

METROCAR

Funnel Analysis



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1. **Summary:** A short paragraph describing the TL;DR of your analysis, including the key results and recommendations.
2. **Context:** Everything necessary to give someone the context around the customer funnel, including descriptions of the individual funnel steps and the dataset.
3. **Results:** All your analysis results, including those that don't make it into the presentation. Include charts and explanations, details of any data cleaning, etc. Outline each business question, the relevant results, and any insights or recommendations.
4. **Appendix:** Code (links or include directly), links to any Tableau dashboards and spreadsheets. (sql query, tableau and link for recomment)

Executive Summary

Metrocar's funnel analysis reveals a significant drop-off from ride acceptance to completion, primarily due to high demand volumes during peak hours (8-10 AM and 4-8 PM). To address this issue, I recommend increasing the number of active drivers during rush hours, promoting ride-sharing options to encourage user participation or implementing price surging during peak hours to attract drivers. I also find out that many users still haven't completed their first ride, so I would suggest offering a discount voucher after a user complete his first ride.

Context

Metrocar is a ride-sharing platform that operates as a user-friendly intermediary connecting riders and drivers through its mobile application. Its customer funnel includes the following stages:

1. **App Download:** A user downloads the app from the App Store or Google Play Store.
2. **Signup:** The user creates an account in the app, including their name, email, phone number, and payment information.
3. **Request Ride:** The user opens the app and requests a ride by entering their pickup location, destination, and ride capacity (2 to 6 riders).
4. **Driver Acceptance:** A nearby driver receives the ride request and accepts the ride.
5. **Ride:** The driver arrives at the pickup location, and the user gets in the car and rides to their destination.
6. **Payment:** After the ride, the user is charged automatically through the app, and a receipt is sent to their email.
7. **Review:** The user is prompted to rate their driver and leave a review of their ride experience.

The Funnel Analysis:

In any user journey, it is completely normal to anticipate a drop-off at each stage. Not all individuals who download the app will proceed to sign up, and not all signed-up users will actively utilize the service. This attrition, known as drop-off, is a typical aspect of the user acquisition and retention process. To address this, a comprehensive funnel analysis is crucial.

Here are the main reasons:

Quantifying Drop-off: The primary objective of a funnel analysis is to quantify the drop-off that occurs at each stage of the user journey. By tracking the conversion rates from one stage to the next, we can identify precisely where and how users are exiting the funnel. This data-driven approach enables us to understand the bottlenecks and identify areas where improvements are needed.

Identifying Causes: More than just quantifying the drop-off, the funnel analysis helps us uncover the underlying causes of attrition. We can identify patterns and trends that shed light on user behaviour and the pain points experienced at each stage. These insights are invaluable for designing interventions that address the root causes of drop-off.

Taking the Right Actions: Armed with an understanding of the causes of drop-off, we can develop data-informed strategies to mitigate the attrition. These strategies may involve optimizing the user experience, enhancing app features, or offering targeted incentives to users at critical stages of the funnel.

Focused Energy: Not all stages of the funnel are created equal. The funnel analysis helps us discern where it makes the most sense to focus our efforts. By concentrating on the stages with the highest drop-off or those most critical to the business objectives, we can allocate resources effectively to improve the overall user journey.

By conducting a thorough funnel analysis, we can gain valuable insights into user behaviour and systematically enhance the customer experience. This data-driven approach empowers us to make informed decisions that drive user engagement, conversion, and business growth.

Business Questions:

The analysis directly addressed the following business questions:

1. What steps of the funnel should we research and improve? Are there any specific drop-off points preventing users from completing their first ride?
2. Metrocar currently supports 3 different platforms: iOS, android, and web. To recommend where to focus our marketing budget for the upcoming year, what insights can we make based on the platform?
3. What age groups perform best at each stage of our funnel? Which age group(s) likely contain our target customers?
4. Surge pricing is the practice of increasing the price of goods or services when there is the greatest demand for them. If we want to adopt a price-surging strategy, what does the distribution of ride requests look like throughout the day?
5. What part of our funnel has the lowest conversion rate? What can we do to improve this part of the funnel?

The dataset

For the analysis, has been used the company dataset comprises the following 5 tables:

1. **App Downloads:** a table with unique download key, download time stamp (exact time and date of the event) and platform (web, Android and iOS) and the age range of the customers.
2. **Sign-Ups:** after the sign-up, the user gets its unique ID. The timestamp and the age range is also recorded.
3. **Rides:** here all rides are uniquely registered with the timestamp of the main stages of the service: user request, ride acceptance, pick-up, drop-off and eventually a cancellation. The table also includes user and driver IDs and the pick-up and drop-off point.
4. **Transactions:** contains information about financial transactions based on completed rides ride ID, amount, payment status and timestamp
5. **Reviews:** here there are information about driver reviews once rides are completed, with a unique review ID, ride, user and driver ID. Rating from 1 to 5 and the user feedback.

Query the database

To explore and retrieve data from the database has been used the PostgreSQL language. To construct the user funnel has been taken into account only the first ride for each user. The first step of the funnel, that counts the app download, has been calculated by counting the unique download key. The second step counts all user ID, a unique value generated when a user signup. All the other step of the funnel refer to the count of distinct user ID at the moment of the recorded timestamp for each event of the funnel (ride request, ride accepted, ride completed, payment and review. The conversion rate and drop off between each stage has been calculated with the lag() function.

funnel_step	step_name	user_count	drop_off	drop_off_rate_percentage	conversion_rate_percentage
1	app downloads	23608			
2	signups	17623	23608	25.00	75.00
3	ride requests	12406	17623	30.00	70.00
4	ride accepted	12278	12406	1.00	99.00
5	ride completed	6233	12278	49.00	51.00
6	payment completed	6233	6233	0.00	100.00
7	reviews	4348	6233	30.00	70.00

To gain a more in depth understanding of all customer journey on a broader picture and spot any possible reason for the huge drop-off between the ride accepted and completed. By constructing a funnel at ride granularity, it is possible to see that many rides do not get accepted and that there is still a 10% of drop off between the ride accepted and the ride completed.

funnel_step	step_name	ride_count	drop_off	drop_off_rate_percentage	conversion_rate_percentage
1	ride requests	385477			
2	ride accepted	248379	385477	36.00	64.00
3	ride pickup	223652	248379	10.00	90.00
4	ride dropoff	223652	223652	0.00	100.00
5	ride payment completed	212628	223652	5.00	95.00
6	ride reviews	156211	212628	27.00	73.00

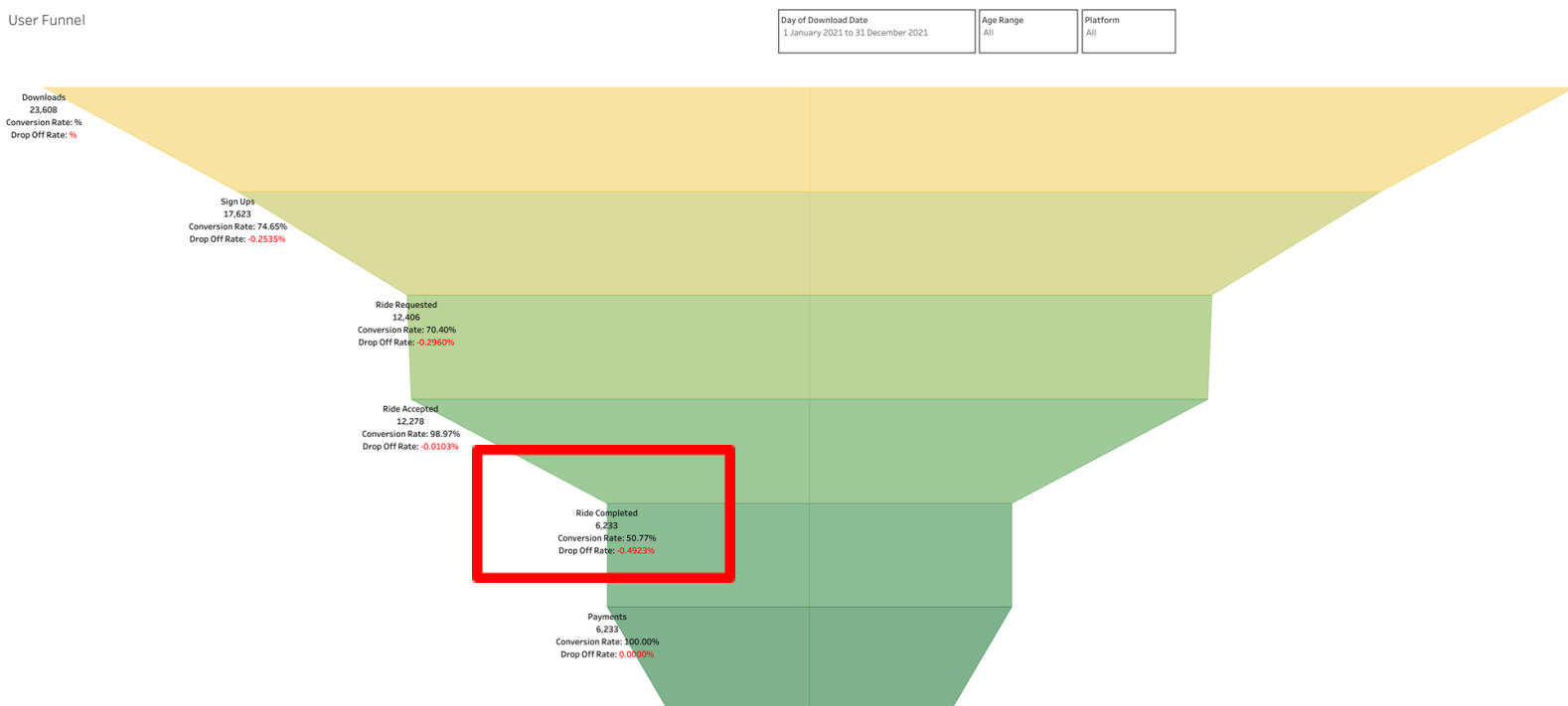
Creating the Dashboard

At this point, the analysis moved to identify all possible reasons for the drop-off, starting by extracting all relevant data to actually plot both funnels and to allow all stakeholder to clearly see the results and explore them further by filtering per platform, age-group and date. For this scope have been used Tableau. The relevant data were extracted, and the queries used can be consulted [here](#). To suggest accurate data driven solutions, I also calculate the difference in time between each stage of the funnel per each ride.

Results

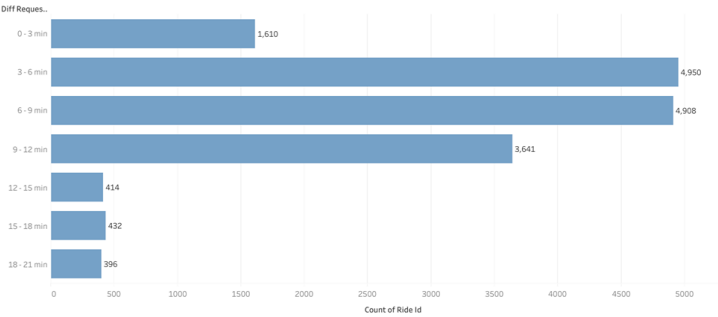
1. What steps of the funnel should we research and improve? Are there any specific drop-off points preventing users from completing their first ride?

The main drop in the funnel is between the stage of Ride Accepted and Completed with a drop of almost 50%, with only 6,233 rides completed over 12,278 accepted.

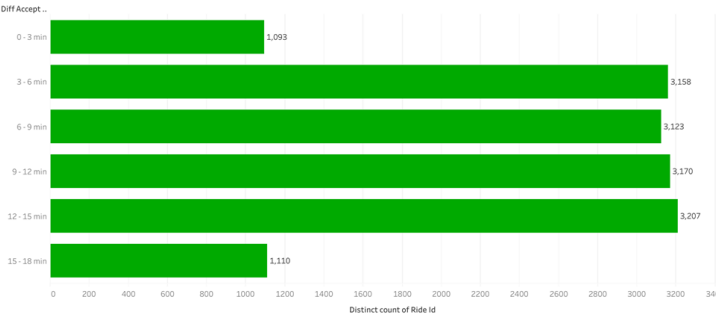


By looking at all rides (not only the first one), it's possible to see that most of the rides get accepted between 3 and 12 minutes, since the ride is accepted the majority of the user get picked up in 3 to 15 minutes. The dashboard below allow you to dig-down into the waiting time at each step of the service.

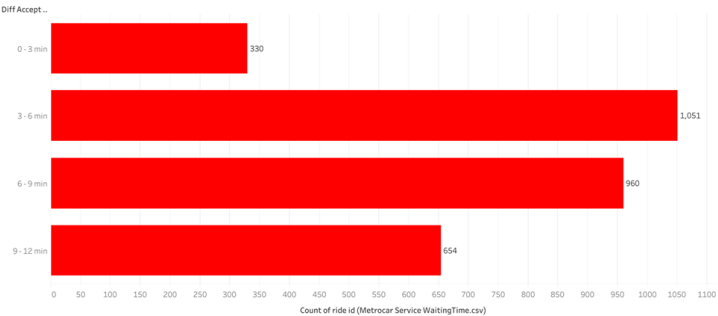
WT_Request-Accept



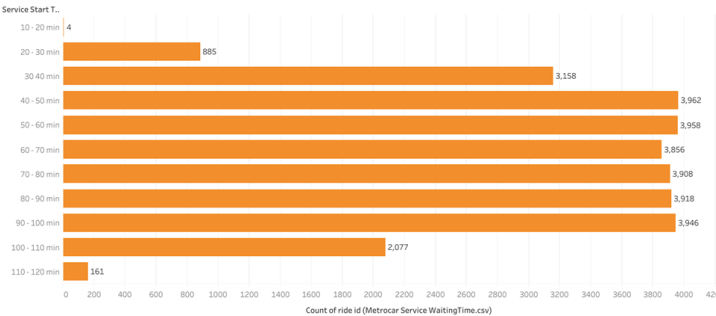
WT_Accept-PickUp



WT_Accept-Cancel

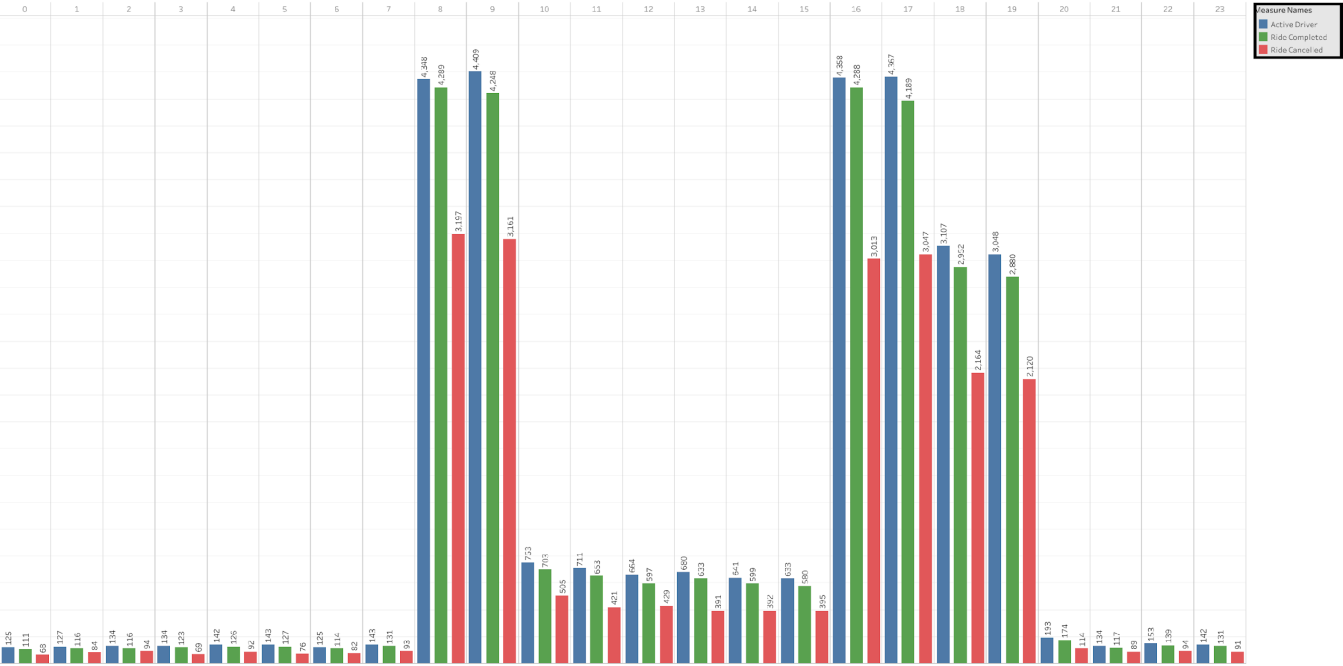


AVG Service Duration



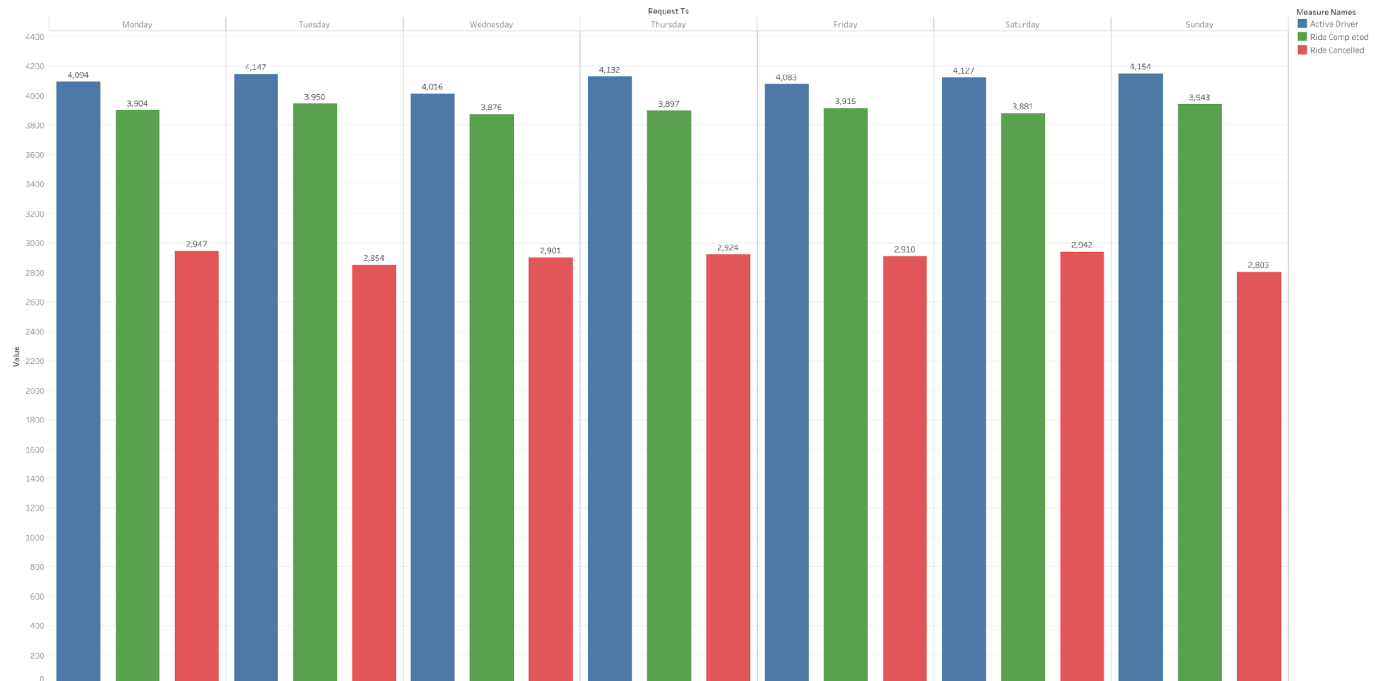
It's clear that the waiting time has a huge impact on the cancellation rate. By looking at the 8am and 10am hours range, it's possible to see that almost 3,200 rides get rejected each hour.

Driver Availability by Hour



During the all week we can see a similar trend, on average the active driver, ride completed and cancelled have a high degree of similarity.

Driver Availability by Day

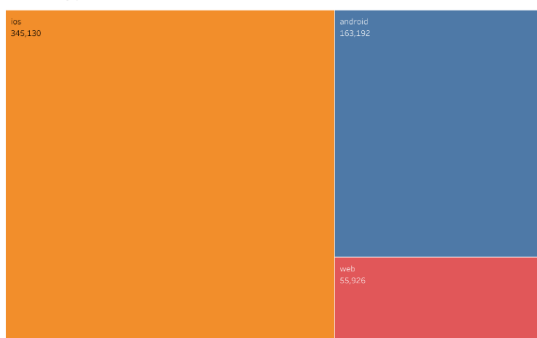


It is recommended to understand better if there are any area that are not well served so to recommend drivers to be present in those areas, and as well increase the awareness about the share rides so to be able to serve more users at the same time. This way will definitely increase the efficiency of the service by also making rides less expensive.

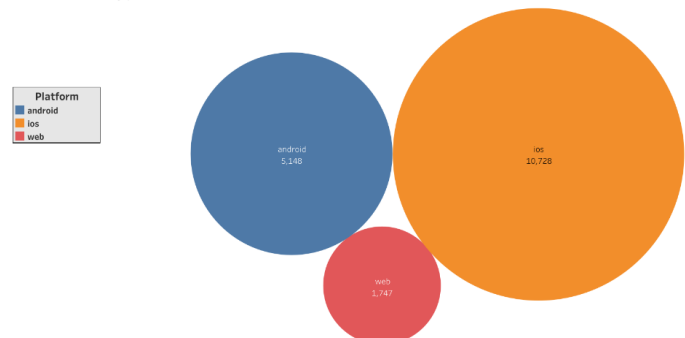
2. Metrocar currently supports 3 different platforms: IOS, android, and web. To recommend where to focus our marketing budget for the upcoming year, what insights can we make based on the platform?

The dashboard below suggest allocating most of the marketing budget in the iOS platform, which for today is the one that is working the best. The web channel budget can be reduced, it is not only underperforming, but also the app makes the service experience more user-friendly. I would suggest re-using the reduction of the marketing budget for the web channel for the android platform because around 70% of user worldwide own an android powered device. ([Statista](#))

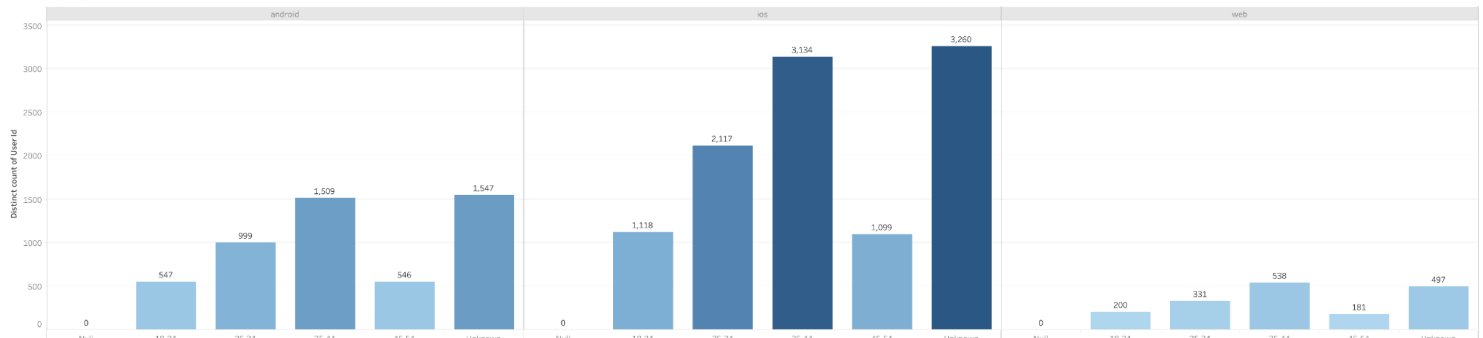
revenue by platform



Rides by platform

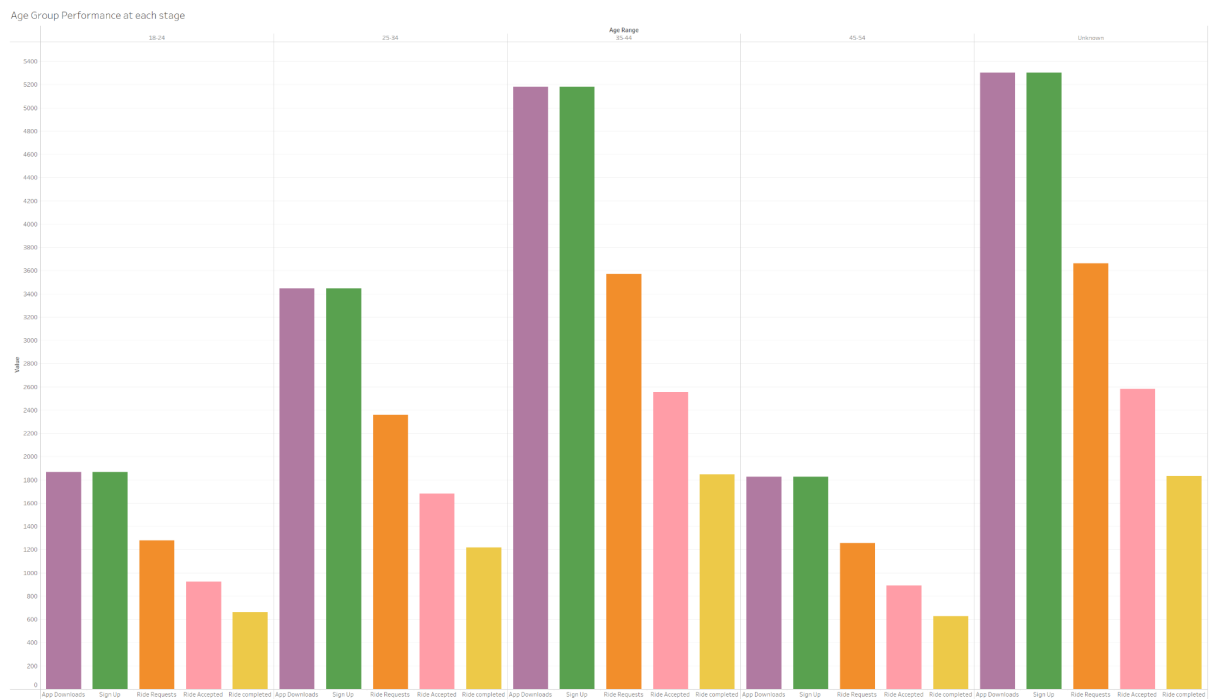


Age Range by platform



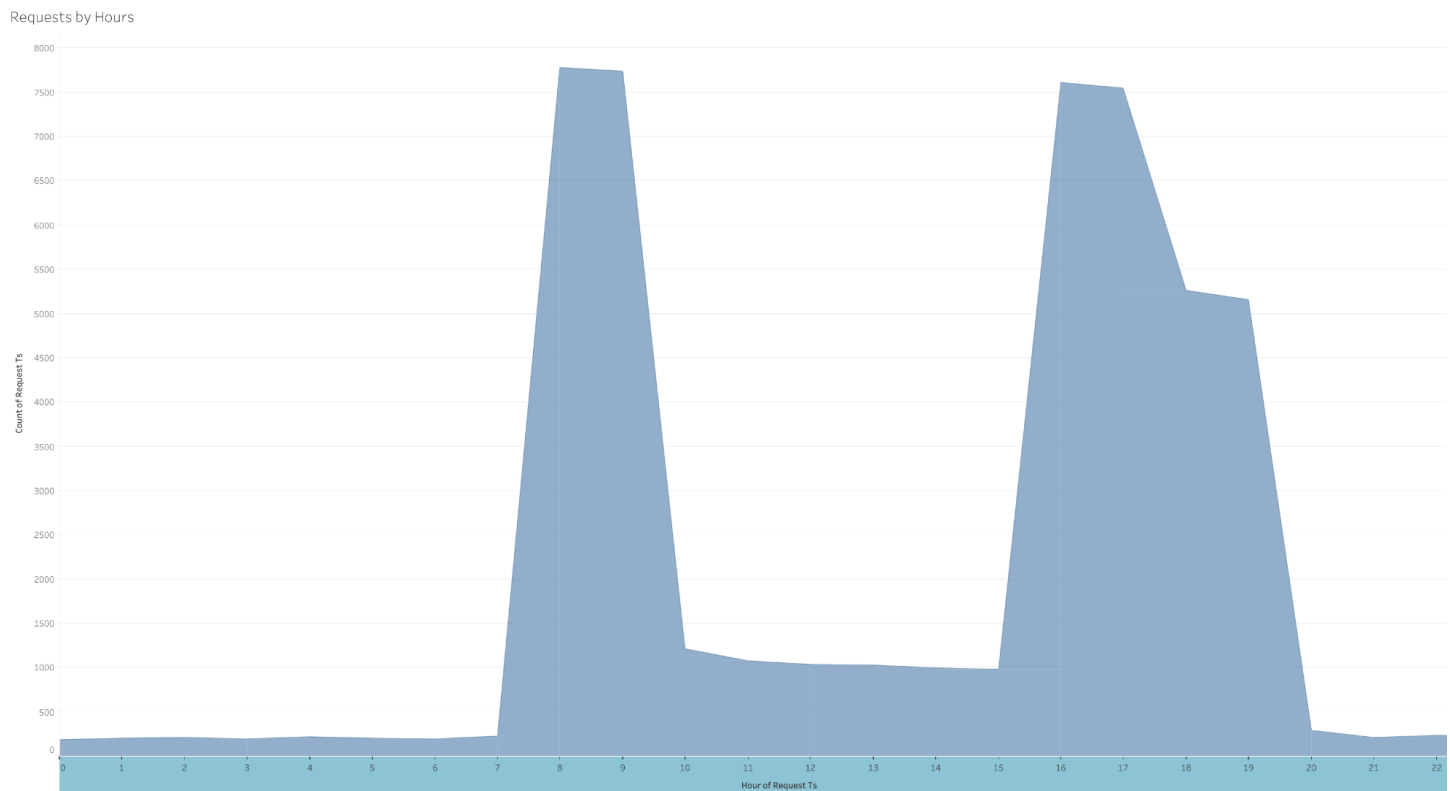
I suggest allocating the 55% of the marketing budget to the iOS platform, 40% to Android to unleash its potential and the remaining 5% to the Web.

3. What age groups perform best at each stage of our funnel? Which age group(s) likely contain our target customers?



The age between 35 and 44 years old perform the best with around 5200 users, but we need also take into account that 5300 users did not share their age, so the real group age can potentially be a different one. Gain a better understanding of the user in the unknown bin could definitely lead to a better answer, however most market research about ride-sharing showcase that 45% of users between 18 and 29 years old uses the service and the 36% belong to the 30-49 age group according to many market research company. With this in mind, I suggest focusing the attention on the 25-34 and 35-44 age groups, with slightly more attention to the first one because they could also be more open to implement a share rides which is the suggestion to decrease the drop-off between request and cancellations.

- 4. Surge pricing is the practice of increasing the price of goods or services when there is the greatest demand for them. If we want to adopt a price-surfing strategy, what does the distribution of ride requests look like throughout the day?**



There are 2 daily picks, one between 8 and 10 in the morning and then between 16 and 20. Surge pricing can encourage more driver to enter the market when demand is high, helping to balance supply and demand. This can result in faster service and better availability for customers. On the other side, price surging can generate negative media coverage and public backlash, damaging a company's reputation. It may also lead to regulatory scrutiny in some markets. It can also lead to customer churn during surge periods, as some users may seek alternatives or choose to wait until prices return to normal. By looking at the graph above, it's clear that most of the requests fell between 8-10 am when most of the people start work and between 4 and 8 pm when they came back home.

5. What part of our funnel has the lowest conversion rate? What can we do to improve this part of the funnel?

The lowest conversion rate occurs at the ride complete stage. The reason at this point are well known and most of the suggestions made before are valuable to invert the trend. It's also worth considering offering a discount after the completion of the first ride. This can encourage more users to try the service and increase the conversion rate at this stage.

Explore the Dashboard

I would suggest that you all have a look at the dashboard available [here](#). Here you will be able to analyse trends and patterns on your own. In particular, I have added the option to filter the result of each funnel by Age-Group, Platforms or Date.

Conclusion

To improve the conversion rate of the step that is currently underperforming, I recommend to further investigate the areas where the rides get cancelled the most and persuade drivers to be present in those areas. Use a price surging technique can increase the number of drivers working on peak hours and reduce the waiting time for the users.

I also recommend including an option of ride-sharing, where the driver can pick up more than one user during the same journey. Other competitors in the market have this option, and they state that the service will be on average 20% cheaper, and it usually increases the total service time of 8 minutes on average. The choice can also be promoted as an eco-choice, because by picking up more users on the way will prevent the driver to go back and forth, helping to reduce CO2 emissions. The ride-sharing formula is also supported by the fact that the majority of Metrocar user are professional. Both options must be discussed with developers to understand the actual cost and time of developing a reliable algorithm for the app.

Finally, in terms of our marketing budget allocation, I recommend prioritizing iOS platforms. We should channel the majority of our budget towards iOS (55%), while reducing the allocation for the web platform (5%). The funds saved from this reduction can then be reallocated to boost the presence on the Android platform with (40%). Given the widespread use of Android-powered devices, there is significant potential for growth in this market. It's important to note that our primary target audience for Metrocar falls within the age group of 35 to 44, closely followed by the 25 to 34 age group.

Appendix

1. [SQL Queries](#)
2. [Tableau workbook](#)
3. [Statista](#)