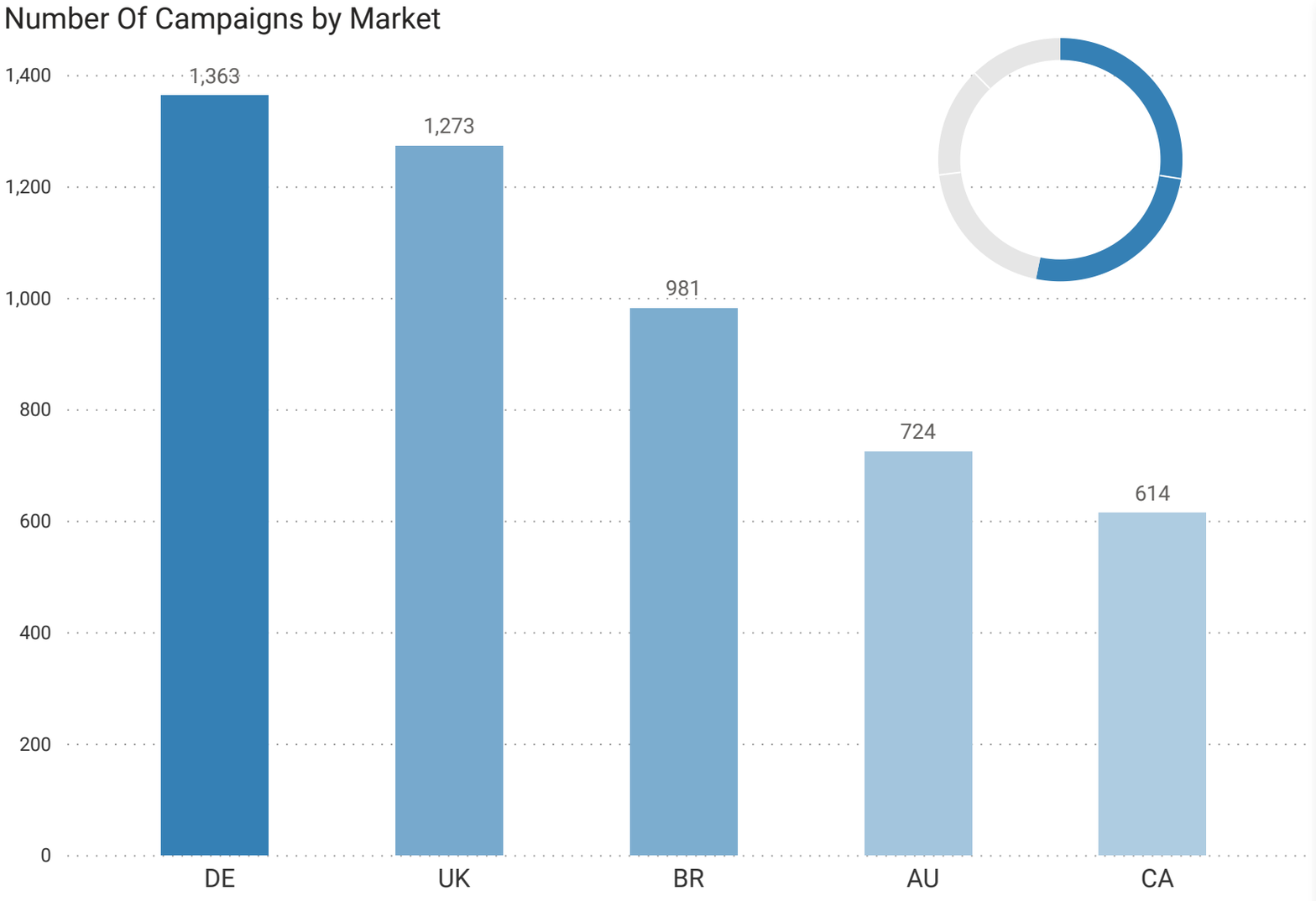
Give an overview of the dataset and highlight interesting findings in the data

In which market is the most campaign held?



Insights

Germany has the most campaigns with 1363, more than twice as many as Canada with the fewest campaigns

More than 50% of the campaigns are held in Germany & United Kingdom

Based on the trend line shown in the tooltip, the average monthly campaigns run for each market are as follows (excluding the last month):

- Germany: 1200
- United Kingdom: 1100
- Brazil: 850
- Australia: 630
- Canada: 500

What are the top 3 keyword categories in each market?

Month Name

All

Market	Keyword Category	Count
AU	Accommodation	18,717
AU	CityOnly	8,750
AU	Hotel	8,811
BR	Hotel	29,539
BR	Hotel2	15,315
BR	ItemHotel	43,430
CA	Accommodation	3,262
CA	CityOnly	8,498
CA	Hotel	14,998
DE	CityOnly	47,226
DE	Hotel	62,673
DE	ItemHotel	87,462
UK	BandB	14,097
UK	Hotel	36,057
UK	ItemHotel	32,058

Insights

Hotel & ItemHotel are among top 3s in almost all markets.

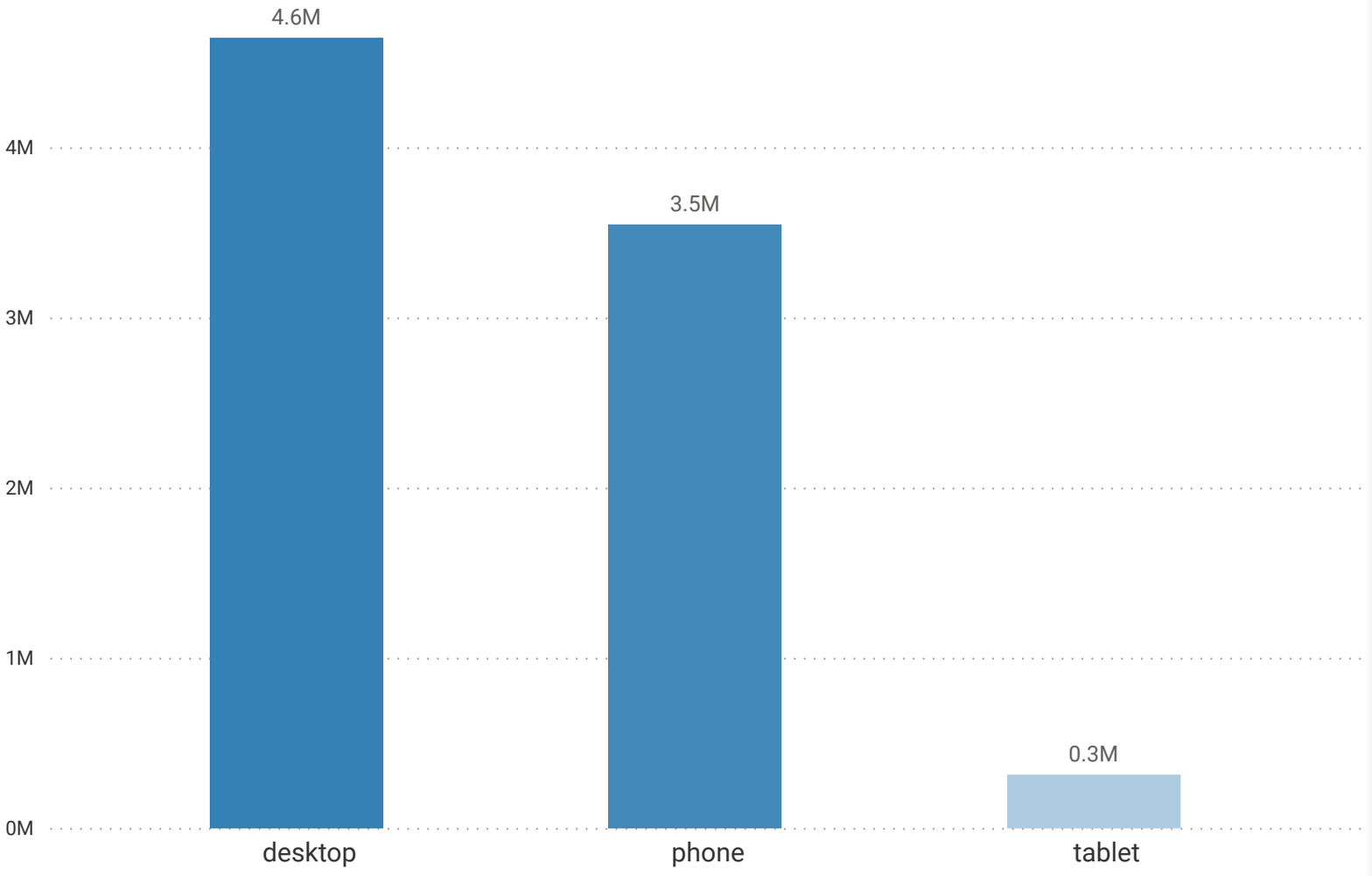
***

You can dynamically choose different months to see the results.

You can also drill-through to see the details for keywords.

From which devices are our ads most viewed?

Total Impression by devices



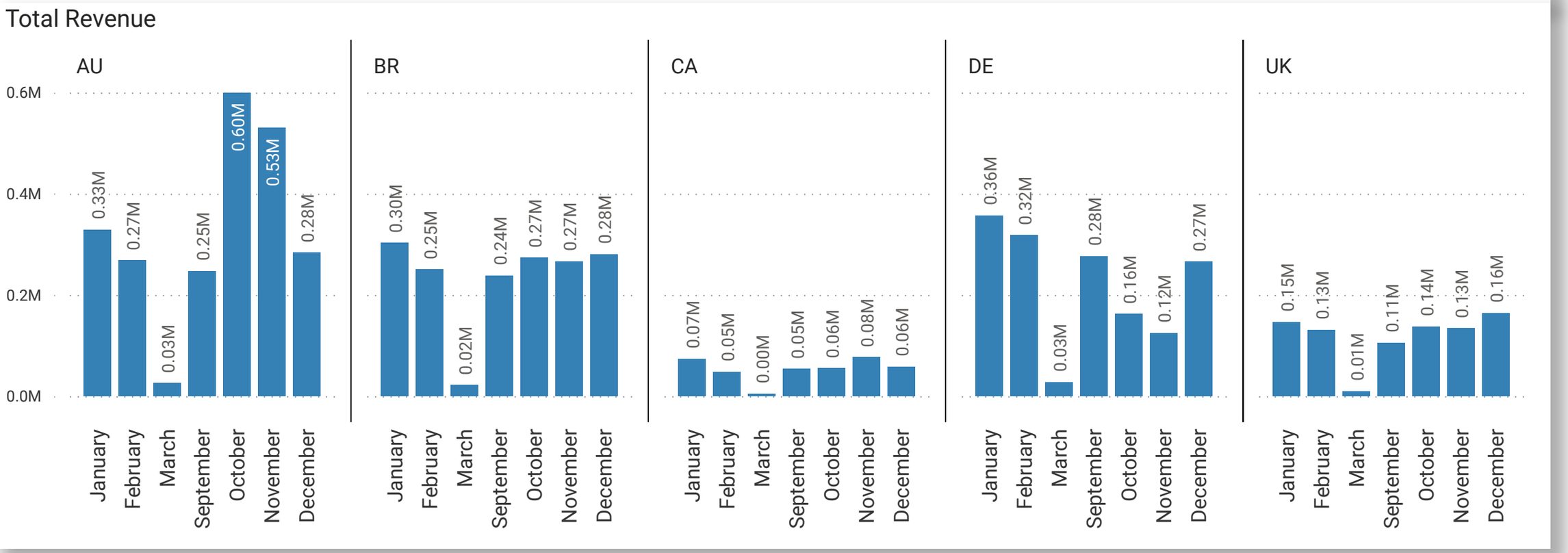
Insights

Most of the customers use their desktop computers and phones, thus make sure that your website design be responsive and mobile friendly!

What has been the revenue of the markets in different months?

Insights

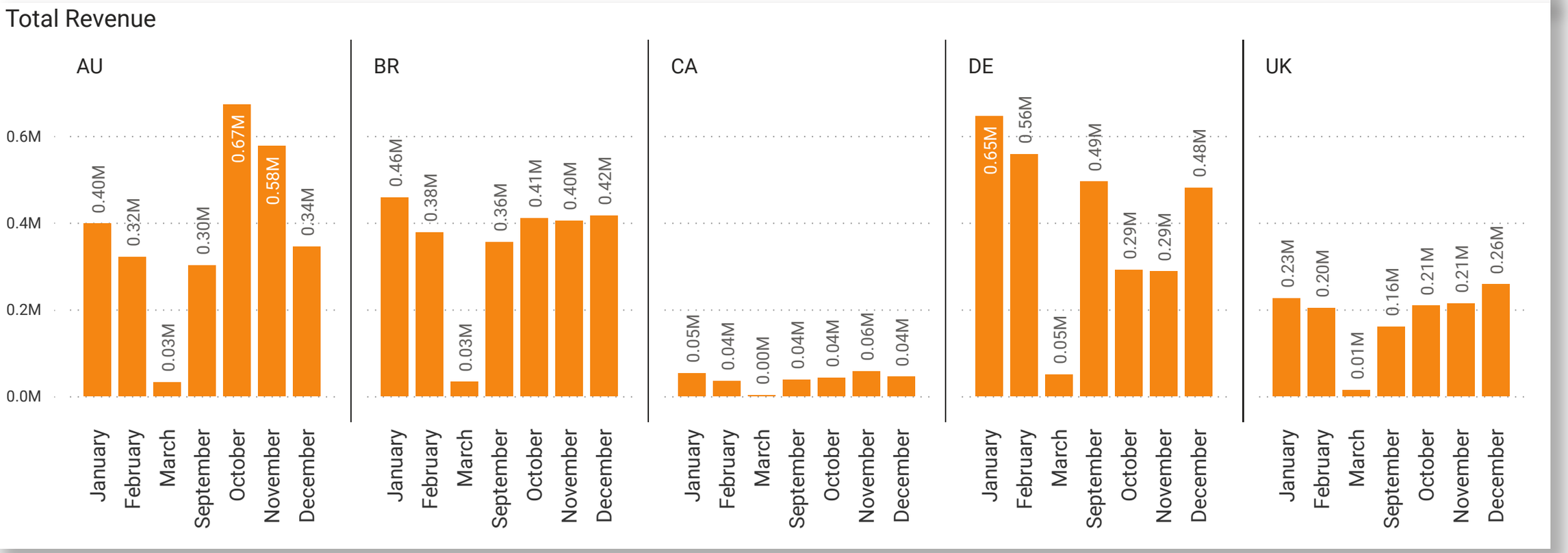
None of the markets had their highest revenue in October except Australia. More investigation should be done!



What has been the cost of the markets in different months?

Insights

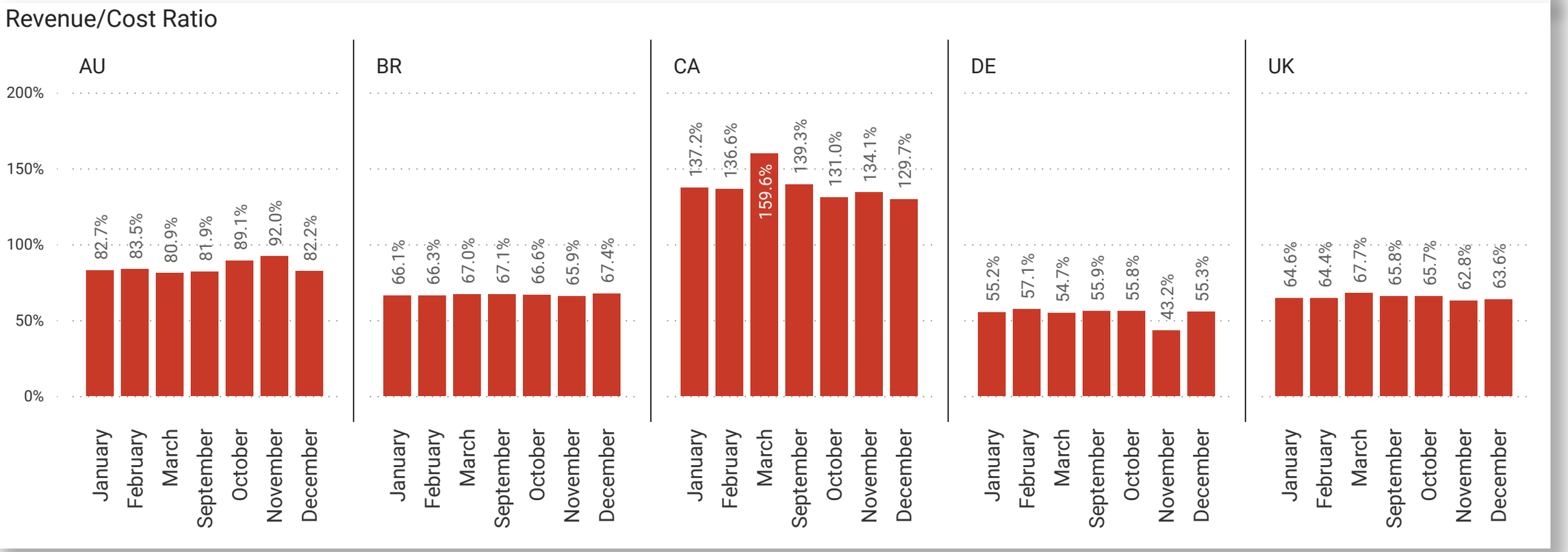
None of the markets had their highest cost in October except Australia. The more the cost is, the more the revenue is.



What about a revenue/cost ratio?

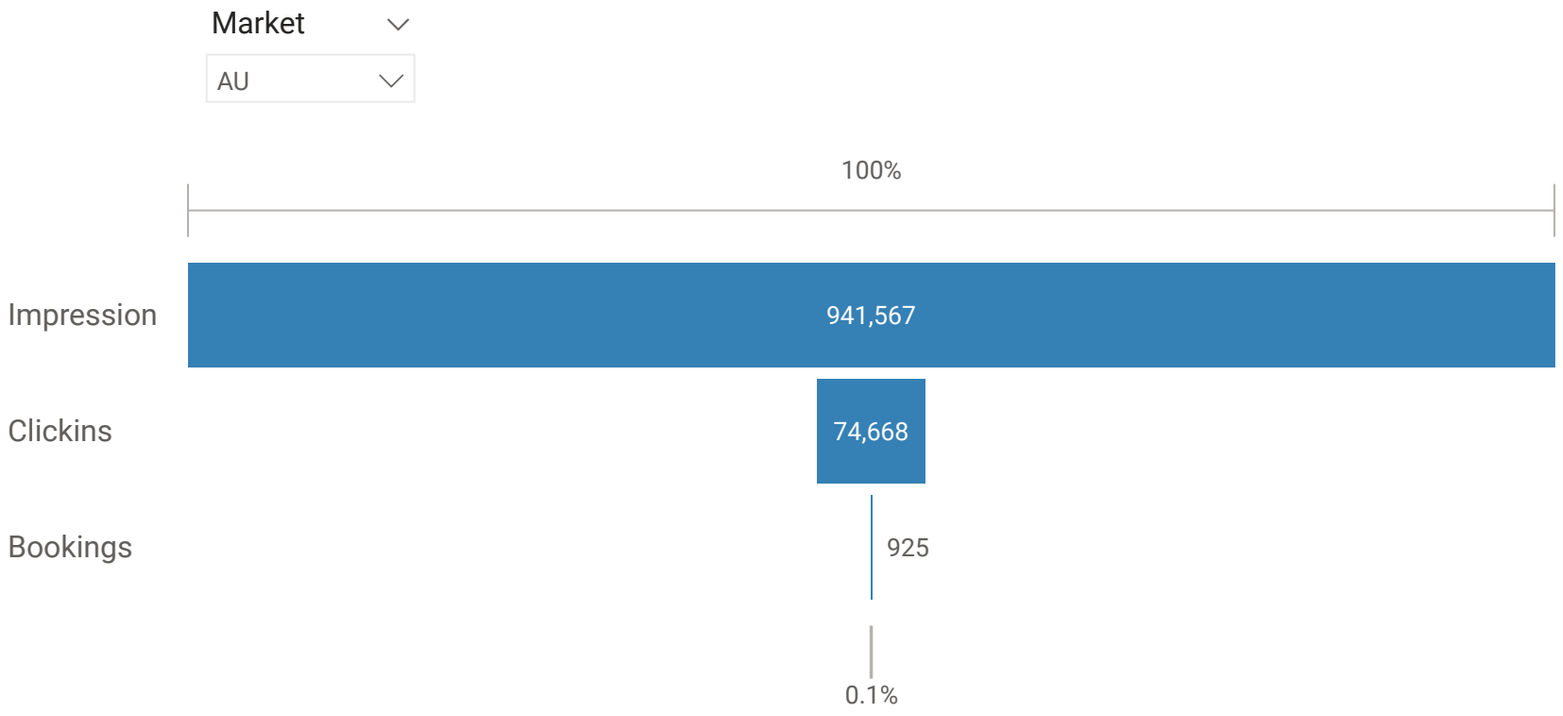
Insights

Although Canada has the highest ratio, but the marketing efforts in this market is much less than other areas.



From advertisement to action, how much conversion we get?

Total Impression by devices



Insights

Australia with 925 bookings has the highest conversion rate (0.1%).

United Kingdom and Germany with 135 and 120 bookings, have the lowest conversion rate (0.01%).

Brazil got the highest platform views rate (clickins) with 9.86%.

***

You can dynamically choose different markets to see the results.

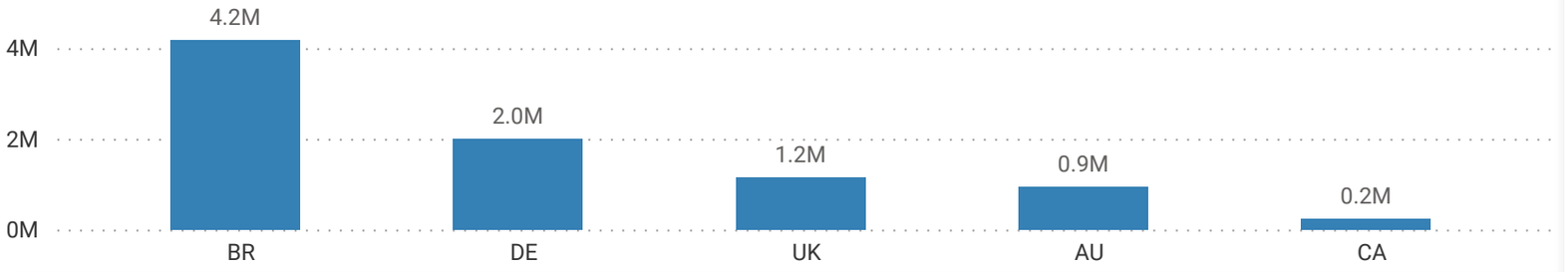
What is the best performing Market?

What is the best performing market?

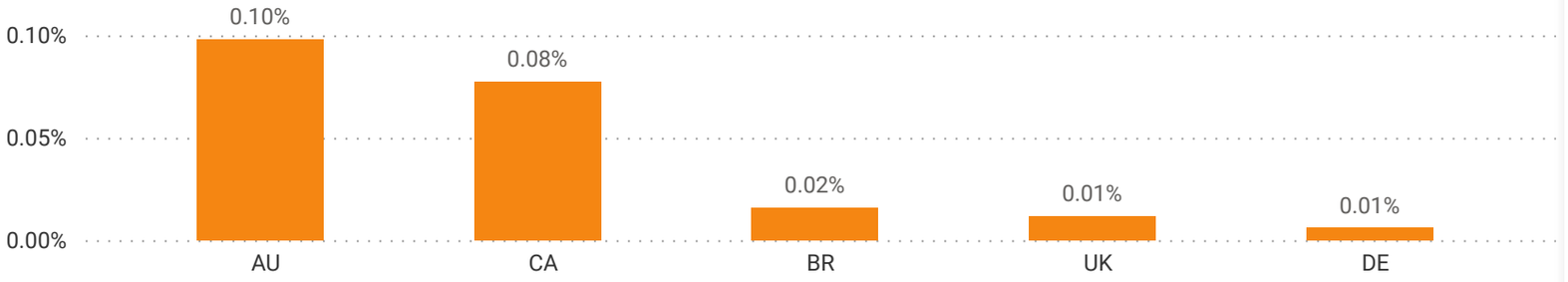
Month Name

All

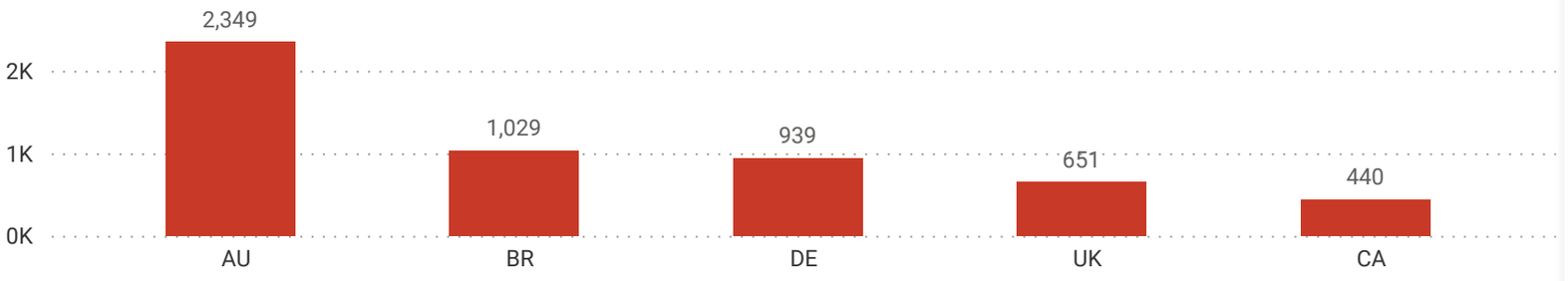
Impressions



Conversion Rate



Booking Aount



Insights

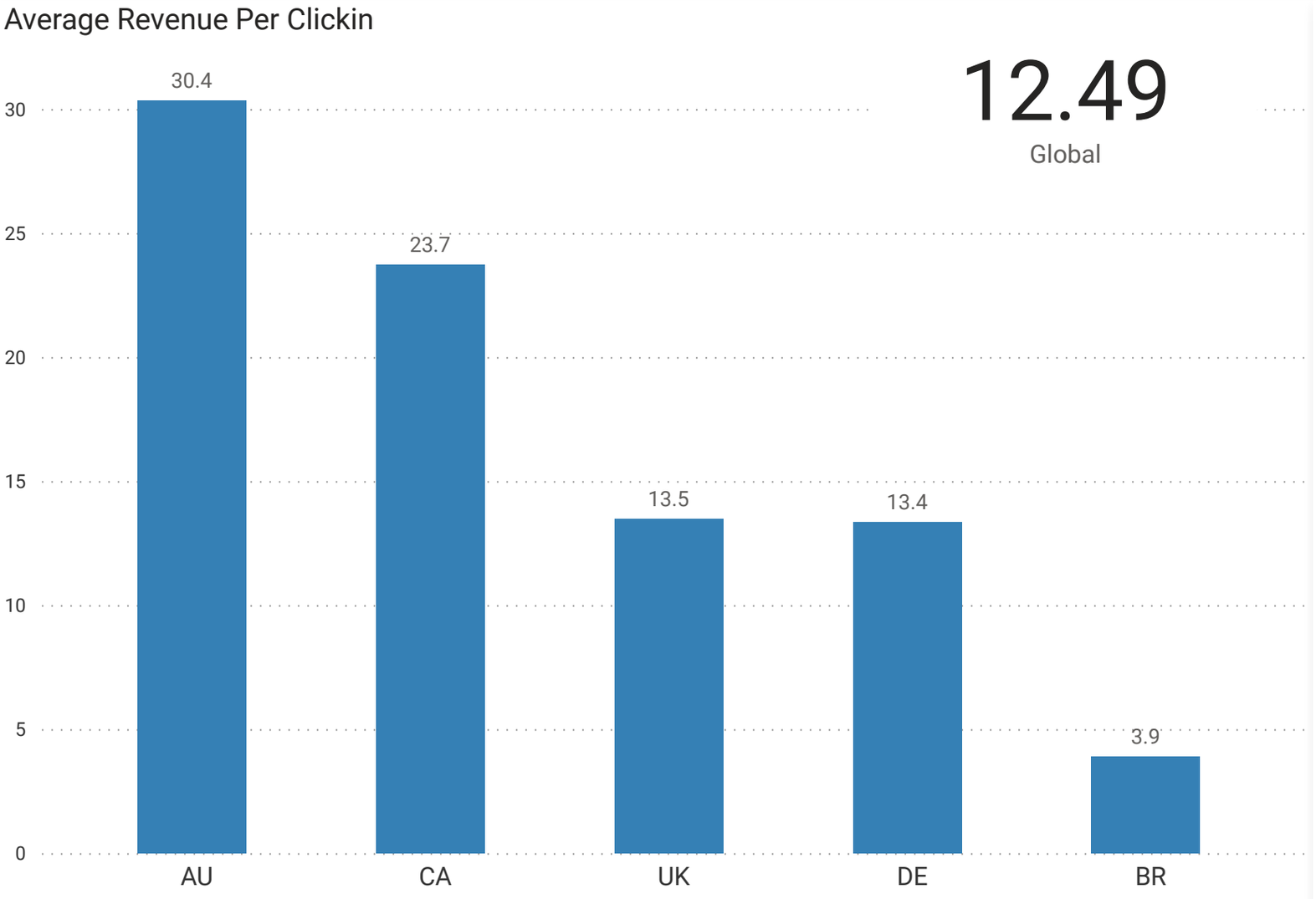
To evaluate the best market, **Impression**, **Conversion Rate** and **Booking Amount** have been considered.

- **Impression** indicates how many visits you have. Although impression share is more accurate, but according to the available data, impression is used.
- **Conversion Rate** represents the final action of the customer and the market with the highest conversion rate has higher potential.
- **Booking Amount** indicates market elasticity. The more the Booking Amount is, the more the market elasticity is.

It is obvious that Australia with less Impressions, has highest Conversion Rate and highest Booking Amount and performs best.

What are the global and market average revenue per clickin?

What are the global and market average revenue per clickin?



Insights

Australia has the highest Average Revenue Per Clickin.

Other suggested KPIs are Average Booking Per Clickin & Average Booking Amount per Booking.

***

Use the buttons below to navigate through KPIs.

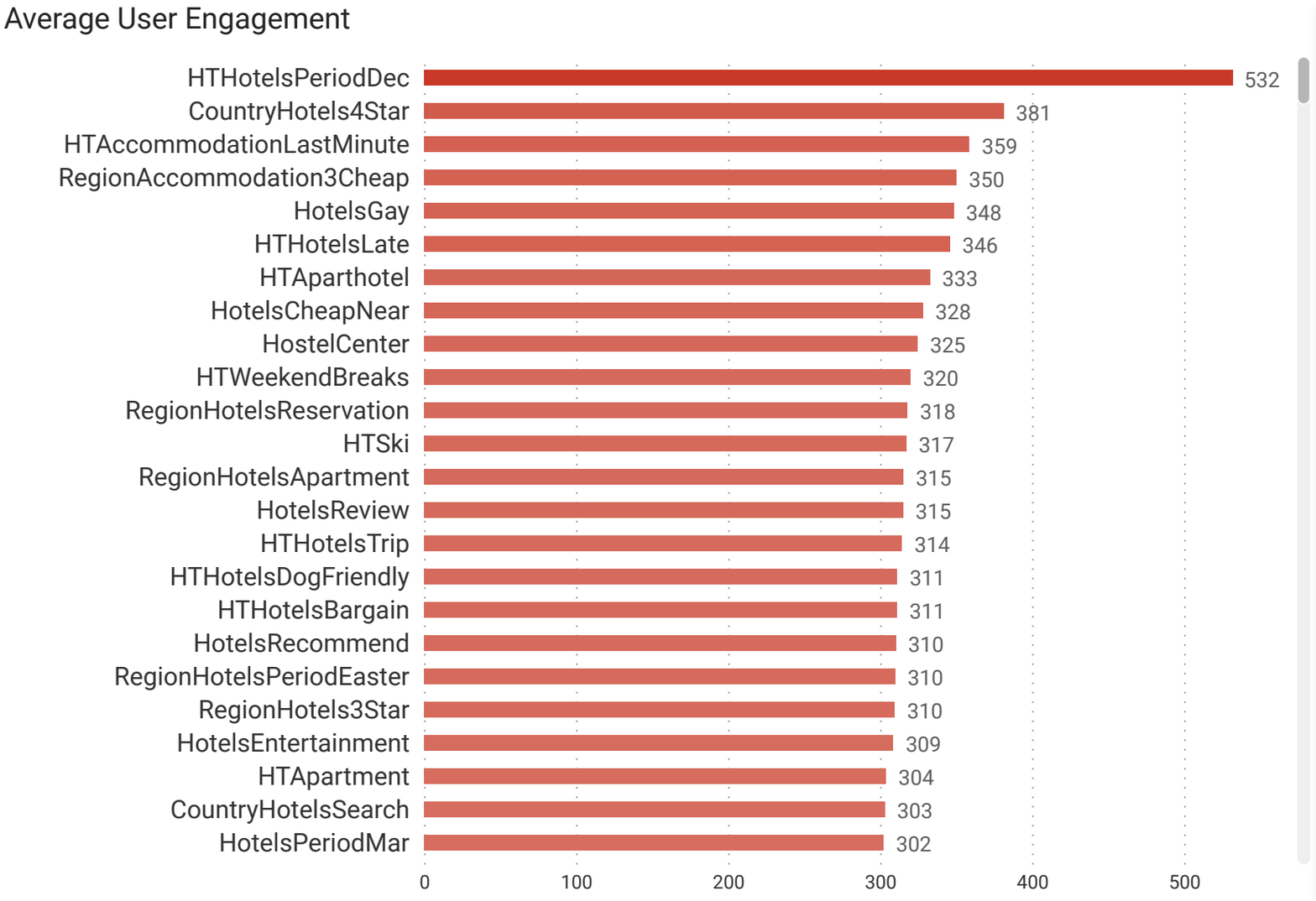
Average Revenue Per Clickin

Average Booking Per Clickin

Average Booking Amount Per Booking

How can we use `user_engagement` to explain `pub_keyword_id` or `theme_name` value?

How can we use `user_engagement` to explain keyword value?



Insights

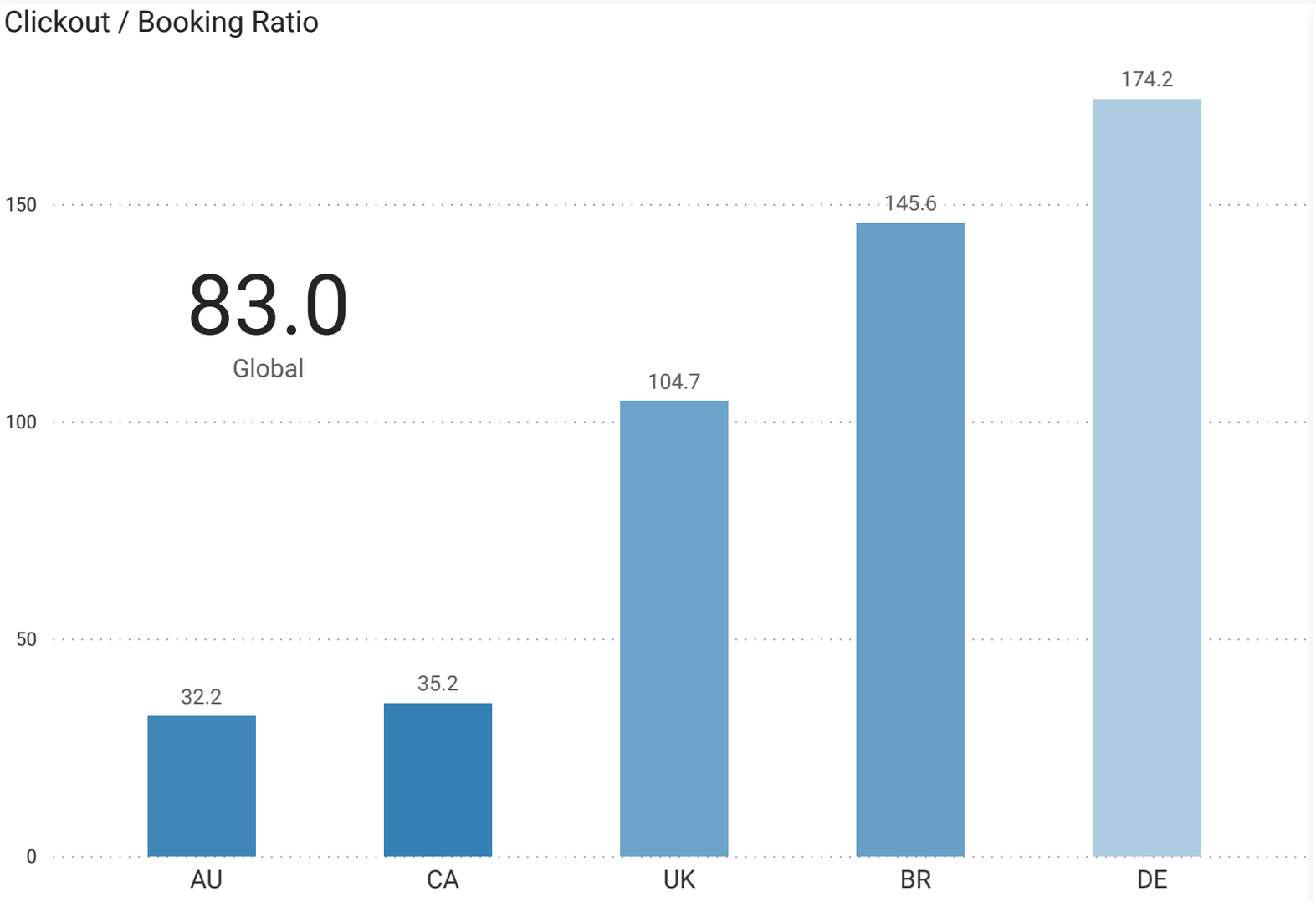
Average of Engagement has been calculated for each theme_name and and keyword_name.

You can see the list of values in the chart with the ability to dill-down.

Last time reservation seems to attract more attractive for customers.

What are the Clickout to Booking ratios by locale and what are possible explanations for observed differences? What could the SEM team do, to increase the C2B?

What are the Clickout to Booking ratios by locale?



Insights

This metric is equivalent to the interaction leading to effective action (booking).

The lower the index, the better it is. In other words, the more the booking, the larger the denominator of the fraction and the smaller the metric.

I highly recommend AI based strategies to improve this ratio:

- Behavior based messaging
- Personalization
- AI chatbots
- Customer feedbacks

What should be the average price to pay for a conversion (defined as clickouts) if we wanted a 125% ROAS (clickout_rev/cost)?

What should be the average price to pay for a 125% ROAS?

6,646,776
Total Revenue

9,468,130
Total Cost

70.2%
ROAS

Insights

You can see the calculations for total revenue and total costs.

Currently, ROAS is about 70%.

To reach 125% ROAS, costs should be about 5,300,000 which means 45% decrease in costs.

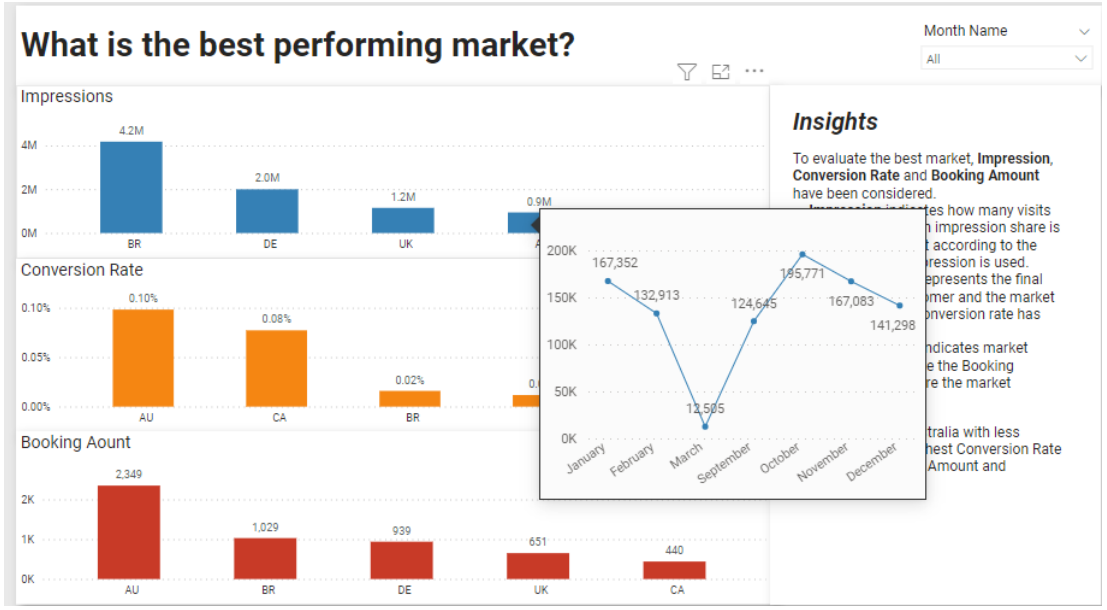
SEM team has tested a new bidding algorithm only in the Australian market (AU) during Oct-Nov.

- Please summarize the business impact of the test, and explain what you would suggest as next steps.
- Describe how we can ensure that your findings are statistical significant?

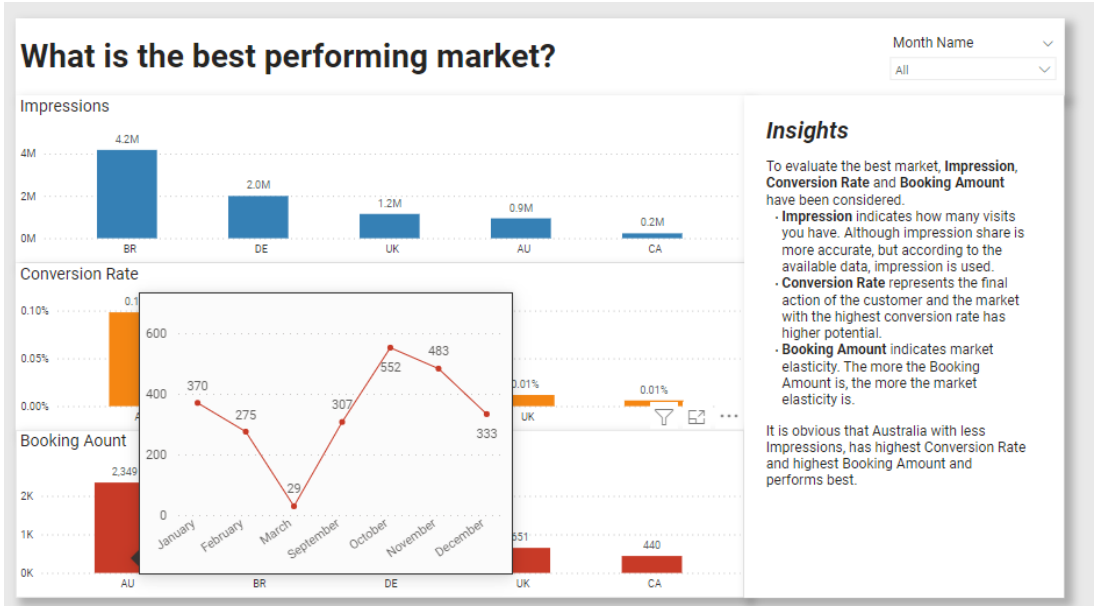
First of all, we can see that Impressions and Number of Bookings has been increased during October and November. Since there are different bidding algorithms, we can guess that the new algorithm was Conversion Optimized Bidding.

From the trend lines, it is obvious that it caused positive trend.

Impressions



Bookings



What is t Test?
The Independent Samples t Test compares the means of two independent groups in order to determine whether there is statistical evidence that the associated population means are significantly different.

In this case I used python to run t Test on impressions and bookings. I compared the mean value of these features in October with previous month to check whether there is any significant difference after new bidding algorithm or not.

```
In [8]: df_september = df_joined[df_joined['MonthName']=='September']
        df_october = df_joined[df_joined['MonthName']=='October']
        df1 = df_october['bookings'].dropna()
        df2 = df_september['bookings'].dropna()

In [9]: ttest_ind(df1,df2)
Out[9]: Ttest_indResult(statistic=1.1101904737439745, pvalue=0.26691774901156523)

In [10]: df3 = df_october['impressions'].dropna()
         df4 = df_september['impressions'].dropna()

In [11]: ttest_ind(df3,df4)
Out[11]: Ttest_indResult(statistic=-3.18312456723912, pvalue=0.0014570810872017814)
```

As you can see in pvalues, difference between *bookings* in October and September is **not significant**
but
difference between *impressions* is **significant**. It means that bidding algorithm somehow worked well.