LAirA
D.T1.3.8

Vienna FUA report on passengers landside
mobility demand, needs & behaviours

Confidential

Content

1. Introduction

The market research department of the Vienna Airport performs passenger surveys every year. Within the framework of the LAirA project, anonymised survey data from April-June 2018 was analysed and provided for the project context. AustriaTech was able to initiate the inclusion of one additional question, covering the reasoning behind mode choices when accessing the Vienna Airport. This report gives an overview on the mode choices of passengers when accessing the airport (solely landside), the reasons behind the mode choice and other relations e.g. to distances travelled or home country.

2. Methodology/Approach

At the Vienna Airport every year a panel of 15,000 local passengers (departing from the airport) is being interviewed towards their air travel characteristics (e.g. consumer behaviour at the airport, mode choice when traveling to the airport, level of satisfaction with the airport's services). Survey participants are chosen representatively for the flight destinations and are being interviewed at the departure gates. Data includes national and international passengers, who departure from the Vienna Airport (airside). The Vienna Airport's market research department provided raw data for the period April-June 2018 and AustriaTech evaluated them with the programs IBM SPSS Statistics and Microsoft Excel. The origin data is available in German language. For the LAirA report, variables and evaluation results from the Vienna Airport survey were translated to English.

The data set that was chosen for this report covers 3900 survey participants in total. Before starting with the analysis, some adjustments within the data set were made. As LAirA exclusively considers landside access, survey participants that arrived by plane at the Vienna International Airport were excluded from this analysis; in total data from 3141 survey participants, questioned from April-June 2018, were used for further analyses.

The following variables were considered for the analysis:

- Transport mode (e.g. private car, public bus, city airport train)
- Reason for mode choice (e.g. fastest transport mode, habit, convenient)
- Home country (e.g. Austria, Hungary, Italy)
- Distance travelled to airport (e.g. up to 25 km, between 26-100 km)
- Trip purpose (e.g. business, visiting family/friends, city trip, holiday)-

All data that is used for this report was conducted and provided by the market research department of the Vienna International Airport and can only be used for the purpose of this D.T1.3.8 LAirA report.
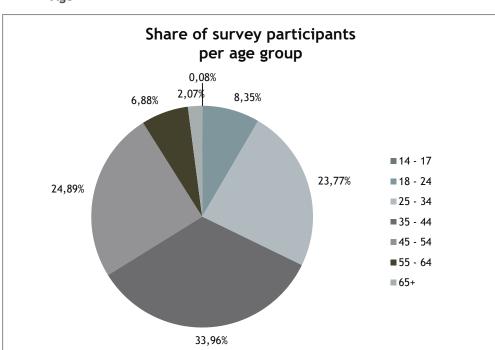
3. Travel needs of passengers in the FUA of Vienna

In 2017 the Vienna International Airport counted 24.4 Mio passengers per year (6.4 Mio are transfer passengers[1]), whereas Austrian Airlines, Eurowings and easyJet are mainly responsible for the passenger growth. The destinations with the highest share of outgoing passengers in 2017 were London (602,923 passengers), Frankfurt (597,923 passengers) and Zurich (496,935 passengers). The airport of Vienna serves 195 destinations in 70 countries.[2] For example, on 29th of July 2018, the Vienna International Airport counted the daily passenger record of 100,229 passengers (inbound, outbound, transfer).[3]

Demographic description of survey sample

When only considering the (non-weighted) data from April-June 2018 (Q2 2018), details on the survey sample can be given: age, gender, and nationality.

- **Age**

Referring the age, most survey participants were between the ages of 25 – 34, 35 - 44 and 45 – 54. In total these groups represent more than 80% of the total survey sample. It might be assumed that in general middle aged people are flying more often and that the groups under 24 and the group 65+ are less often travelling by plane.

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[1] https://www.viennaairport.com/jart/prj3/va/uploads/data-uploads/Konzern/Investor%20Relations/Geschaeftsberichte/GB_2017_de.pdf (25.09.2018)
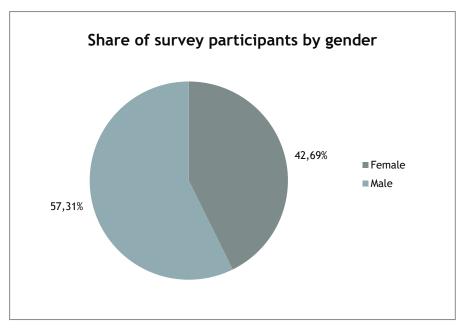
[2] https://www.viennaairport.com/unternehmen/investor_relations/news/verkehrsergebnisse?news_beitrag_id=1516031056393

[3] https://www.viennaairport.com/unternehmen/investor_relations/news/verkehrsergebnisse?news_beitrag_id=1534767516042 (25.09.2018)

- **Gender**

Share of survey participants by gender

42,69%
■Female
■Male

57,31%

The gender distribution shows that 43% of the interviewees were female and 58% were male. The difference is small. It is not possible to say why more male people than female people participated in the survey and if there is a reference to the distribution of man and female passengers on the airport in general.

- **Nationality**

The evaluation of the survey shows that most of the people traveling from the Airport of Vienna have a Austrian or German nationality. The Austrians make 48% and the Germans make 11% of the total amount of passengers. The groups of interviewees from other countries are represented approximately in the same percentage (between 1% and 3%).

4. Travel behavior FUA Vienna

In this analysis (A) yearly data (between 2014 and 2017) and (B) specific (non-weighted) data from Q2 2018 also including reasoning behind mode choice are considered.
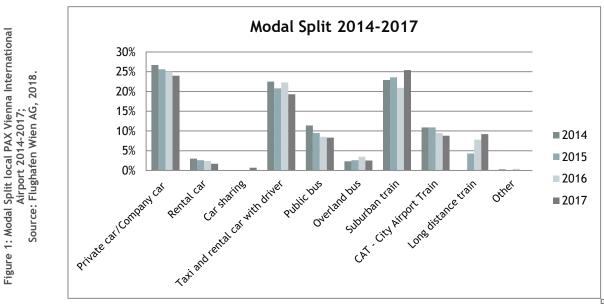
Modal split data between 2014 and 2017 (outbound passengers accessing the VIE via landside)

Transport Mode	2014	2015	2016	2017
Private car/Company car	26,70%	25,60%	25,00%	24,00%
Rental car	3,00%	2,60%	2,40%	1,70%
Car sharing		*Not collected*		0,70%
Taxi and rental car with driver	22,50%	20,80%	22,30%	19,30%
Public bus	11,40%	9,50%	8,50%	8,30%
Overland bus	2,30%	2,60%	3,50%	2,50%
Suburban train	22,90%	23,60%	20,90%	25,40%
CAT - City Airport Train	10,90%	10,90%	9,50%	8,80%
Long distance train	*Not collected*	4,30%	7,80%	9,20%
Other	0,30%	0,10%	0,40%	0,10%

The table shows that outbound passengers accessing the airport via landside are mostly arriving by "suburban train" followed by "private/company car" (ca. 25% in each case in the year 2017). Referring to the annual distribution the passengers arriving by train are continuously increasing, whereas the share arriving by car is continuously declining.

Approximately in the same range the transport mode "taxi and rental car with driver" can be found (ca.19% in the year 2017). Except from the year 2016, when there was a growth in the percentage of people arriving by "taxi or rental car with a driver", this mode experiences a continuously decline.
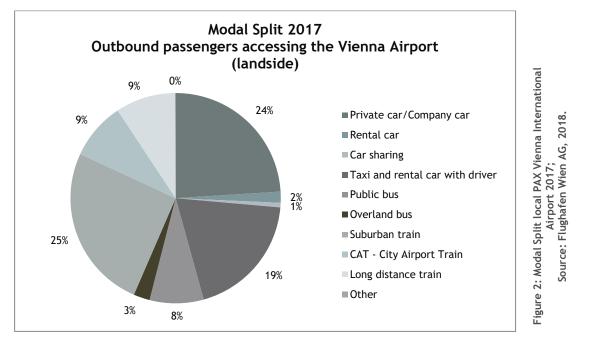
Currently a reduction of the individual arrival at the airport can be identified and simultaneously there is an increase of the usage of public train when accessing the airport via landside. Thereby the percentage of the CAT users is declining.

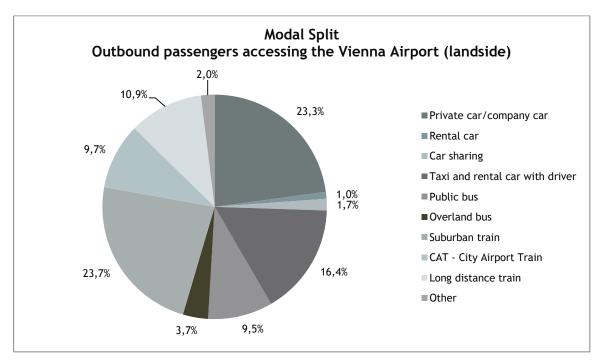The figure below shows data of the modal split 2014-2017 of airport accessing passengers.

Figure 1: Modal Split local PAX Vienna International Airport 2014-2017; Source: Flughafen Wien AG, 2018.

Modal split data 2017 (outbound passengers accessing the VIE via landside)

When accessing the VIE via landside, the modal split shows that in 2017 the three mainly used transport modes are the "suburban train", the "private or company car" and the "taxi or rental car with a driver".

Modal split data April-June 2018 (outbound passengers accessing the VIE via landside, N=3135)

When looking at the outbound passengers accessing the VIE via landside in Q2 2018, the trend identified in the previous analysis with the yearly data is persisting. Also here the three transport modes "private or company car" (23%), "taxi and rental car with driver" (16%) as well as "suburban train" (24%) are represented the most.

Transport mode and reasoning for mode choice (outbound passengers accessing the VIE via landside, April-June 2018, N=3135)

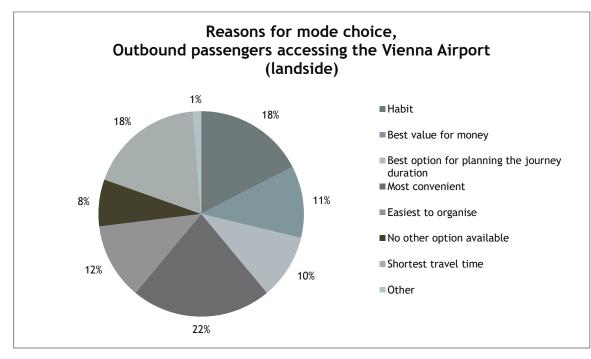| Reason for mode choice	Responses (up to 3 answers possible, N=3135)
Habit	26,9%
Best value for money ration	17,5%
Best option for planning the journey duration	15,7%
Most convenient	34,1%
Easiest to organise	18,5%
No other option available	11,4%
Shortest travel time	28,2%
Other	2,0%

Furthermore the survey investigated the passenger's mode choice decisions and the reason behind it. It was possible to choose up to three answers, which were specified in advance. The interviewees also had the opportunity to indicate additional reasons for their transport choice. Most frequently following reasons were mentioned (in the order of frequency):

- Most convenient
- Shortest travel time
- Habit
- Easiest to organise
- Best value for money ratio
- Best option for planning the journey duration
- No other option available
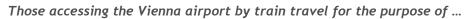- Other (e.g. company's car or accompaniment)

The figure below illustrates the share amongst the reasons for mode choices of Vienna Airport passengers.

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**Reasons for mode choice,
Outbound passengers accessing the Vienna Airport
(landside)**

- Habit
- Best value for money
- Best option for planning the journey duration
- Most convenient
- Easiest to organise
- No other option available
- Shortest travel time
- Other

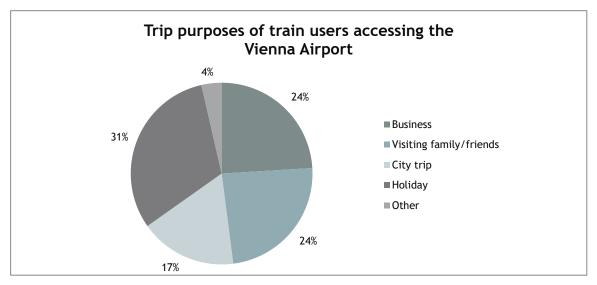1%
18%
18%
11%
8%
10%
12%
22%

The figure above shows the percentage of how many times a reason was indicated for the passengers transport mode choice. Three reasons are striking out the most. That is the "habit", which was indicated by 18% of the interviewed passengers, then it is the reason that the transport mode is the "most convenient", which was indicated by 22% of the interviewed passengers and also the reason "shortest travel time" was indicated by 18% of the interviewed passengers.

Those accessing the Vienna airport by train travel for the purpose of …

**Trip purposes of train users accessing the
Vienna Airport**

- Business
- Visiting family/friends
- City trip
- Holiday
- Other

4%
24%
31%
17%
24%

As the public transport and especially the low emission transport is big part of the LAirA project furthermore it was interesting to analyse those passengers accessing the Vienna airport **by train** in detail. That is why the trip purpose of the train users was interrogated in addition. The evaluation shows a quite equal distribution of the answers. 24% of the interviewed passengers indicated "business" and "visiting family or friends" in each case as their trip purpose. 17% of the interviewed passengers made a "city trip". The biggest group was the one going on "holidays", as it was the trip purpose of 31% of the interviewed passengers. 4% of the passengers arriving at the airport by train had another reason for travelling.

Transport mode and home country (outbound passengers accessing the VIE via landside, April-June 2018, N=3135, Top 3 per country

Country	Top 3 transport modes (chosen by outbound passengers) for accessing the airport (landside)
Austria	30% - Private car/Company car 27% - Suburban train 10% - Taxi and rental car with driver
Germany	24% - Suburban train 17% - Private car/Company car 16% - Taxi and rental car with driver
Italy	27% - Suburban train 16% - Taxi and rental car with driver 15% - CAT (City Airport Train)
Hungary	45% - Private car/Company car 20% - Public bus 14% - Suburban train
UK (similar ranking from 2nd place on)	17% - Suburban train 15% - Taxi and rental car with driver
France (similar ranking from 2nd place on)	22% - CAT (City Airport Train) 16% - Suburban train
Slovakia	33% - Public bus 27% - Private car/Company car 17% - Overland bus
Poland	30% - CAT (City Airport Train) 20% - Overland bus 20% - Suburban train
Other EU 28 states	25% - Suburban train 16% - CAT (City Airport Train) 13% - Taxi and rental car with driver

The three most chosen transport modes for accessing the Vienna airport were analysed per country (EU 28 states). What is remarkable is that the "suburban train" is under the top 3 in each country (except from Slovakia) and in the majority of the countries the mode is mentioned with more than 20%.

The transport mode "taxi and rental car with driver" is the second most common answer when comparing passengers of these countries.

Also the "private or company car" in most of the countries is under the top 3 transport modes chosen for travelling to the Vienna airport. This transport mode also gets a quite high percentage in relation to the others.

Compared to the overall evaluation Austria has the same top 3 transport modes for travelling to the Vienna airport. But it is remarkable that there are more people using the "private car" for accessing the airport than using public transport as the "suburban train". Additionally it is remarkable that the 3rd place is occupied by "taxi and rental cars with drivers" and not by another mode of public transport as the distance to the airport might be lower than comparing with e.g. Slovakia where the "public or overland bus" takes a substantial part.
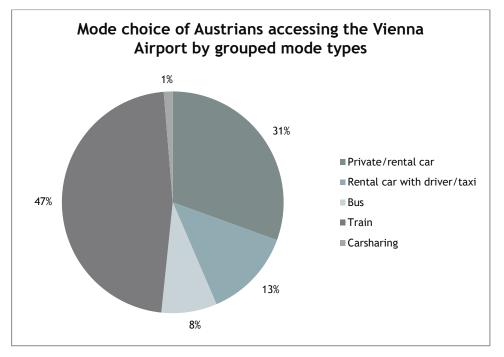
Also the "CAT (City Airport Train)" is mentioned quite often. A quite high percentage of passengers (15% - 30%) from four countries (including other EU 28 states) indicated the "CAT" as one of the top 3 chosen transport modes for accessing the airport.

Top 3 reasons for mode choice per nationality among all transport modes (outbound passengers, accessing the VIE in Q2 2018)

Selected countries	1st	2nd	3rd
Austria	Most convenient	Habit	Shortest travel time
Germany	Shortest travel time	Most convenient	Habit
Hungary	Easiest to organise, Shortest travel time	No other option available	Best option for planning the journey duration
UK	Shortest travel time	Most convenient	Easiest to organise
Other EU 28 states	Easiest to organise	Most convenient	Shortest travel time

The table above shows the top 3 reasons for the transport mode choice per nationality of the outbound passengers. Regardless of which rank the criteria got, the reason "shortest travel time" was most frequently mentioned. Thereby this reason made the first rank by three nationalities. Also the reasons "most convenient" and "easiest to organise" played an important role in this analysis.

Grouped transport modes (car, rental/taxi, bus, train, carsharing) among Austrians accessing the Vienna Airport
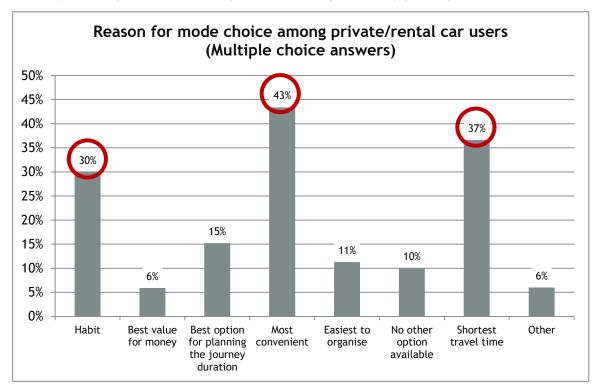

Taking out only the Austrians and their mode choice (transport modes were grouped in 5 types, see figure above) for accessing the Vienna Airport 31% of the interviewed passengers were arriving by

"private/rental car", only 13% were arriving by "rental car with a driver/taxi" and the train was mentioned the most with 47% of the Austrian passengers arriving at the airport by "train". Only 8% of the Austrian passengers arrived by "bus" at the airport and further 1% of the Austrians accessed by "Carsharing".

Reason for transport mode choice per mode among all survey participants

Reason for mode choice among private/rental car users (Multiple choice answers)
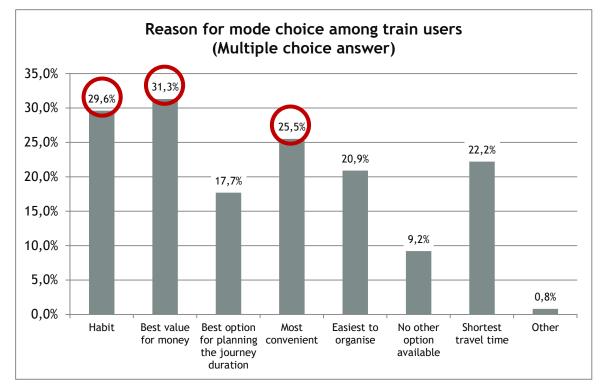
The figure above is showing that the top 3 reasons for using the Private or Rental car for accessing the Vienna Airport are because it is "most convenient", it takes the "shortest travel time" and because it is the passenger's "habit" (descending order).

"Other" reasons in this case were: **company's car** or **accompaniment.**

Train (including CAT)

Reason for mode choice among train users
(Multiple choice answer)

According to the diagram above the three most common reasons for passengers arriving at the Vienna Airport by train (including CAT) are that it is the "best value for money", it is the passenger´s "habit" and that the train is "most convenient" (descending order). Comparing the two evaluations the reason "best value for money" is especially striking out. In the category of the individual transport it got only a very small percentage, but then again regarding the public transport the criteria "best value for money" got the highest percentage when reasoning the choice of transport mode. The criteria "habit" was pronounced by approximately 30% of the passengers in both transport modes.

Car users per time of the day

Based on the collected data it is not possible to identify a certain day time, when arriving at the Vienna Airport by "private or rental car" make up a considerable part in the survey.
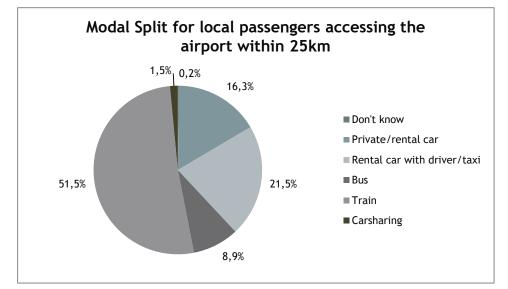
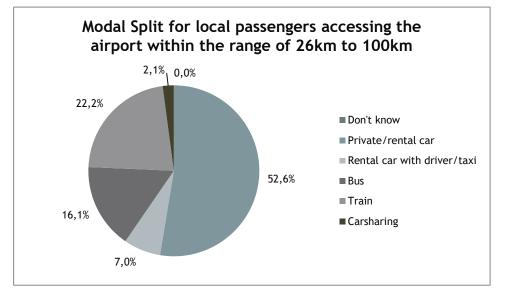An evaluation of the passengers arriving by "taxi" neither shows a peak among the day time.

In general there are no tendencies visible that certain modes for accessing the Vienna Airport are chosen at certain times of the day.
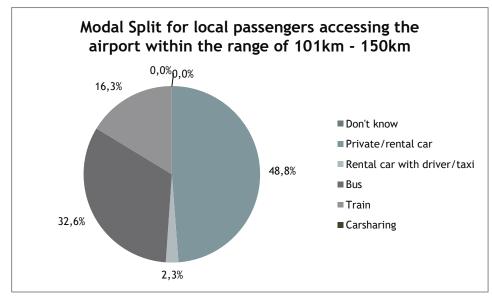
Distance and transport mode

Modal Split for local passengers accessing the airport within 25km

- Don't know
- Private/rental car
- Rental car with driver/taxi
- Bus
- Train
- Carsharing

1,5% 0,2% 16,3% 21,5% 8,9% 51,5%

Modal Split for local passengers accessing the airport within the range of 26km to 100km

- Don't know
- Private/rental car
- Rental car with driver/taxi
- Bus
- Train
- Carsharing

2,1% 0,0% 22,2% 16,1% 7,0% 52,6%

Modal Split for local passengers accessing the airport within the range of 101km - 150km

- Don't know
- Private/rental car
- Rental car with driver/taxi
- Bus
- Train
- Carsharing
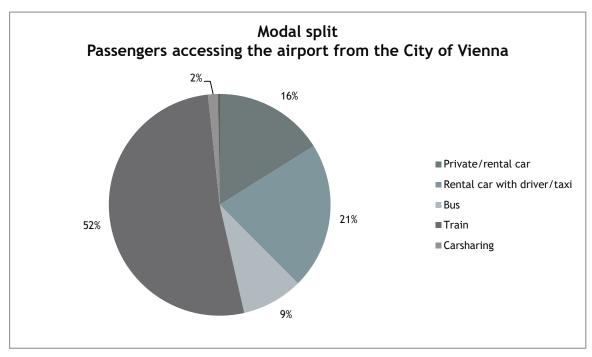
0,0% 0,0% 16,3% 32,6% 2,3% 48,8%

Comparing the choice of transport mode in relation to the distance travelling to the airport (see three figures above), there are differences to be recognised. What is significant, is that passengers accessing the airport from destinations less than 25 km away the largest share in transport mode usage makes the "train" with 52%.

As the diagrams show, for local passengers accessing the airport from distances more than 25 km the transport mode "private or rental car" is clearly increasing. It is striking that at a range within 26 – 100 km the "private or rental car" share is even larger than at distances wider than these.

Further it is remarkable that comparing the share of "bus" usage the largest distances (range within 101 – 150 km) have the most people travelling by "bus" to the Vienna Airport.

"Carsharing" does not take a part at all for passengers accessing the airport within the range of 101 – 150 km. Neither for shorter distances travelling to the Vienna Airport "Carsharing" makes the smallest part.

Vienna case

Modal split
Passengers accessing the airport from the City of Vienna

Legend:
- Private/rental car
- Rental car with driver/taxi
- Bus
- Train
- Carsharing

Taking solely a look at the passengers arriving at the Vienna Airport from Vienna it is significant that the transport mode "train" takes 52%, which means that more than half the passengers is travelling by "train" to get to the airport from the city (see figure above). In comparison the "bus" only makes a small proportion with 9% of the passengers accessing the airport by "bus".
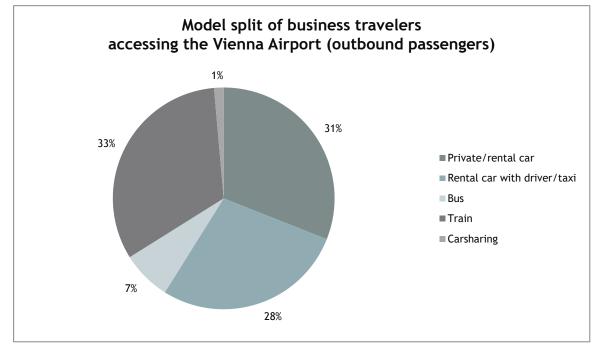
As already shown above, also in this category "carsharing" has no significant part.

The categories "private and rental car" (16%) as well as "taxi and rental car with driver" (21%) also make an important share of the total.

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Example business trips

**Model split of business travelers
accessing the Vienna Airport (outbound passengers)**

- 31% Private/rental car
- 28% Rental car with driver/taxi
- 7% Bus
- 33% Train
- 1% Carsharing

The evaluation, of the model split of business travellers accessing the Vienna Airport, is showing that the parts of the categories "private/rental car", "taxi and rental car with driver" and also the category "train" take proportionally the same parts with around 30%. Compared to all travellers, business travellers especially use "rental cars" or "taxis" for accessing the airport.

5. Conclusio

The aim of the report was to analyse the mobility demand of passengers accessing the Vienna Airport via landside. Furthermore the purpose of the investigation was to learn more about the needs and behaviours regarding the passengers´ mobility habits. The intention is to show up the current situation as well as which transport modes are used primary for accessing the Vienna Airport via landside.

The survey shows that 42% of those accessing the airport by car are travelling for business reasons. In comparison 25% of those arriving by car are visiting friends or family and additional 21.5% are on holidays. This shows that the largest amount of the car users is the one travelling for business reasons which can be related to the reasons for choosing this transport mode. The two main reasons for choosing the car are because it is "most convenient" and takes the "shortest travel time". Especially the reason "shortest travel time" in this case is plausible, as today's business people try to lose as less time as possible. That is why it is important to strengthen all transport modes and reinforce people's awareness of what options they have.

What is striking out further more is that passengers travelling from distances up to 25 km, most of them are choosing the train for accessing the Vienna Airport via landside. Regarding distances higher than 25 km there is a significant tendency towards car usage. The analysis shows that passengers arriving from distances higher than 25 km the decision on choosing the transport mode "car" is rising up to around 50%.

Moreover it is clearly visible that passengers from neighbour FUAs (e.g. Slovakia, Hungary) are primarily using the car for accessing the Vienna Airport. It can be assumed that this is whether because there are no other options of transport modes or because receiving the information on what other transport modes would be possible for getting to the Vienna Airport is plagued by obstacles or not/hardly possible.

In general there is a quite high percentage on "taxi and rental car with driver" users.

Taking a look on other foreigners, it can be identified that those are more or less people travelling home from Vienna or the Vienna Airport. It is assumed that these passengers are already aware of the transport supply for accessing the Vienna Airport.

A more detailed analysis of the Austrians accessing the Vienna Airport shows that their purpose for travelling by plane mostly is for business or holiday reasons. A high share of the business travellers is accessing the airport by car (roughly a third). Hence, this group might be an interesting audience for further investigation and interventions when it comes to behavioural change ambitions.

It is always important to know why people behave the way they do and for finding appropriate strategies for behavioural change. As mentioned in the beginning, it was necessary to include a question regarding the purpose for the participants´ transport mode choice. Evaluating this question in relation to the chosen transport modes "train" and "car" results show that passengers using the train most commonly choose this transport mode because of the "best value for money". This reason is indicated by more than 30 % of the survey participants. Then again the reasons "most convenient" as well as "shortest travel time" were indicated by the majority of the survey participants for choosing the car to travel to the Vienna Airport.

Nevertheless it is important to know what the motives behind these answers are. If the choice of one transport mode includes the shortest travel time it may also be the most convenient transport mode, but it not necessarily has to. For example it is possible that driving by car for a person is the most convenient transport mode but although it takes more time than taking the train this person prefers the car anyway, because the person prefers driving alone and not depending on the departure times of public transport. These motives are assumptions, which can´t be analysed within this quantitative survey. For interpreting these motives an additional survey would be necessary.

6. References

- Flughafen Wien AG, 2017. Modal Split 2014_2017. Internal document.
- Flughafen Wien AG, 2018. Selected data from May 2018 passenger survey. Internal document.