Travelezy Case Study

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Objective

Create KPIs to analyze, monitor, control the business process(es) : Customer(Host) retention,Market price research,Room type research, Neighborhood Research.

KPI Definitions:

1) Price fluctuation of Average price of different property types each year.
2) Number of hosts each year: To analyze the trend of the number of hosts each year.
3) Average price changes per property from previous year: To see the average price changes in various neighborhoods from last year through percentage differences in New York City
4) Total Ratings over previous year: To see the trend of ratings of each airbnb listing in various neighborhoods in New York City.

Insights and patterns

Final Dashboard

% Changes in Average Prices Per Airbnb Listing across 2009 to 2015 in Various Neighbourhoods

Neighbourhood	2009	2010	2011	2012	2013	2014	2015
Bronx		99.9%▲	5.2%▼	169.0%▲	49.1%▼	32.2%▼	9.5%▲
Brooklyn	22.1%▲	1.9%▲	9.8%▲	17.6%▼	4.4%▼	1.3%▼	8.7%▼
Manhattan	19.8%▼	13.2%▲	6.8%▲	4.6%▼	1.0%▲	5.9%▲	14.8%▼
Queens	2.6%▼	32.1%▲	20.7%▼	7.9%▲	4.2%▲	0.4%▼	13.5%▼
Staten Island		18.3%▼	191.8%▲	85.6%▲	62.0%▼	53.3%▲	62.9%▼

Average Price Difference Per Year

	Year of Host Since					
Property Type1	2010	2011	2012	2013	2014	2015
Apartment	▲10.6%	▲3.1%	▼-7.5%	▲2.8%	▲2.8%	▼-14.6%
Bed & Breakfast	▼-44.4%	▲26.6%	▼-19.9%	▲18.4%	▼-31.3%	▼-35.8%
Condominium	▼-454.0%	▲120.3%	▲1.0%	▼-14.2%	▲9.5%	▼-20.3%
House	▲12.6%	▲65.8%	▼-29.1%	▼-24.4%	▼-1.6%	▼-31.1%
Loft	▲32.3%	▲1.3%	▲19.9%	▼-26.5%	▲11.1%	▼-26.5%
Townhouse	▼-25.1%	▲51.7%	▲25.5%	▼-0.4%	▲9.8%	▼-13.1%

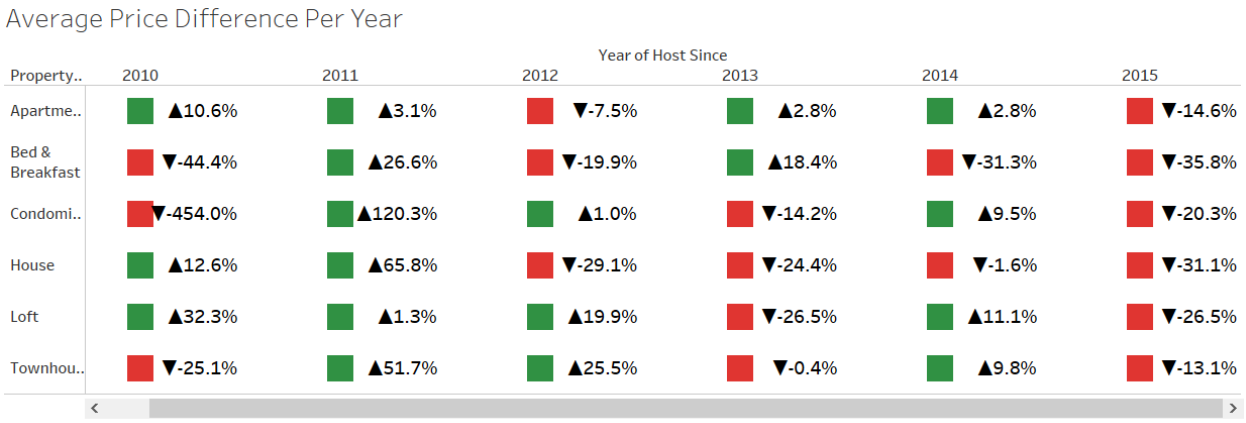
Manhattan prices over years

	Neighbourhood1 / Host Since Manhattan						
	2009	2010	2011	2012	2013	2014	2015
Price	$40,806.00	▲$128,519.00	▲$325,035.00	▲$570,200.00	▲$712,331.00	▲$895,200.00	▼$492,584.00
_difference		▲87,713	▲196,516	▲245,165	▲142,131	▲182,869	▼-402,616

Change in Number of Hosts in Neighbourhoods by Years

	Host Since						
Neighbourhood	2009	2010	2011	2012	2013	2014	2015
Bronx		↑ 700.0%	↑ 112.5%	↑ 41.2%	↑ 95.8%	↑ 53.2%	↓ -12.5%
Brooklyn	↑ 1400.0%	↑ 201.3%	↑ 157.3%	↑ 64.4%	↓ -0.1%	↑ 17.5%	↓ -57.3%
Manhattan	↑ 1258.3%	↑ 211.0%	↑ 153.6%	↑ 84.8%	↑ 24.6%	↑ 19.8%	↓ -50.5%
Queens	↑ 333.3%	↑ 107.7%	↑ 363.0%	↑ 117.6%	↑ 15.8%	↑ 62.5%	↓ -20.2%
Staten Island		↑ 150.0%	↑ 60.0%	↑ 87.5%	↑ 6.7%	↑ 81.3%	↓ -31.8%

1) Price fluctuation of Average price of different property types each year (Shanka):
Visualizations:



Insights: This allows the business to monitor the price fluctuations of different categories of hosts in popular property types. This was completed by finding the average price of different popular property types and comparing them with the previously joined Hosts. The Hosts who joined the platform in 2015 seem to have extremely lower prices than other Hosts in different years.

2) Number of hosts each year (Daniyar):
Visualizations:

Change in Number of Hosts in Neighbourhoods by Years

Neighbourhood	Host Since 2009	2010	2011	2012	2013	2014	2015
Bronx		↑ 700.0%	↑ 112.5%	↑ 41.2%	95.8%	53.2%	↓ -12.5%
Brooklyn	1400.0%	↑ 201.3%	↑ 157.3%	64.4%	↓ -0.1%	17.5%	↑↓ -57.3%
Manhattan	1258.3%	↑ 211.0%	↑ 153.6%	84.8%	24.6%	19.8%	↑↓ -50.5%
Queens	333.3%	↑ 107.7%	↑ 363.0%	117.6%	15.8%	62.5%	↑↓ -20.2%
Staten Island		150.0%	↑ 60.0%	87.5%	↑ 6.7%	81.3%	↑↓ -31.8%

Insights:

The number of hosts in all neighborhoods have been increasing from 2009 to 2014 with exceptions being the Bronx in 2011, Brooklyn in 2013, Staten island in 2013. There has been a decline in the number of hosts in 2015 in all the neighborhoods.

3) Number of properties in Neighborhood by years (Daniyar):

Visualization:

Change in Number of Properties in Neighbourhoods by Years

Neighbourhood	Host Since 2009	2010	2011	2012	2013	2014	2015
Bronx		↑1500.00%	↓-18.52%	↑7.41%	↑103.45%	↑77.97%	↓-17.98%
Brooklyn	↑1972.73%	↑170.61%	↑144.89%	↑57.97%	↓-2.45%	↑19.57%	↓-58.93%
Manhattan	↑986.36%	↑178.24%	↑136.84%	↑83.87%	↑23.65%	↑18.65%	↓-54.85%
Queens	↑380.00%	↑66.67%	↑302.50%	↑137.89%	↑8.09%	↑70.05%	↓-34.61%
Staten Island		↑350.00%	↑33.33%	↑175.00%	↓-22.22%	↑25.93%	↓-17.24%

Insights:

The number of properties has been rising in different neighborhoods from 2009 to 2014. Exceptions have been observed in the Bronx neighborhood in 2011, Brooklyn in 2013, Staten island in 2013. In the year 2015, the number of properties has fallen for all neighborhoods.

4) Average price changes per property (Tanvir):

Visualization:

% Changes in Average Prices Per Airbnb Listing across 2009 to 2015 in Various Neighbourhoods

Neighbourhood	2009	2010	2011	2012	2013	2014	2015
Bronx		99.9%▲	5.2%▼	169.0%▲	49.1%▼	32.2%▼	9.5%▲
Brooklyn	22.1%▲	1.9%▲	9.8%▲	17.6%▼	4.4%▼	1.3%▼	8.7%▼
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Staten Island		18.3%▼	191.8%▲	85.6%▲	62.0%▼	53.3%▲	62.9%▼

Insights:

From the above scorecard, we can depict that Manhattan, Queens, and Brooklyn do not have significant prices over time indicating these neighborhoods are in demand, and renting properties in these areas are profitable. However, Bronx and Staten Island have significant price changes, which may be due to lack of demand in those neighborhoods.

5) Manhattan Neighborhood Prices(Vrinda):

Visualizations:

Manhattan prices over years

Neighbourhood1 / Host Since

Manhattan

	2009	2010	2011	2012	2013	2014	2015
Price	$40,806.00	▲$128,519.00	▲$325,035.00	▲$570,200.00	▲$712,331.00	▲$895,200.00	▼$492,584.00
_difference		▲87,713	▲196,516	▲245,165	▲142,131	▲182,869	▼-402,616

_color
Null
OVER 30%

Price, _difference, _Diff-, _diff+ and _Diff0 broken down by Neighbourhood1 and Host Since Year. Color shows details about _color. The data is filtered on Room Type1 and Host Since Year. The Room Type1 filter keeps Entire home/apt, Private room and Shared room. The Host Since Year filter ranges from 2008 to 2015. The view is filtered on sum of Price and Neighbourhood1. The sum of Price filter includes everything. The Neighbourhood1 filter keeps Manhattan.

Insights:

Prices of properties in the Manhattan neighborhood have been increasing from 2009 to 2014 except in 2015 prices fell.

6) Price trend on room type in 2015(Vrinda):

Visualization:

Vrinda: price trend on room type

	Room Type1 / Neighbourhood1											
	Entire home/apt				Private room					Shared room		
Year of Hos..	Brooklyn	Manhattan	Queens	Staten Island	Bronx	Brooklyn	Manhattan	Queens	Staten Island	Brooklyn	Manhattan	Queens
2015	$-99,089.00 ▼	$-342,557.00 ▼	$-18,517.00 ▼	$-3,877.00 ▼	$-2,118.00 ▼	$-45,995.00 ▼	$-55,627.00 ▼	$-3,741.00 ▼	$-280.00 ▼	$-980.00 ▼	$-4,432.00 ▼	$-4,901.00 ▼

Price trend of room types in a neighbourhood in 2015

Insights: Prices of different room types have decreased in all the neighborhoods in 2015.

7)Change in Average Rating for different property types:

Purvi: Change in Average Rating Between Property Types

	Host Since						
Property Type	2009	2010	2011	2012	2013	2014	2015
Apartment	-2.86%▼	▲1.74%	▲0.30%	-0.21%▼	-0.60%▼	-0.75%▼	▲0.18%
Bed & Breakfast		▲10.89%	-0.49%▼	-3.93%▼	-3.89%▼	▲3.58%	-0.69%▼
Boat							
Bungalow				-2.22%▼			
Cabin			-30.67%▼				
Condominium		-5.48%▼	-1.71%▼	▲2.61%	-2.61%▼	-0.60%▼	-4.77%▼
Dorm				-7.36%▼	▲11.25%	-20.89%▼	▲11.67%
House		▲4.78%	-0.41%▼	-1.91%▼	▲0.11%	-1.07%▼	▲0.10%
Loft		▲1.89%	▲1.91%	▲0.46%	-1.95%▼	-0.84%▼	▲3.15%
Other					-5.47%▼	▲4.90%	▲8.43%
Tent							
Townhouse		-2.95%▼	-1.91%▼	-4.85%▼	▲1.77%	▲2.95%	▲0.07%
Treehouse							

Insights: The result shows that compared to 2014, in 2015 there is good improvement in the number of average ratings got for different property types. The average rating has decreased for two categories one is Bed & Breakfast and the other is Condominium. While it is positive for the rest of the property types.

Problems And Issues Found

1. Bed type with Null Values so grouped it with Bed Type-0 using Tableau prep
2. Name has lot of punctuation and empty spaces, so remove those extra spaces
3. The dataset does not include viable regions that are detectable in Tableau which makes it difficult to create any analysis on mapping.

Root Cause Analysis

Why is Manhattan the largest profit region?
Most customers rent Manhattan.

> **Why do customers rent in Manhattan?**
> Manhattan is the center of New York?
>
> > **Why do customers prefer Manhattan over other Regions?**
> > Manhattan can meet customer demands.

Why are Queens and Bronx prices low?
Queens and Bronx have less demand as compared to Brooklyn or Manhattan

> **Why do Queens and the Bronx have less demand?**
> Queens and Bronx are less popular for tourists and prefer living closer to the center of the city.
>
> > **Why Queens and Bronx less popular for tourists?**
> > Tourists think that locations of properties in Queens and Bronx are d dangerous
> >
> > > **Tourists think that locations of properties in Queens and Bronx are dangerous?**
> > > Properties are located in criminal areas

Why are Hosts who joined the platform in 2015 have the lowest prices?
Airbnb was not popular at that time and low cost helped acquire more customers.

> **Why do they need to lower the cost to get customers?**
> Because they do not have as many customer reviews to stand behind their properties.
>
> > **Why do they need customer reviews before increasing prices to market value?**
> > This allows the hosts to understand the market better.