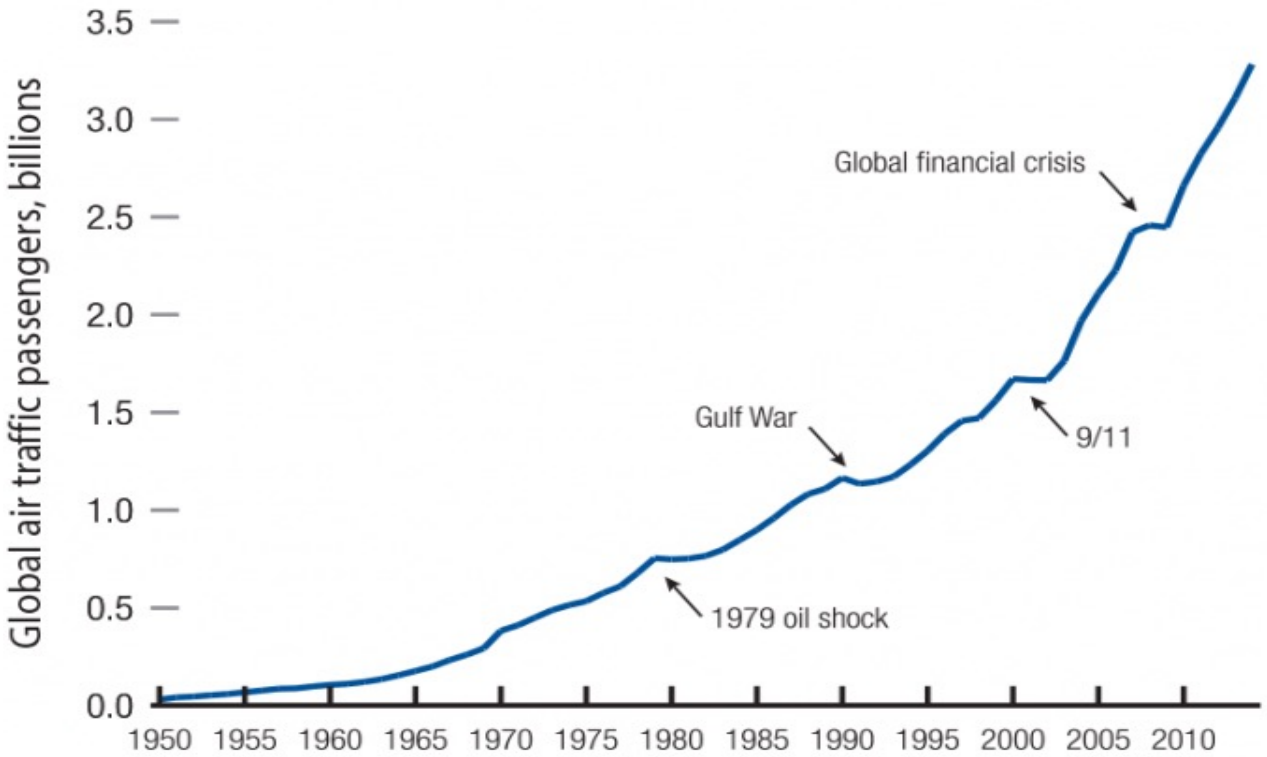


Flight Reduction ETH Zurich, S. Görlinger, www.ethz.ch/airtravel

Development of worldwide air travel since 1950

Figure 1: Global air passenger traffic trend, 1950-2014
(IATA Forecast for 2014)



https://reports.weforum.org/travel-and-tourism-competitiveness-report-2015/chapter-1-4-global-air-passenger-markets-riding-out-periods-of-turbulence/

Why is the reduction of flights relevant for universities?

1. Scientist fly a lot more than the average person (Burian, 2018)*

2. Few (academic) fliers are responsible for most emissions

- Air travel emissions of ~1500 individuals across 8 departments at University of British Columbia (Wynes and Donner, 2018) :
  - 1/3 did not fly
  - 80% emissions by 25% fliers
  - 50% emissions caused by 8% fliers
- Inequality of flight emissions also topic in further studies
  - 1% of world population emits 50% of CO_2 from commercial aviation (Gössling and Humpe, 2020)
  - The top 10% consume ~55% of mobility-related energy (Oswald et al., 2020)
  - Around 75% of flights are taken by 20% of people (Hopkinson and Cairns, 2020)

*https://lup.lub.lu.se/student-papers/search/publication/8947780

Why is the reduction of flights relevant for universities?

3. Leading by example/Trendsetting

"The results of the research suggest that there is an **'appetite for leadership'** when it comes to tackling emissions from aviation … **Leading by example by giving up flying appears to send a powerful and effective message …**"

(Westlake, 2017)

4. Credibility

The public finds scientists who fly less more credible (Attari et al., 2016, Climate Change)

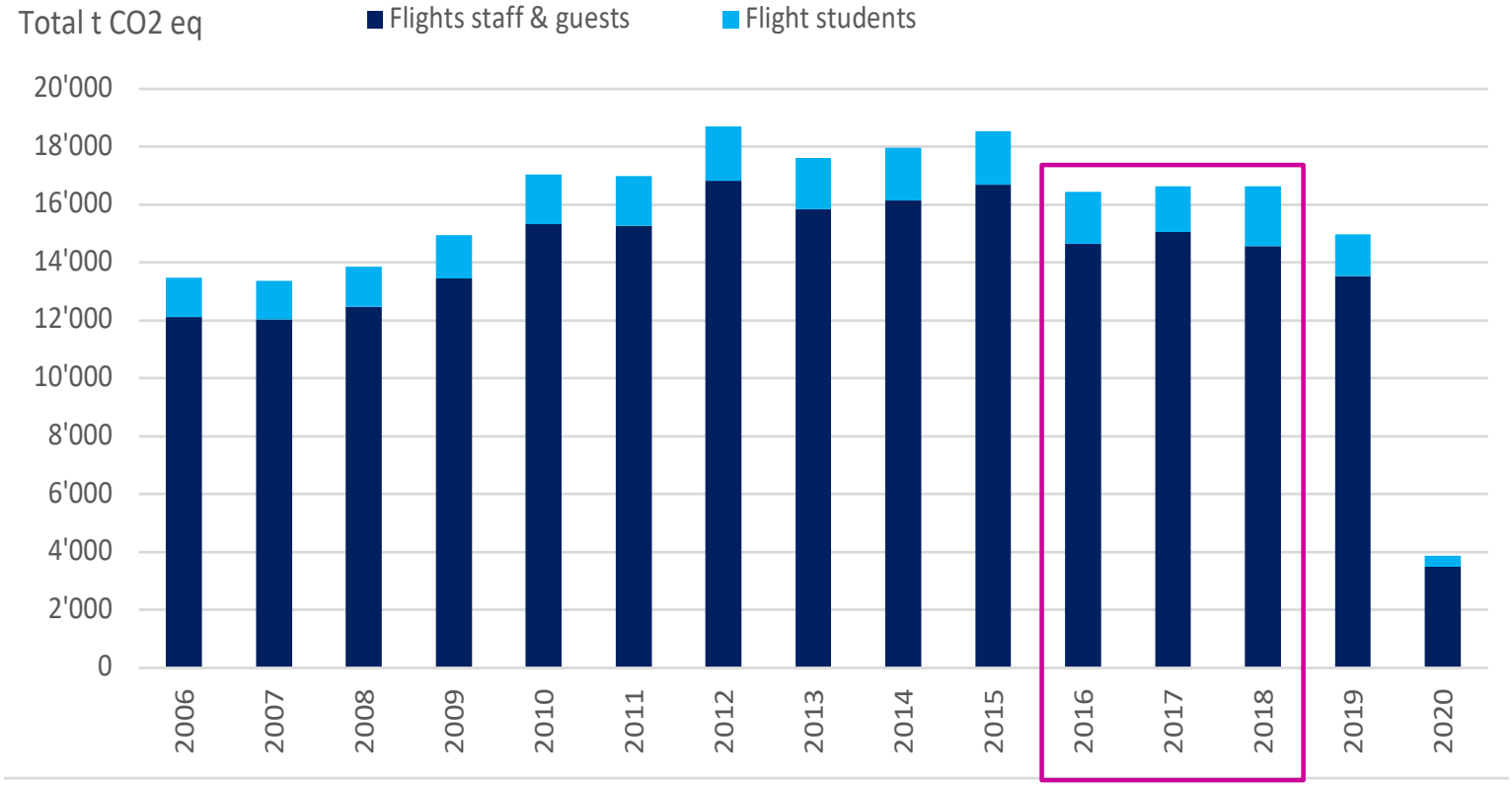
5. Scientific Success:

Academic air travel has limited influence on professional success (Wynes et al., 2019, J. Cleaner Production)

Flight reduction ETH Zurich: Milestones

- Monitoring of GHG emissions business travel since 2006
- More than half of ETH's GHG emissions are from flights (staff, guests, students)
- Over 90% of flights are long distance
- Measures until 2016 (sensitization, workshops, top-down target, etc.) did not result in a reduction
- 2017: ETH Governing board decison (**top-down)**
- 2017/2018: **Bottom-up implementation** by the departments to define their **reduction goal** with respective **measures**
- This led to ETH-wide reduction target of on average 15%, without compensation and the yearly efficiency gains of airlines (otherwise around 25%)
- 2019–2025: Implementation and monitoring

Flight emissions ETH Zurich 2006-2020 total



Flight emissions in t CO_2 eq per year, from 2006 - 2020, for staff, invited guest and students as part of their curriculum

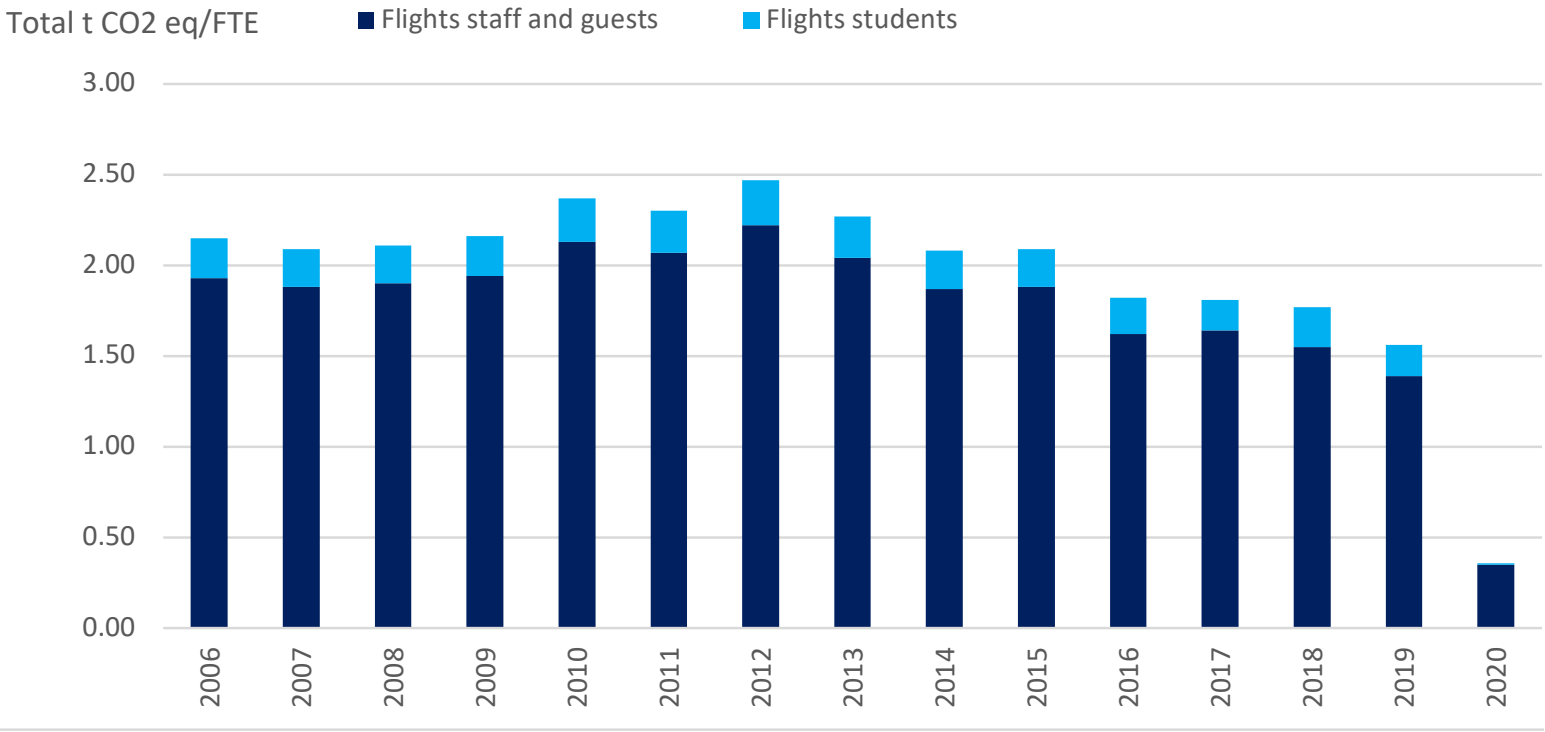
Student flights about 10%

Reduction 2019: 10% compared to the reference period 2016-2018

Reduction 2020: 77%

Source: I. Medhaug

Flight emissions ETH Zurich 2006-2020 per FTE

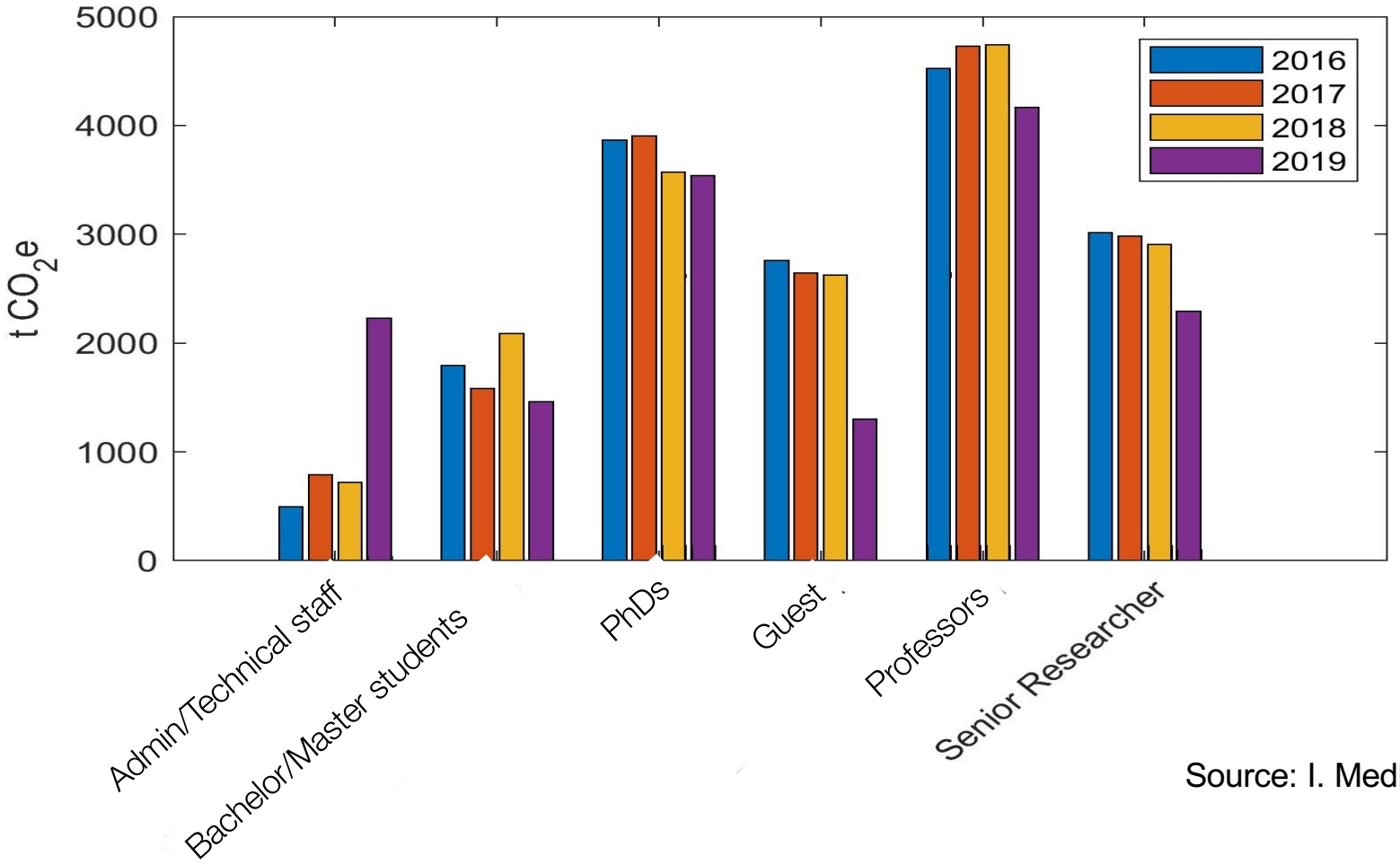


Flight emissions per FTE:
- until 2015 > 2 t/FTE
- 2016-2018: 1.8 t/FTE
- 2019: 1.5 t/FTE

Flight emissions in t CO_2 eq per year and full time equivalent (FTE), from 2006 - 2020, for staff, invited guest and students as part of their curriculum

Source: I. Medhaug

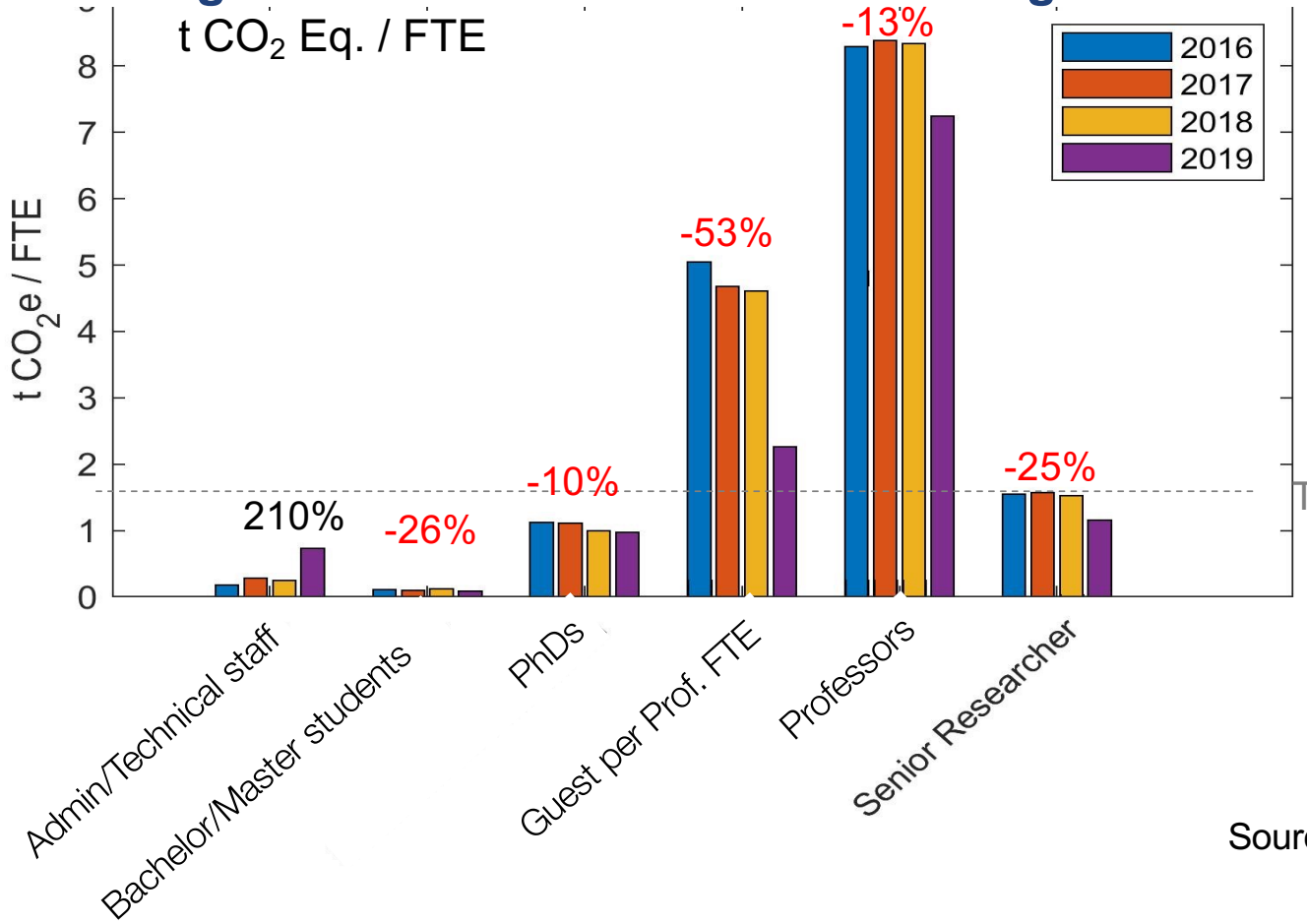
Emissions per group (total): all groups contribute to the emissions



Source: I. Medhaug

… but it looks different per FTE

1 prof = 1.9 guests, 5.6 senior researchers, 7.7 PhDs, 22.4 admin or 78.3 students and in 2019, the strongest reduction occurred for invited guests



Source: I. Medhaug

Survey amongst professors and scientific staff at ETH (A. Kreil)

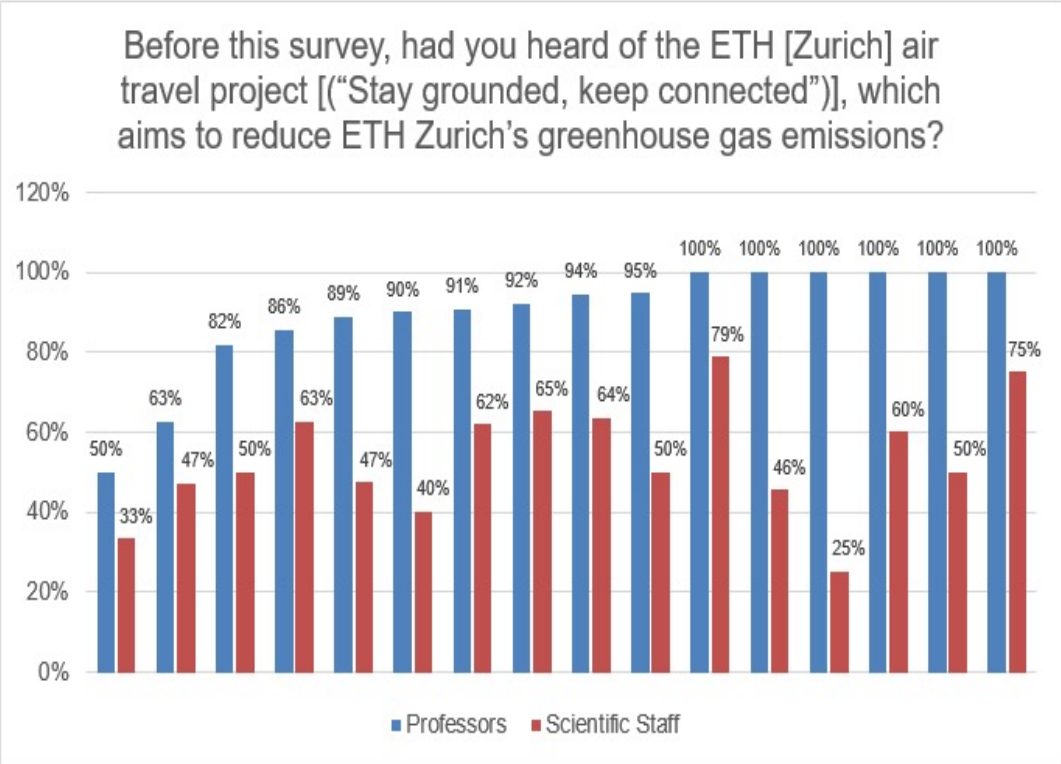
Survey professors (March 2020):

- 92% know the project
- 78% declare that they are ready to reduce their own flights
- 36% already reduced their flights in response to the flight reduction project

Survey scientific staff (Nov 2020):

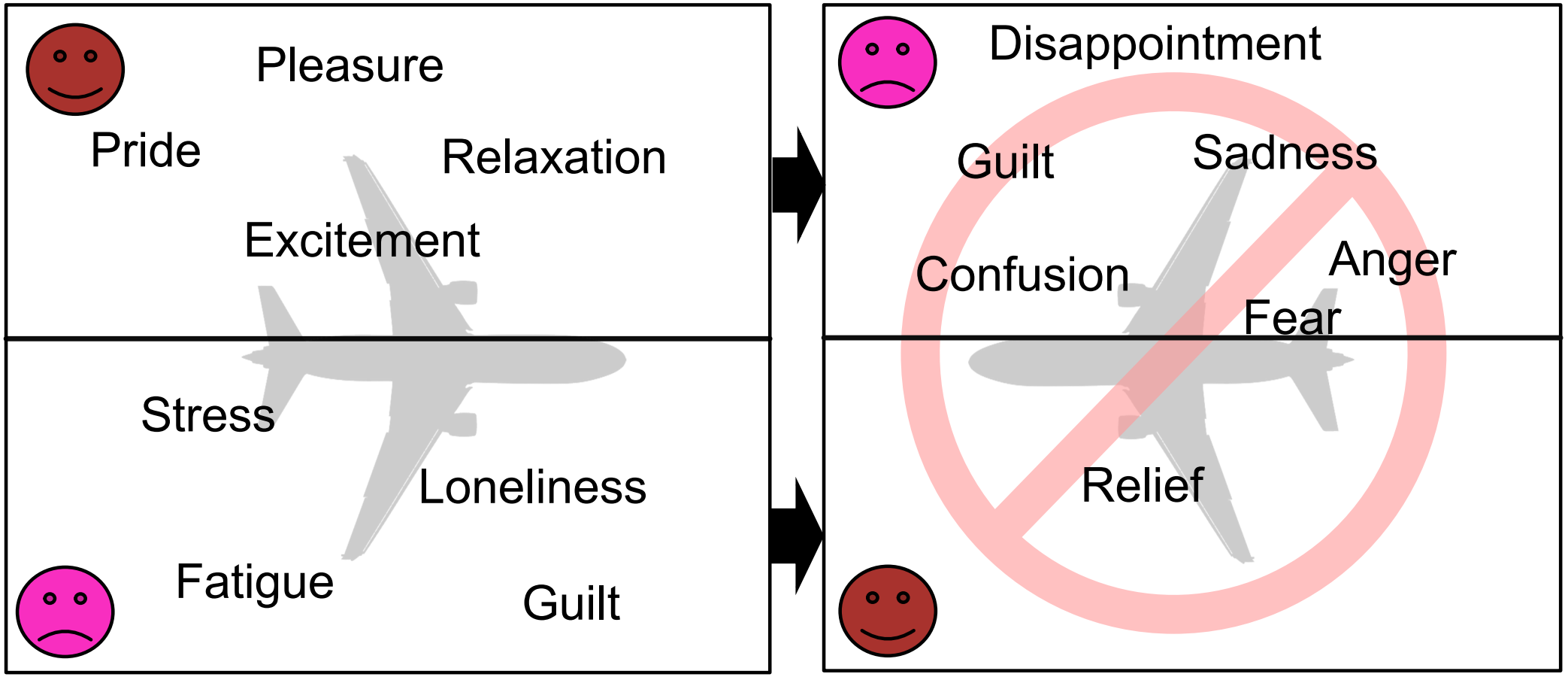
- Project less known than amongst professors
- Most common reduction target: suggestion for 50%

Survey amongst students in June 2021



Source: A. Kreil

The role of emotions in (business) travel



Folie von A. Kreil

Experience with (emotional) responses

Especially at the start of the project in 2017 strong emotions:

- we need to fly to be successful
- we hate flying but sacrifice ourselves for the good of science
- ETH Zurich is best to provide technological solutions
- my contribution is small
- only mediocre researchers want to reduce and support the reduction

Possible reactions to (emotional) responses

- Facts & figures to emphasize importance of topic
- Acknowlegde difficulties
- Role models (respected/top scientists)
- Top down committment and bottom up involvement to support and empower people
- No blaming/finger pointing
- No impedement of career chances of young scientists
- Responsibility as a state funded university
- Support with ideas and tools so people don‘t feel overwhelmed

- Further information: „The role of emotions in Business Travel“ https://www.youtube.com/watch?v=z7ZlJHKnlD8

Lessons Learned

- Top-down support is essential
- Bottom-up travel decisions by individuals → involve all staff and students (not just interested individuals)
- Transparency
- Good database for monitoring
- Important role of champions and influencers, trendsetting
- Networks: common approach of many organisations needed to be successful

Conclusion: cultural change is needed - we have to rethink our scientific system and its current practices such as scientific exchange and conference organisation, teaching, evaluation criteria and funding schemes.


Problem
Opportunity