




OLEKSIY DANILIN, Business Analyst

## CUSTOMER SEGMENTATION FOR THE REWARDS PROGRAM: Data Analysis and Feature Engineering

May 2024

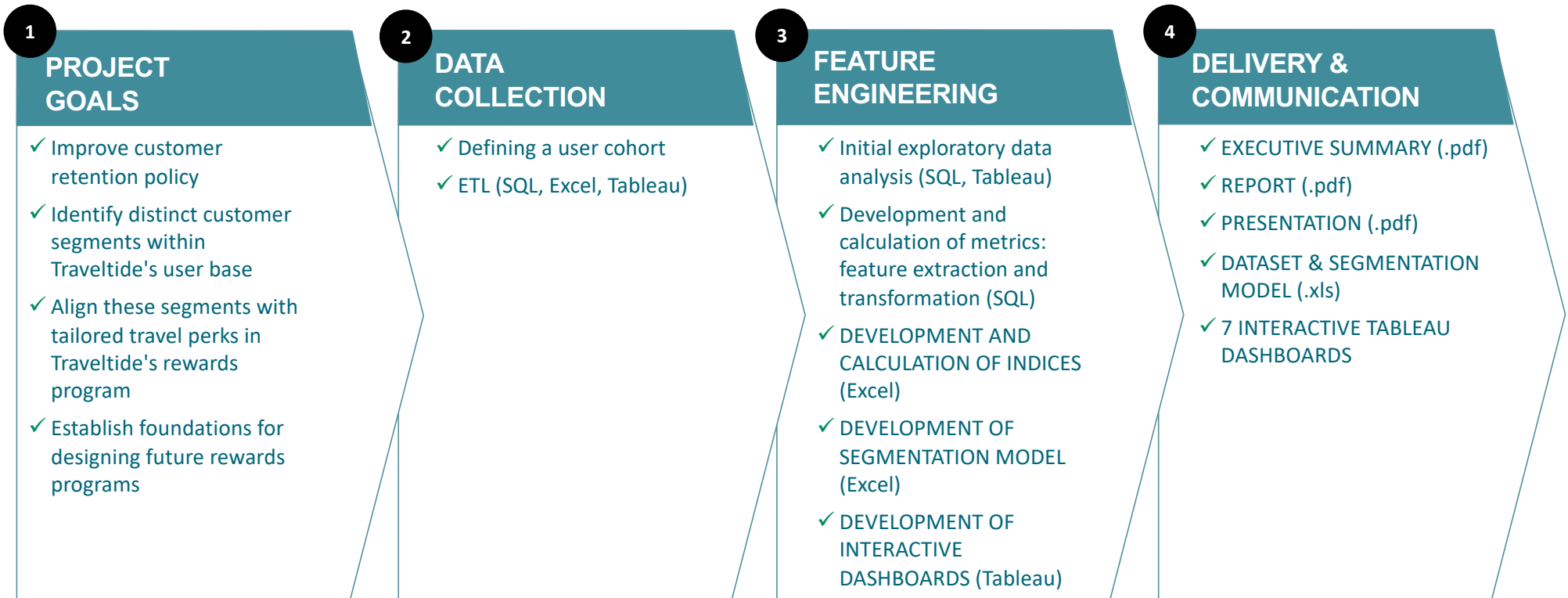
Prepared for:

 Masterschool



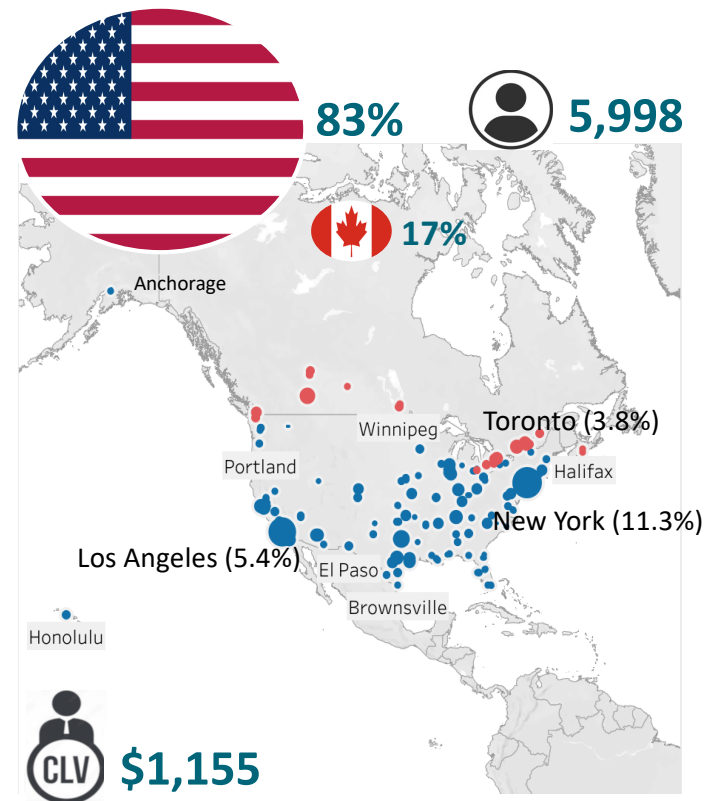
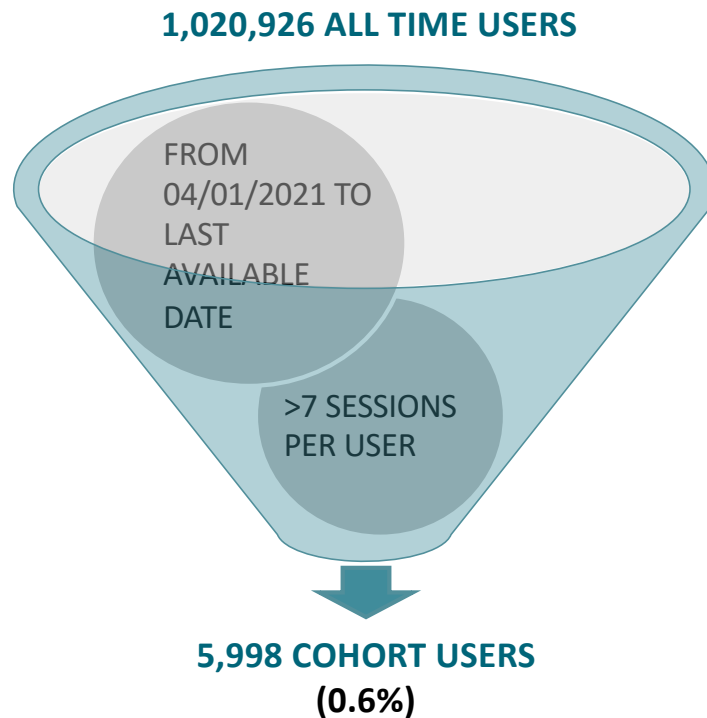
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## PROJECT GOALS AND WORKFLOW



## USER COHORT DEFINITION AND GEOGRAPHIC DISTRIBUTION

A SMALL AND RATHER NON-REPRESENTATIVE COHORT, UNEVENLY DISTRIBUTED BETWEEN THE USA AND CANADA





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## AT THE FIRST STAGE OF FEATURE ENGINEERING, NO PRINCIPAL DIFFERENCES IN THE CUSTOMER BEHAVIORAL PATTERNS BETWEEN THE US AND CANADA WERE FOUND

### KEY FEATURE ENGINEERING INPUT METRICS

DEMOGRAPHY	BROWSING, CONVERSION, VALUE
<ul style="list-style-type: none"><li>✓ AVERAGE AGE: <b>40.8</b></li><li>✓ FEMALE: <b>88%</b></li><li>✓ MARRIED: <b>44%</b></li><li>✓ HAS CHILDREN: <b>33%</b></li></ul>	<ul style="list-style-type: none"><li>✓ AVERAGE # OF SESSIONS: 8.2</li><li>✓ AVERAGE SESSION DURATION: 3.1</li><li>✓ AVERAGE # OF CLICKS: 14</li><li>✓ CONVERSION RATE (BOOKINGS AS % OF SESSIONS): 36.9%</li><li>✓ CUSTOMER LIFETIME VALUE: \$1,155</li></ul>
BOOKING PATTERNS	TRAVEL PATTERNS
<ul style="list-style-type: none"><li>✓ AVERAGE # OF BOOKINGS: 2.8</li><li>✓ COMBINED BOOKING, SHARE: 75%</li><li>✓ AVERAGE FLIGHT COST: \$538.5</li><li>✓ AVERAGE HOTEL COST: \$178.3</li><li>✓ AVERAGE HOTEL STAY: 3.9 days</li><li>✓ CANCELLATION RATE: 3.6%</li></ul>	<ul style="list-style-type: none"><li>✓ RETURN FLIGHTS: 96%</li><li>✓ DOMESTIC FLIGHTS, SHARE (US): 77%</li><li>✓ DOMESTIC FLIGHTS, SHARE (CA): 18%</li><li>✓ INTERNATIONAL TRAVEL OUTSIDE NORTH AMERICA: only 3% of flights</li></ul>

AS A RESULT OF COUNTRY PROFILES' SIMILARITY, WE DECIDED NOT TO PROCEED WITH CREATING TWO SEPARATE SEGMENTATION MODELS



### AVERAGE USER'S PROFILE

- A single woman of 40.9 years with no children who made 2.8 bookings within the study time, 75% of which are combined.
- Generated CLV of US\$ 1,146 within the study period.
- Prefers to travel alone, mostly within the US ( 77 % of flights), to Canada ( 20%), and other countries ( 3 %).
- Flights are mostly returned ( 96%), with the average cost standing at US\$ 540.
- The hotel cost stands at US\$ 178 per night, with 3.9 nights of stay on average.



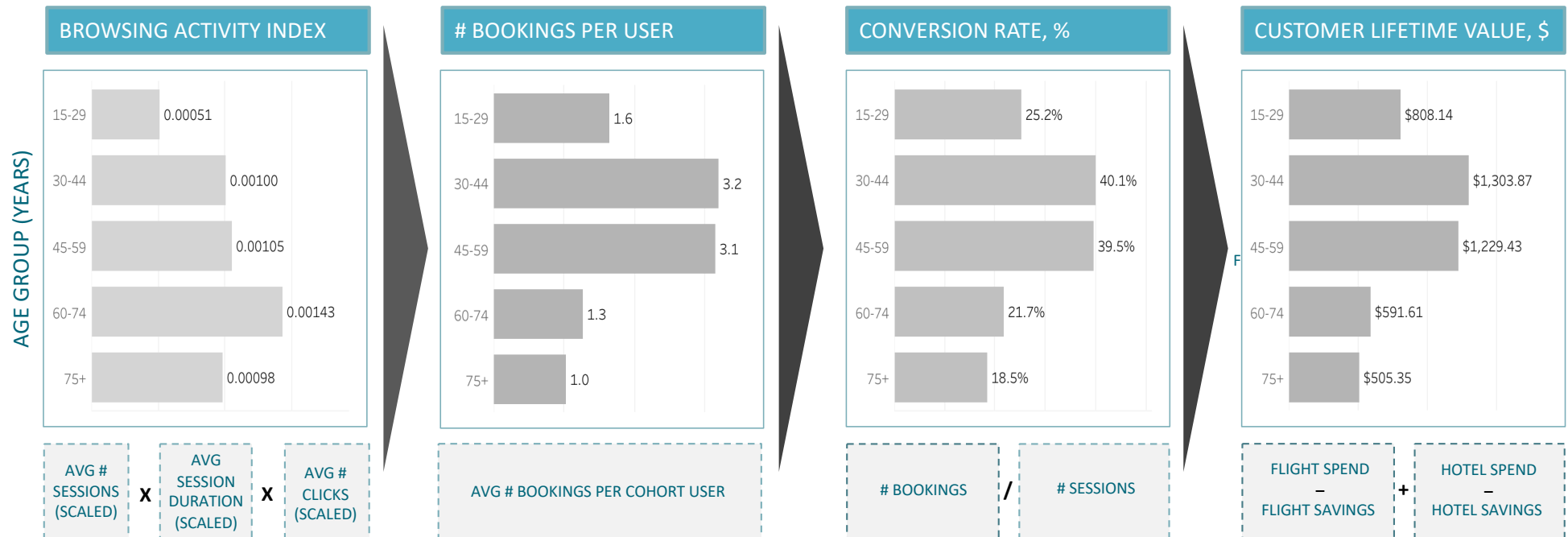
### AVERAGE USER'S PROFILE

- A single woman of 40.1 years with no children who made 2.9 bookings within the study time, 76% of which are combined.
- Generated CLV of US\$ 1,202 within the study period.
- Prefers to travel alone, mostly to the US ( 79 % of flights), inside Canada ( 18 %), and to other countries ( 3 %).
- Flights are mostly returned ( 95%), with the average cost standing at US\$ 530.
- The hotel cost stands at US\$ 179 per night, with 3.8 nights of stay on average.



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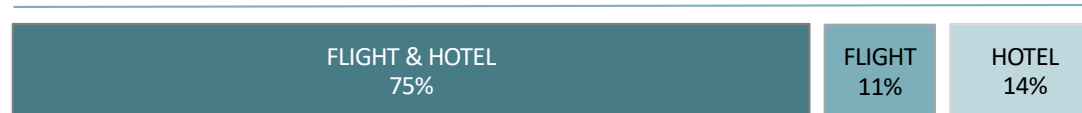
## BABY BOOMERS (60-74 YEARS) EXHIBIT THE HIGHEST BROWSING ACTIVITY, BUT THIS ENGAGEMENT DOES NOT TRANSLATE INTO THE HIGHEST BOOKING ACTIVITY OR CLV



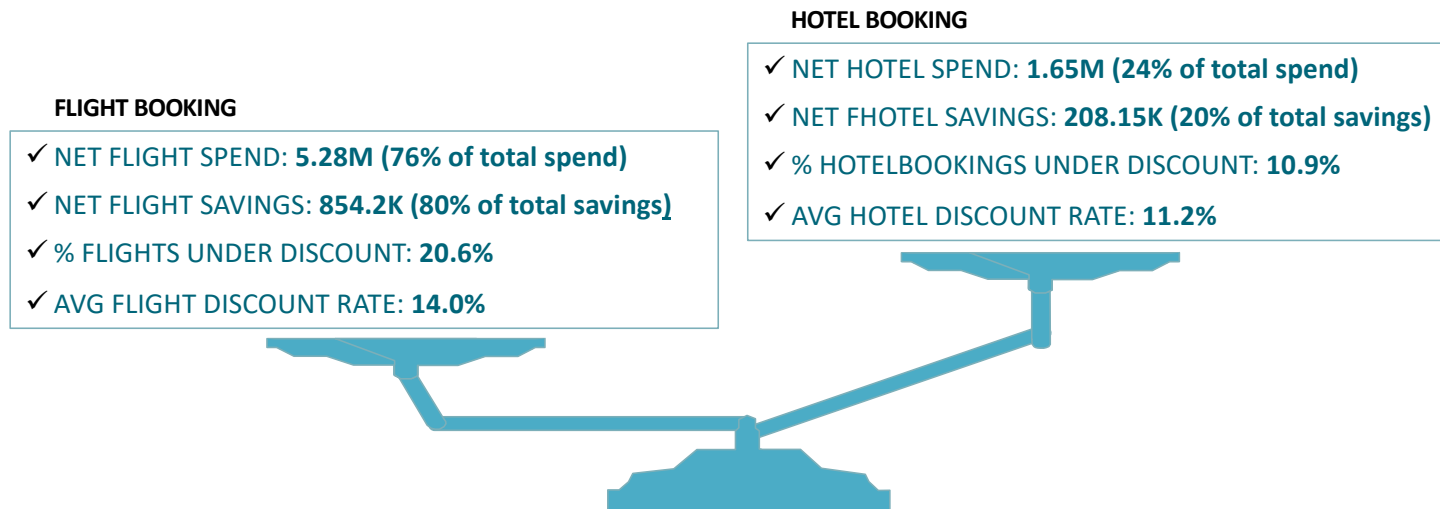
IN THE AGE GROUP SPLIT, BROWSING INTENSITY HAS NO DIRECT IMPACT EITHER ON CONVERSION RATE OR CUSTOMER VALUE GENERATION.

## FLIGHT BOOKING IS A MAJOR CONTRIBUTOR TO TRAVELTIDE'S BUSINESS, INCLUDING THE CASE OF COMBINED FLIGHT & HOTEL BOOKING

Booking Structure, % of Total Bookings



Booking Structure, % of Total Bookings



BESIDES UNEQUAL REVENUE SHARE, FLIGHT AND HOTEL BOOKING DEMONSTRATE DIFFERENT CUSTOMER BEHAVIOUR PATTERNS (INCL. DISCOUNTING AND DEAL HUNTING) AND SHOULD THEREFORE BE ANALYZED SEPARATELY



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## TO MATCH THE REQUESTED PERKS, A FRAMEWORK OF SIX HYPOTHETICAL SEGMENTS WAS DEVELOPED, INCLUDING INDEX FORMULAE TO CALCULATE THEM

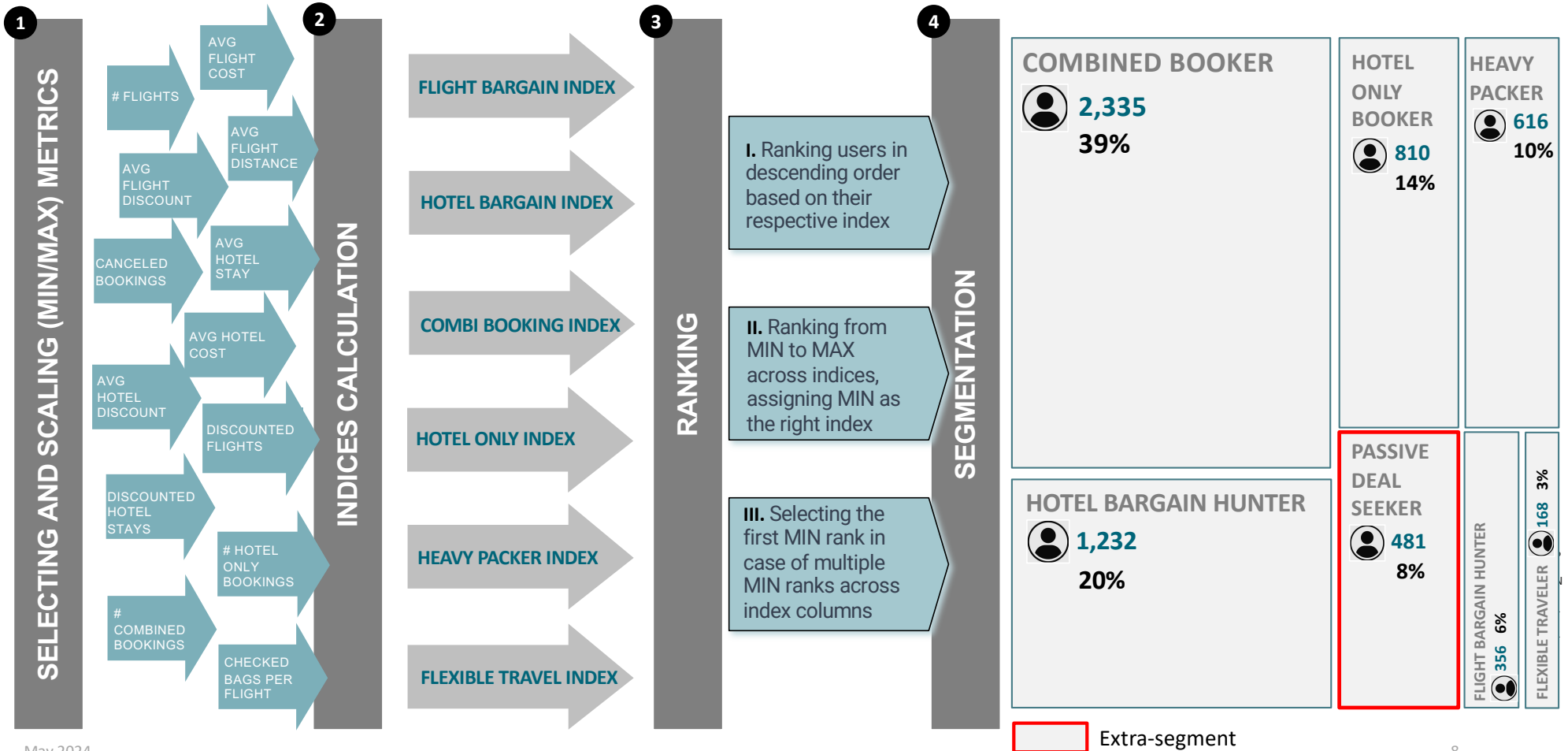
RECOMMENDED PERK	POTENTIAL SEGMENT	KEY FEATURES	INDICES				
FLIGHT EXCLUSIVE DEAL	FLIGHT BARGAIN HUNTER	<ul style="list-style-type: none"><li>• High # of discounted flights</li><li>• Higher than average savings per flight distance</li><li>• Combined bookings prevail</li></ul>	AVG FLIGHT DISCOUNT RATE (SCALED)	X	% FLIGHTS UNDER DISCOUNT (SCALED)	X	AVG FLIGHT SAVINGS PER 100 MILES (SCALED)
HOTEL EXCLUSIVE DEAL	HOTEL BARGAIN HUNTER	<ul style="list-style-type: none"><li>• High # of discounted hotel stays</li><li>• Higher than average savings per night of stay</li><li>• Combined and hotel only bookings prevail</li></ul>	AVG HOTEL DISCOUNT RATE (SCALED)	X	% STAYS UNDER DISCOUNT (SCALED)	X	AVG HOTEL SAVINGS PER 1 NIGHT (SCALED)
FREE HOTEL MEAL	HOTEL ONLY BOOKER	<ul style="list-style-type: none"><li>• High # of discounted hotel stays</li><li>• Longer than average duration of hotel stays (6+ nights)</li><li>• Hotel only bookings prevail</li></ul>	HIGHER THAN AVERAGE % OF HOTEL ONLY BOOKINGS IN BOOKING PORTFOLIO (SCALED)				
ONE NIGHT FREE HOTEL NIGHT WITH FLIGHT	COMBINED BOOKER	<ul style="list-style-type: none"><li>• High # of discounted flights</li><li>• Low # of discounted hotel stays</li><li>• Combined bookings prevail</li></ul>	HIGHER THAN AVERAGE % OF HOTEL ONLY BOOKINGS IN BOOKING PORTFOLIO (SCALED)				
FREE CHECKED BAG	HEAVY PACKER	<ul style="list-style-type: none"><li>• Higher than average # of checked bags, flight seats, and hotel rooms (incl. potential group travelers)</li><li>• Combined and flight only bookings prevail</li></ul>	HIGHER THAN AVERAGE # CHECKED BAGS PER USER PER FLIGHT				
NO CANCELLATION FEES	FLEXIBLE TRAVELLER	<ul style="list-style-type: none"><li>• Higher than average % of cancelled bookings in total booking portfolio</li><li>• All types of bookings</li></ul>	HIGHER THAN AVERAGE % CANCELLED BOOKINGS IN BOOKING PORTFOLIO				





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## SCALING KEY METRICS AND CALCULATING SIX INDICES RESULTED IN SEVEN UNEVEN BEHAVIOURAL SEGMENTS, INCLUDING AN UNEXPECTED ADDITIONAL SEGMENT

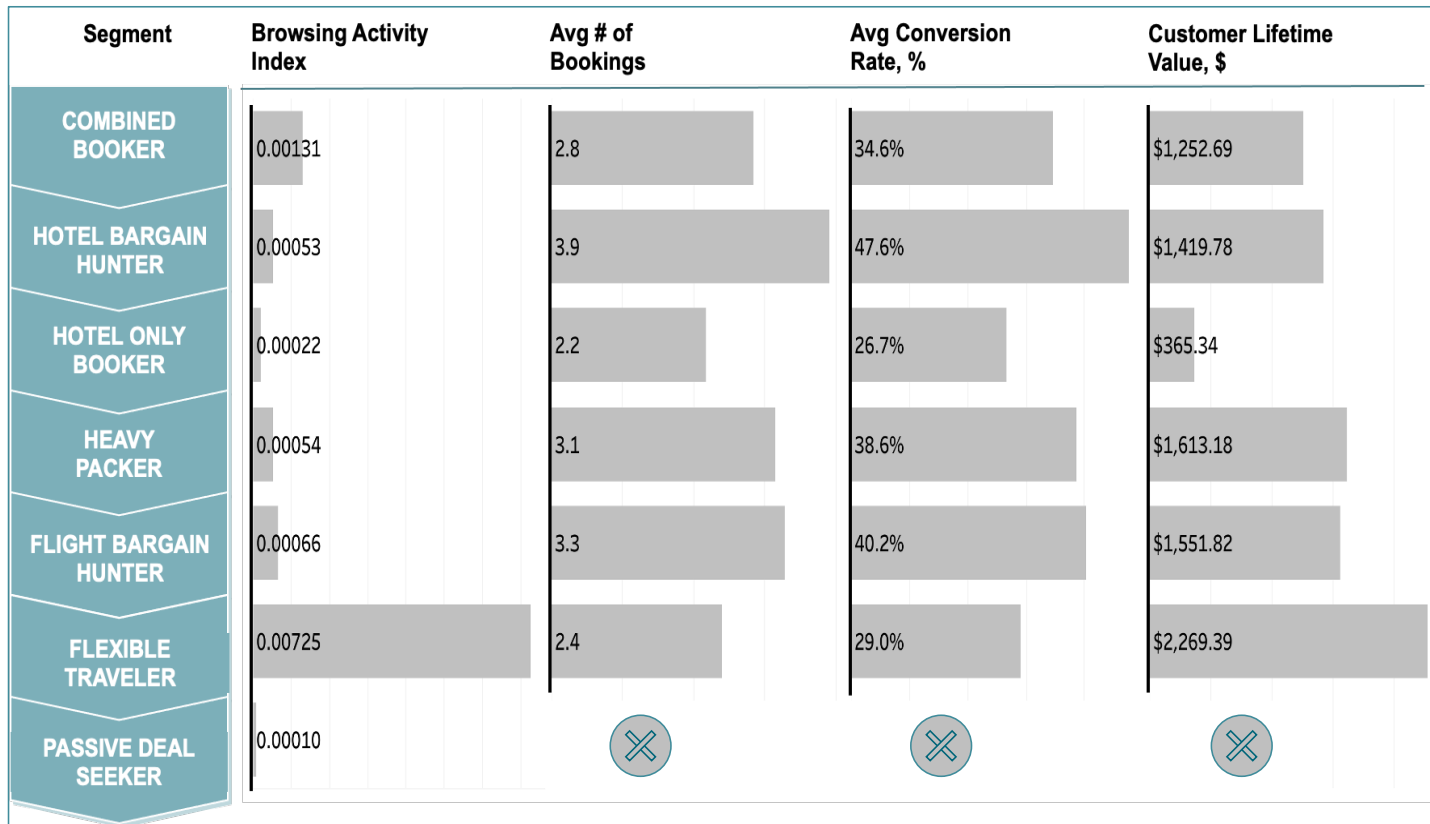






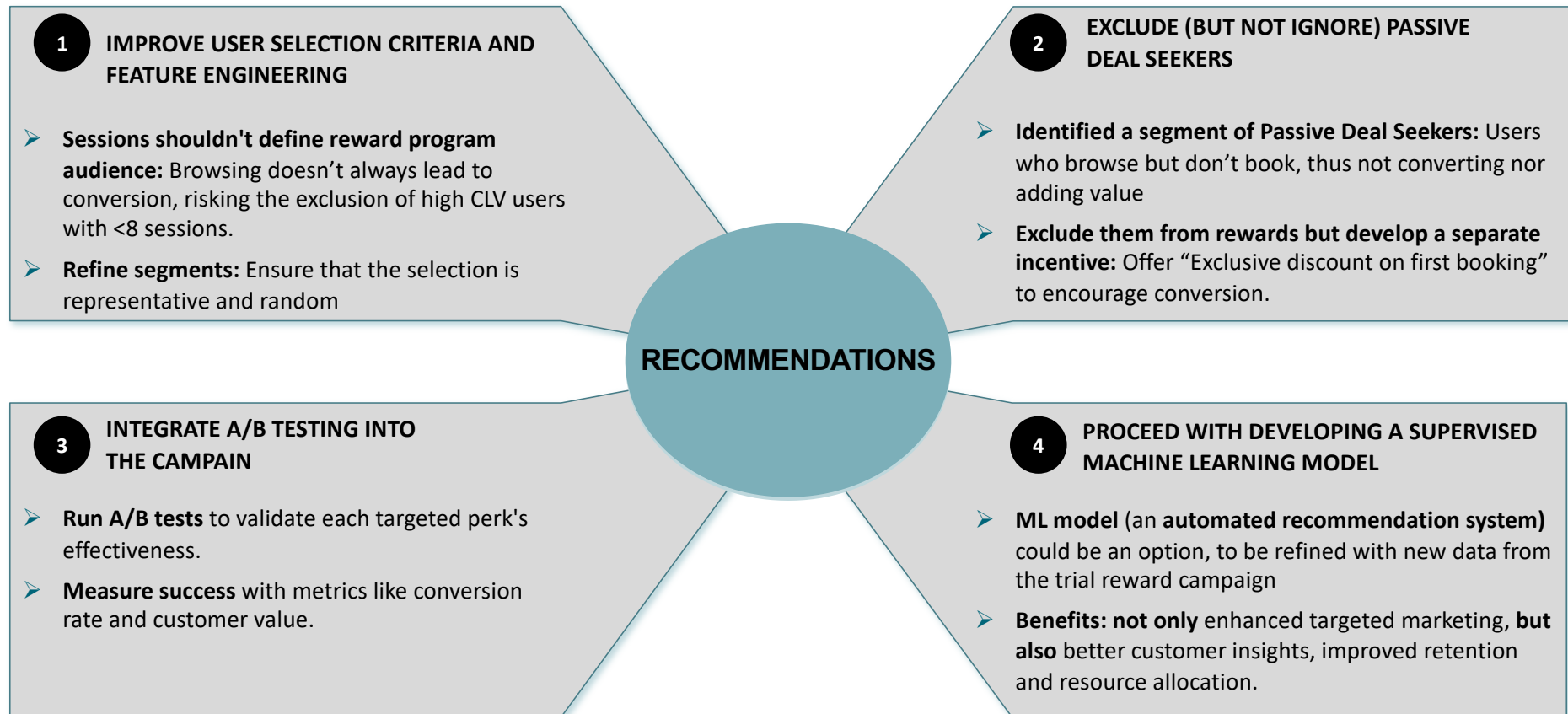
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## ACROSS THE ESTABLISHED BEHAVIOURAL SEGMENTS, BROWSING INTENSITY DOES NOT CLOSELY CORRELATE EITHER WITH CONVERSION OR VALUE CREATION



BROWSING ACTIVITY IN GENERAL AND # OF SESSIONS IN PARTICULAR ARE NOT THE BEST CRITERIA FOR DEFINING A REPRESENTATIVE USER COHORT

## CONCLUSIONS AND RECOMMENDATIONS: FINDINGS AND NEXT STEPS

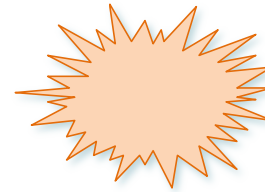


# QUESTIONS?



# COMMENTS?

# IDEAS?



# PROPOSALS?



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CLICK HERE:



Seven Interactive Tableau Dashboards to further slice and dice the User Cohort Data

<https://public.tableau.com/app/profile/oleksiy.danilin/viz/TravelTideDashboards/USERCOHORTDEMOGRAPHY>

CLICK HERE:



All the project's deliverables, incl. report, dataset/model, dashboards and SQL code

<https://github.com/oleksiy-danilin/TravelTide>