NOVA IMS Information Management School

03

BUSINESS CASE: HOTEL CUSTOMER SEGMENTATION

Business Cases with Data Science

SUMMARY

1. Business situation
2. Key problems
3. Data
4. Assignment

1.
BUSINESS SITUATION

BUSINESS SITUATION (1/3)

Finding new customers is vital in every industry. The process for finding new customers begins by learning as much as possible from the existing customers. Understanding current customers allow organizations to identify groups of customers that have different product interests, different market participation, or different response to marketing efforts.

BUSINESS SITUATION (2/3)

Market segmentation, the process of identifying customers' groups, makes use of geographic, demographic, psychographic, and behavioral characteristics of customers. By understanding the differences between the different segments, organizations can make better strategic choices about **opportunities, product definition, positioning, promotions, pricing, and target marketing** (1, 2).

BUSINESS SITUATION (3/3)

Like most hotels, hotel H, a hotel located in Lisbon, Portugal, member of the independent hotel chain C, uses a hospitality standard market segmentation based on the origin of the customer. However, A, the new marketing manager of hotel H, recognized that this type of segmentation, as is today well-known (3, 4), is not useful for the hotel marketing department.

The name of the individual and the company name is anonymized to protect confidentiality. The referenced data are real.

2.
KEY PROBLEMS

KEY PROBLEMS (1/3)

Until 2015 hotel chain C operated 4 hotels, however, with the acquisition of new hotels, the hotel chain board decided to invest more in marketing. However, it was not until 2018 that the hotel chain created a marketing department and hired a new marketing manager, A. A realized that the current customer segmentation was not adequate, as it **only reflected one only customer characteristic**, its sales origin. It **did not reflect** geographic characteristics, such as the country of origin, demographic characteristics such as age, or behavioral characteristics such as the number of stays.

KEY PROBLEMS (2/3)

Without a proper customer segmentation, is difficult for A to define a strategy to reach new customers and to continue to captivate the current customers. Taking into consideration the multiple distribution channels that hotels operate nowadays (travel agencies, travel operators, online travel agencies - OTA, brand website, meta searchers websites, among others). For example, corporate customers tend to make reservations very near arrival date, book directly with the hotel, and be willing to pay more for a better equipped room, while a customer on holidays tend to make reservations more distant of the arrival date, book with a travel operator or OTA, and to look for better price opportunities.

KEY PROBLEMS (3/3)

Therefore, products “creation”, pricing definitions, and other marketing tasks, such as advertising, must take into consideration the targets of its efforts, according to the different channels and groups of customers.

3.
DATA

DATA (1/6)

The provided dataset is composed of the following columns:

ID: Customer ID

Nationality: Nationality of the customer in ISO 3166-1 (Alpha 3) format

Age: Age of the customer

DaysSinceCreation: Number of elapsed days since the customer was created

NameHash: Hash of the customer name

DocIDHash: Hash of the customer personal document identification number (usually passport or ID card)

AverageLeadTime: Average number of days before arrival date the customer makes bookings

DATA (2/6)

LodgingRevenue: Total amount of lodging revenue paid by the customer so far

OtherRevenue: Total amount of other revenue (e.g., food & beverage, spa, etc.) paid by the customer so far

BookingsCanceled: Number of bookings the customer made but subsequently canceled

BookingsNoShowed: Number of bookings the customer made but subsequently made a "no-show"

BookingsCheckedin: Number of bookings the customer made, which actually ended up staying

DATA (3/6)

PersonNights: Total person/nights the customer has stayed at the hotel so far. Persons/Nights are the sum of *Adults* and *Children* in each booking, multiplied by the number of *Nights* (Length-of-stay) of the booking

RoomNights: Total of room/nights the customer has stayed at the hotel so far. Room/Nights are the multiplication of the number of rooms of each booking by the the number of *Nights* (Length-of-stay) of the booking

DistributionChannel: Distribution channel normally used by the customer to make bookings at the hotel

MarketSegment: Current market segment of the customer

SRHighFloor: Indication if the customer usually asks for a room in a higher floor (0: No, 1: Yes)

DATA (4/6)

SRLowFloor: Indication if the customer usually asks for a room in a lower floor (0: No, 1: Yes)

SRAccessibleRoom: Indication if the customer usually asks for an accessible room (0: No, 1: Yes)

SRMediumFloor: Indication if the customer usually asks for a room in a middle floor (0: No, 1: Yes)

SRBathtub Indication if the customer usually asks for a room with a bathtub (0: No, 1: Yes)

SRShower: Indication if the customer usually asks for a room with a shower (0: No, 1: Yes)

SRCrib: Indication if the customer usually asks for a crib (0: No, 1: Yes)

DATA (5/6)

SRKingSizeBed: Indication if the customer usually asks for a room with a king size bed (0: No, 1: Yes)

SRTwinBed Indication if the customer usually asks for a room with a twin bed (0: No, 1: Yes)

SRNearElevator: Indication if the customer usually asks for a room near the elevator (0: No, 1: Yes)

SRAwayFromElevator: Indication if the customer usually asks for a room away from the elevator (0: No, 1: Yes)

SRNoAlcoholInMiniBar: Indication if the customer usually asks for a room with no alcohol in the mini bar (0: No, 1: Yes)

DATA (6/6)

SRQuietRoom: Indication if the customer usually asks for a room away from the noise (0: No, 1: Yes)

NOTE: All time-based columns (e.g., *Age* or *DaysSinceCreation*) were calculated at the dataset extraction date.

4.
ASSIGNMENT

ASSIGNMENT

1. Explore the data and identify the variables that should be used to segment customers
2. Use K-Means clustering to identify customers segments
    1. Fundament your selection of K (taking in consideration the business use)
    2. Use PCA to reduce dimensionality and speed-up model development
3. Suggest business applications for the findings

REFERENCES

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