Hyatt in the Holidays

A Net Promoter Score analysis for the Hyatt group of Hotels.

Data Selection

$ One country
$ Three Regions
$ One month
$ Reasoning behind the analysis

Mapping reviews in the United States

$ Uniformly Distributed

$ Heavily grouped

$ Metropolitan cities

Data Cleaning and Analysis

$ Removing NAs as and when required for modeling
$ Selecting 33 variables and 63986 observations
$ Descriptive analyses - bar plots and scatter plots
$ Statistical analyses - linear modelling, association rules and support vector machines

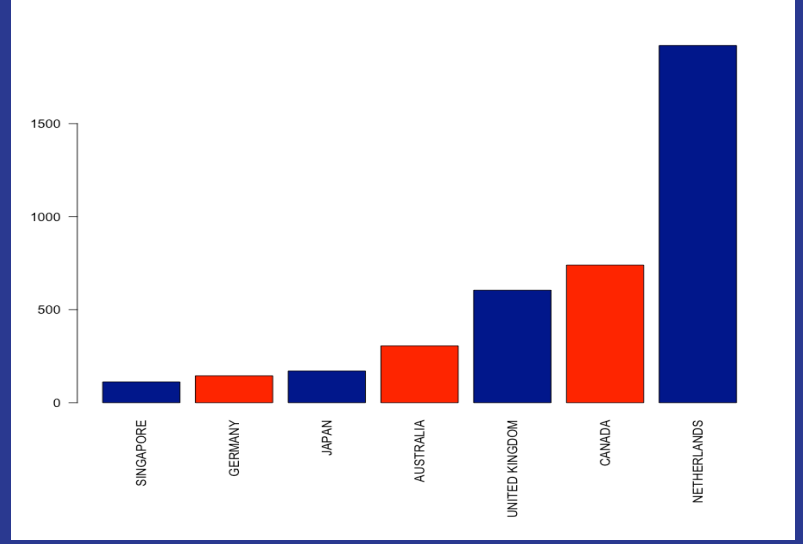
Business Questions

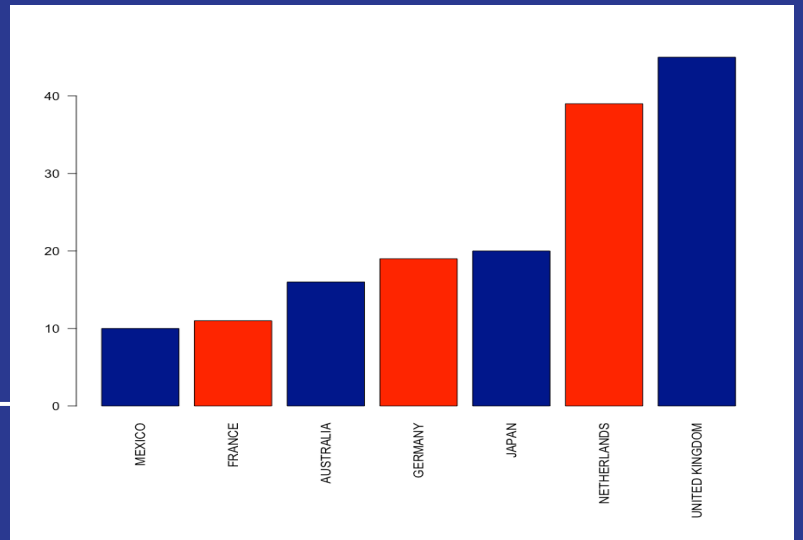
- How are the customers reacting to the surveys?
- Are the satisfaction metrics up-to-the mark?
- How can the number of detractors be reduced?
- How can the passives be converted to promoters?
- How do we increase the likelihood to recommend Hyatt Hotels?
- How does the guest’s location and demographic affect their satisfaction metrics?
- How does purpose of visit affect likelihood to recommend?
- Does language of surveys play an important role?

Surveys filled by visitors and Visitors by nationality

Dutch speaking people are proportionately less represented in filled out surveys.

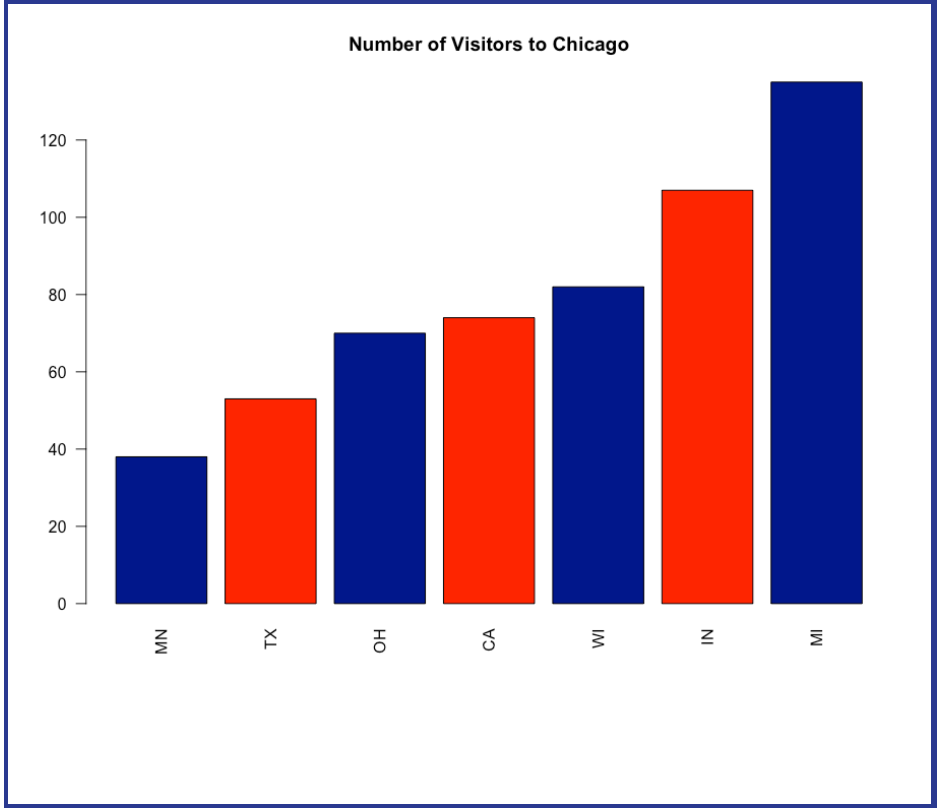
Suggestion: Hyatt group could have surveys provided in the Dutch language.





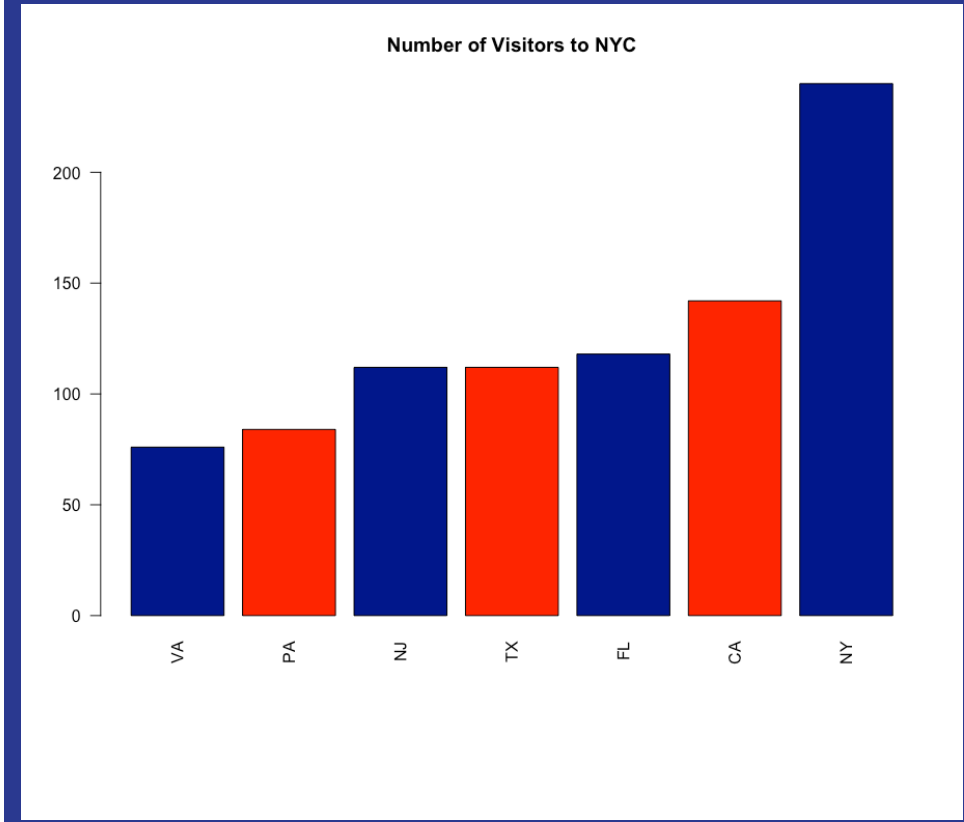
State wise visitors to Chicago

Visitors to Chicago are primarily from the mid-western regions, so the hotels should be modelled according to the customers' tastes.



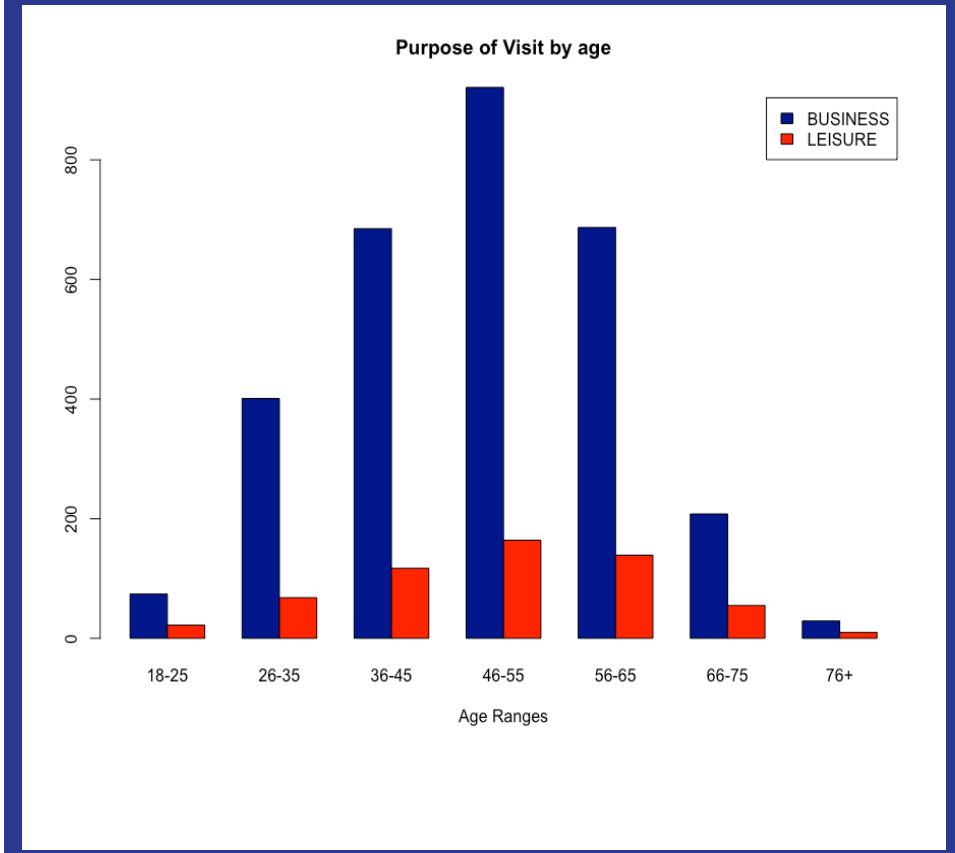
State wise visitors to NYC

Seeing the distribution of visitors, New York City hotels should have more of a cosmopolitan outlook.



Purpose of Visit by Age

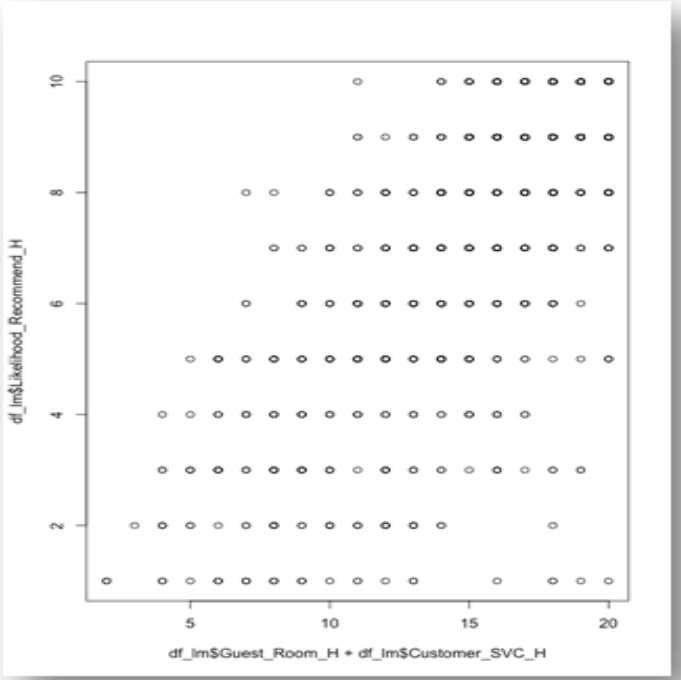
The vast majority of visitors across all age groups travel for business purposes, and so it is important to not lose track of their core customer



Linear Modelling

An important observation is that no one factor alone (other than overall satisfaction) is dominant enough to drive Likelihood to recommend.

As we can see from the data, the customer service and guest room metrics together play a major role in higher likelihood to recommend.



Linear Modelling

Call:

lm(formula = df_lm$Likelihood_Recommend_H ~
df_lm$Guest_Room_H +

df_lm$Customer_SVC_H, data = df_lm)

Min 1Q Median 3Q Max

-8.9114 -0.2929 0.0886 0.5186 5.0944

Coefficients:

	Estimate	Std. Error	t value	Pr(>|t|)	
(Intercept)	-0.29623	0.10381	-2.854	0.00435	**
df_lm$Guest_Room_H	0.55620	0.01242	44.796	< 2e-16	***
df_lm$Customer_SVC_H	0.46457	0.01394	33.335	< 2e-16	***

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 1.078 on 3467 degrees of freedom

(60516 observations deleted due to missingness)

Multiple R-squared: 0.6994, Adjusted R-squared: 0.6992

F-statistic: 4033 on 2 and 3467 DF, p-value: < 2.2e-16

Association Rules

The Association rules analysis showed high correlation among Condition of hotel, Guest Room and Customer Service for Promoters. The Hyatt group should focus on these metrics.

lhs	=>	rhs	support	confidence	lift	count
{Guest_Room_H=10}	=>	{Condition_Hotel_H=10}	0.02186416	0.9234323	33.86060	1399
{Condition_Hotel_H=10}	=>	{Guest_Room_H=10}	0.02186416	0.8017192	33.86060	1399
{Condition_Hotel_H=10,NPS_Type=Promoter}	=>	{Overall_Sat_H=10}	0.02014503	0.7893448	34.88053	1289
{Customer_SVC_H=10,NPS_Type=Promoter}	=>	{Overall_Sat_H=10}	0.02078580	0.7514124	33.20433	1330
{Guest_Room_H=10,NPS_Type=Promoter}	=>	{Condition_Hotel_H=10}	0.02108274	0.9355062	34.30333	1349
{Condition_Hotel_H=10,NPS_Type=Promoter}	=>	{Guest_Room_H=10}	0.02108274	0.8260870	34.88977	1349

Support Vector Machines

A high correlation was observed, and a ksvm value of 0.8222.

Staff Review Score, Quietness of the hotel, Room Service were significant.

```
> svmGood
Support Vector Machine object of class "ksvm"
SV type: C-svc (classification)
parameter : cost C = 5
Gaussian Radial Basis kernel function.
Hyperparameter : sigma = 0.579863731292562
Number of Support Vectors : 413
Objective Function Value : -48.7018 -36.2381 -
29.1193
Training error : 0
Cross validation error : 0.005253
Probability model included.
> perc_ksvm <-
length(which(compGood1$test==compGood1$
Pred))/dim(compGood1)[1]
> perc_ksvm
[1] 0.8222533
```

Recommendations

- Language specific surveys.
- Event-centric plans for holidays.
- Improving guest satisfaction metrics, especially along the lines of guest room and customer service.
- Incorporating local flavor according to demographic.

THANK YOU