AI-Driven Market Segmentation
Discovering Intelligent Profiling for Effective Market Segmentation
Case Study

Datamotus

Introduction

This study enhances the power of artificial intelligence to take the analysis of MaxDiff survey results to the next level.
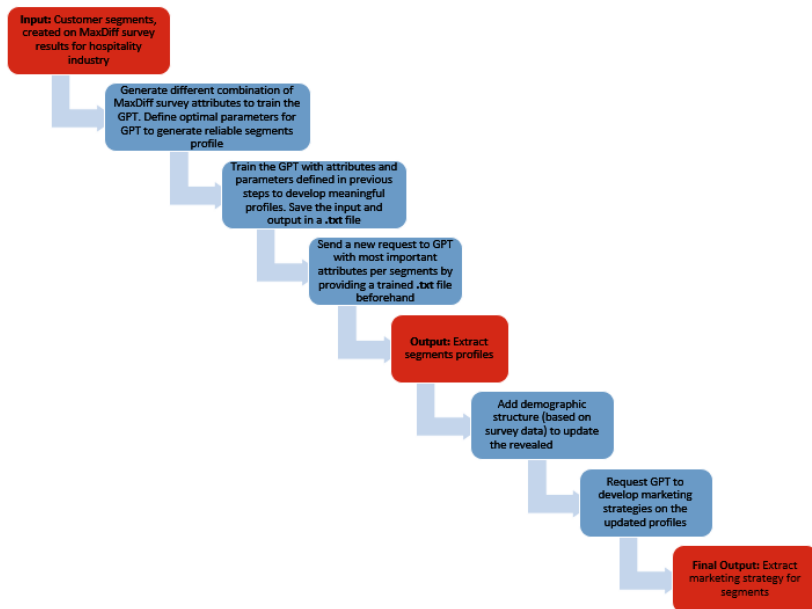
By presenting respondents with a series of choices between different attributes describing hospitality industry, MaxDiff surveys measure the relative importance or preference of each option. Through these results, four distinct customer segments are identified with k-means clustering by using sixteen MaxDiff attributes importance scores (see next 2 slides).

In this case study, we use MaxDiff attributes preference scores to:

- Create descriptive and engaging titles for segments
- Design a precise descriptive profile per segment
- Generate marketing strategies that will effectively target the desired segments

The generated results can be used as a marketing tool in assisting specialists to gain useful insight into the different market segments and create targeted, effective marketing campaigns.

AI Integration Workflow

Input: Customer segments, created on MaxDiff survey results for hospitality industry

Generate different combination of MaxDiff survey attributes to train the GPT. Define optimal parameters for GPT to generate reliable segments profile

Train the GPT with attributes and parameters defined in previous steps to develop meaningful profiles. Save the input and output in a **.txt** file

Send a new request to GPT with most important attributes per segments by providing a trained **.txt** file beforehand

Output: Extract segments profiles

Add demographic structure (based on survey data) to update the revealed

Request GPT to develop marketing strategies on the updated profiles

**Final Output:** Extract marketing strategy for segments

MaxDiff, or Maximum Difference Scaling, is a survey methodology we used to uncover the key drivers behind travelers decision-making when selecting accommodations.

By presenting respondents with a series of choices between different attributes or features (16 distinct attributes in total), we measured the relative importance or preference of each option. Based on these estimates we grouped the respondents into 4 groups (4 was determined to be the optimal number of segments as a result of analysis).

Providing an insightful understanding of the segments requires a thorough exploration of the attributes they prioritize, as it offers valuable insights into their preferences and needs. Taking into account the ranking of attribute importance, we have crafted the following profiles that capture the essence of each segment and shed light on their unique values and preferences.
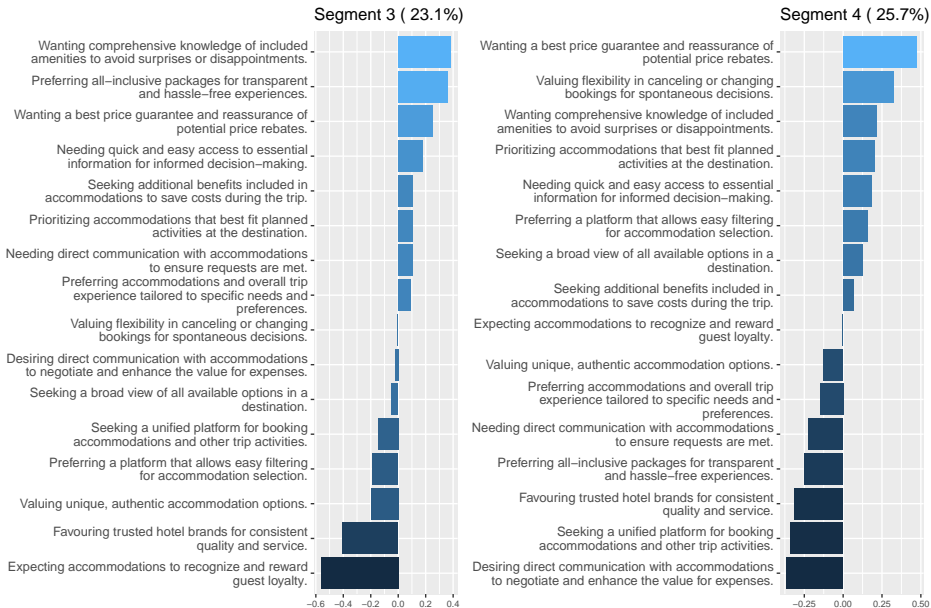
Importance of Attributes Across Segments

Figure 1: MaxDiff scores of attributes across segments

Importance of Attributes Across Segments
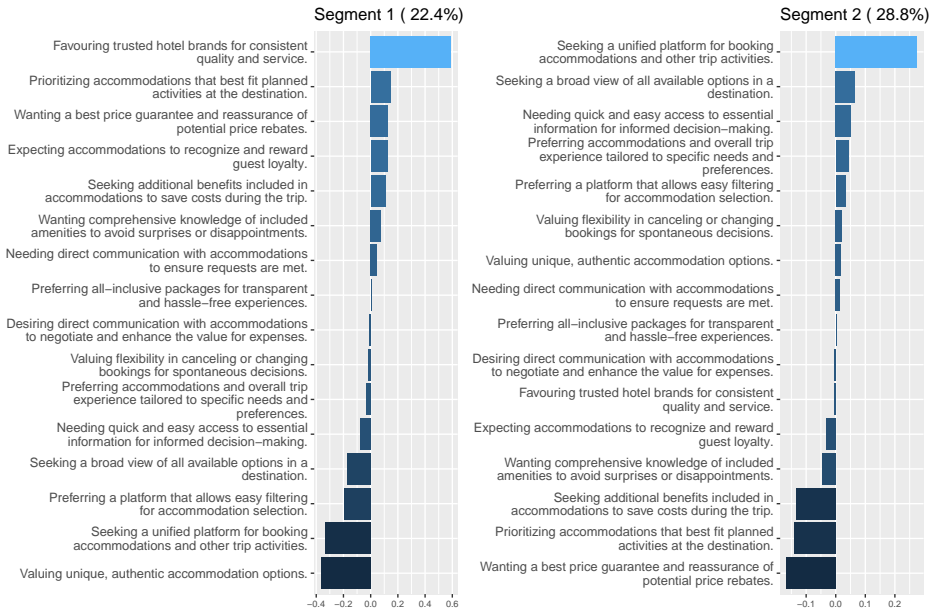
Figure 1: MaxDiff scores of attributes across segments

Setting AI Integration Parameters

In order to enhance GPT's performance in terms of quality and consistency we adjusted the following parameters

- **Model** - for this case we used **text-davinci-002**, which is an advanced language model developed by OpenAI for generating high quality content
- **Temperature** - takes values in a [0;1] range and controls randomness. We set the value to **0.7**, which gives us a good balance between generating creative responses and maintaining consistency and relevance
- **Max Tokens** - describes max number of tokens to generate (1 token is ~4 characters for normal English text). We are using **250 tokens** per prompt

In order of achieving homogeneity in generated results, a single GPT prompt includes inputs for all 4 segments at once and generates 4 outputs at once as oppose to making a single request for each segment and receiving a single response.

Training a GPT Model for Segment Profiling

To guarantee model accuracy and efficiency we supplied a model with 4-5 examples of text data, which we generated through GPT and pre-approved by experts, rerunning the GPT request until the output we are satisfied with is achieved (usually requiring ~7-12 runs).

The following is an input (training) instance we created and an output instance we approved of.

Create unique and descriptive labels for the following segments of people based on attributes they ranked the highest:

1.Is more likely to prioritize: Wanting comprehensive knowledge of included amenities to avoid surprises or disappointments, Preferring all-inclusive packages for transparent and hassle-free experiences, Wanting a best price guarantee and reassurance of potential price rebates, Seeking a broad view of all available options in a destination

2.Is more likely to prioritize: Seeking a unified platform for booking accommodations and other trip activities, Seeking a broad view of all available options in a destination, Preferring accommodations and overall trip experience tailored to specific needs and preferences, Needing quick and easy access to essential information for informed decision-making

3.Is more likely to prioritize: Needing direct communication with accommodations to ensure requests are met, Prioritizing accommodations that best fit planned activities at the destination, Seeking additional benefits included in accommodations to save costs during the trip, Wanting a best price guarantee and reassurance of potential price rebates

4.Is more likely to prioritize: Favouring trusted hotel brands for consistent quality and service , Valuing flexibility in canceling or changing bookings for spontaneous decisions, Wanting comprehensive knowledge of included amenities to avoid surprises or disappointments, Prioritizing accommodations that best fit planned activities at the destination

1. Pragmatic Package Seekers
2. Unified Trip Planners
3. Personalized Needs Assessors
4. Brand-Loyal Value Hunters

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A **.txt** file containing all approved instances is created, which is fed to GPT before sending out a new prompt request.

Segments Profiling Using AI

In the next step we ask GPT to profile real segments based on the logic of trained segments (**.txt** file generated in previous step).

Segment	Label	Description
1	Informed and Activity-Based Travelers	This segment is likely to prioritize careful research, convenience, price assurance, and having accommodations that fit planned activities when choosing where to stay. They want to be sure their expectations are met and ensure they get the best value for their trip
2	Efficient and Personalized Experience-Seekers	This segment is likely to prioritize a consolidated platform, customization, efficiency, and having access to all available options when choosing where to stay
3	Value- and Reward-Conscious Travelers	This segment is likely to prioritize loyalty rewards, having accommodations that fit planned activities, saving money, and price assurance when choosing where to stay
4	Flexible and Comprehensive Trip Planners	This segment is likely to prioritize price assurance, flexibility, having comprehensive knowledge in advance, and having accommodations that are conducive to planned activities when choosing where to stay. They will also prefer a platform that allows easy filtering

Training a GPT Model for Generating Marketing Strategies

To generate marketing strategies per segment in addition to MaxDiff attributes importance scores, we also incorporated demographics data for each segment.

Below is an input (training) instance we created and an output instance we approved of.

Generate a marketing strategy for the following segment based on its preference and demographics:

Is more likely to prioritize: Wanting comprehensive knowledge of included amenities to avoid surprises or disappointments, Preferring all-inclusive packages for transparent and hassle-free experiences, Wanting a best price guarantee and reassurance of potential price rebates, Seeking a broad view of all available options in a destination. Consists of: Female, age 18-25, unmarried.

Marketing Strategy:

1. Utilize social media platforms to reach out to our target segment. Young women today are active on social media, so use this to your advantage by running campaigns promoting the huge variety of all-inclusive packages, offering comprehensive knowledge of what is included, and perhaps showcasing some of the unique destinations available.

2. Offer bundled packages and discounts. Considered to be a very budget-conscious demographic, offer young women attractive discounts to entice them to purchase all-inclusive packages and bundle discounts.

3. Set up loyalty programs for repeat customers. This will not only keep young women coming back to your business, but it will also allow them to earn rewards for their loyalty, building a personal relationship with your business.

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Developing Marketing Strategies Using AI

During the next step of the study GPT generates marketing strategies that each of the segments might find attractive and most likely to respond to.

Segment	Strategy
Informed and Activity-Based Travelers	This segment is likely looking for a hassle-free and transparent experience while on vacation. To target this segment, prioritize making the booking process easy and convenient. Utilize ads targeted to those married with children that feature the family friendly activities and transparent packages. Advertise in relevant periodicals and websites that feature this segment as their target audience, such as parenting magazines, motherhood blogs, and other family-oriented websites.
Efficient and Personalized Experience-Seekers	Leverage social media platforms that speak to the needs and preferences of young adults such as Instagram and Snapchat, to reach out to the target market. Feature high-quality pictures and short videos that showcase the unified platform for booking accommodations and other trip activities. Develop a promotional campaign that highlights the quick and ease of access to essential information for informed decision-making when using the platform.

Segment	Strategy
Value- and Reward-Conscious Travelers	Launch campaigns to offer members-only discounts, as well as additional benefits and packages to cater to this demographics desire to save money and maximize their travel experiences. Utilize young female influencers to post content and review the hotel brands that best fit their plans and activities. This will increase the visibility of your offerings and raise awareness of the loyalty program.
Flexible and Comprehensive Trip Planners	Promote customer testimonials and reviews that demonstrate how easily customers can plan and book activities at the destination that best fit their needs. Offer special discounts for members of the demographic, such as military personnel, civil servants, or seniors to incentivize loyalty. Maximize online presence by optimizing website content, SEO, and optimizing the platform for mobile usage.

Conclusion

In this study we presented the integration of AI tools with MaxDiff survey and discovered its impact and benefits to the hospitality industry. After discovering the preferences of each segment when selecting a hotel we allowed AI to

- create unique profiles for each segment
- design marketing strategies that match the segments preferences and demographics structure

All this can enable hospitality management staff to enhance customer satisfaction and gain competitive edge.

In conclusion, AI's power in hospitality industry lies in customizing marketing strategies depending on segment preference and demographics, and increasing efficiency. All of these have excellent effects on loyalty and guest contentment levels.It can help to stand apart from the competition while minimizing the human touch factor.

Contacts

If you require assistance in marketing analytics, data science, or ML, feel free to reach out to us.

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