

Case Study 1

Ask

What is the problem you are trying to solve? - Compare current and ideal state, identify differences

- Question: How do annual members and casual riders use Cyclistic bikes differently?
- Current state: Cyclistic has been providing a flexible pricing plan to cater/appeal to a broader range of customers in addition to an annual membership plan. Although how successful this strategy has been to capture new riders, casual or members, is not defined, our financial analysts have concluded the business to be more profitable to increase annual members.
- Ideal state: Annual memberships increase, creating a steadier and more stable cash flow into the business. While sales change depending on the fluctuation in casual riders, a higher level of constant cash flow is guaranteed with increased membership.
- Key differences: the number of annual Cyclistic members.

How can your insights drive business decisions? - Consider key stakeholders, who they are, their expectations, and how it affects their decisions.

- Key stakeholders: Lily Moreno, Cyclistic executive team, Cyclistic
- Lily Moreno: Director of marketing and my manager. She is responsible for creating campaigns and initiatives to promote Cyclistic. Channels for the strategy could include email, social media, etc. As a manager, she will expect me to work effectively in the marketing analytics team to provide insight into my question of: "How do annual members and casual riders use Cyclistic bikes differently?" Depending on my analysis, our vision on how to convert casual riders into annual members will be affected, which will affect the marketing strategy to be designed by Lily.
- Cyclistic executive team: They will approve/reject recommended marketing programs that I will propose based on my analysis and presentation. Effectively, they will be the ones to do the 'decision' part of the data-driven decision making, where I will be the one to provide the data and the accurate analysis, our marketing team will collectively propose strategies to address the business task, and this executive team will decide on which strategies to implement. They will expect from our team the proper data, analysis, and insight on how to convert current casual members to annual members.

Deliverable: Clear statement of the business task

Business Task: Identify key customer profiles that differentiate annual members and casual riders, and utilize these findings to propose strategies that could increase annual membership.

Prepare

Data location: zip files in Amazon Web Services

Data organization: Data on past rides range from 2013 to 2023.
2013 data file includes all months.

2014 to 2017 data file is separated into quarters; however split into two files with each including two quarters.

2018 to 2020 Q1 data file is separated into quarters with a file per quarter.

2020 April to 2023 June data is separated per month with a file per month.

Issues with bias, credibility; ROCCC:

Data fields are purely objective and mostly quantitative. Qualitative fields do not leave room for bias. As data is generated internally and well updated, there is no issue with 'reliability', 'originality', 'current', and 'citation'. There are some issues in comprehensiveness depending on the data file; however, these could be overcome in analysis.

Licensing, privacy, security, accessibility, integrity: Handled by Google-mentioned license. Data-privacy and security measures are present by deletion of personally identifiable information (PID). Accessibility is put in place by nature of this public data.

How it helps answer questions: Gives comprehensive detail on all rides, both for casual and annual riders. When properly manipulated and summarized, it will give detailed insight on how both rider types use the service. This should aid in identifying differences between the riders, ultimately to aid the development of a marketing strategy to convert casual to annual riders.

Problems: Although data tracks individual bike's id, it does not track the rider's id; therefore, although we could deep dive to get an understanding of how casual riders and annual members use our service, we cannot confidently draw conclusions about how frequently each individual rider uses our services.

Deliverable: Description of all data sources used

Description: The data is provided by Motivate International Inc. under a data license agreement provided. As this is public data it is made accessible to all parties. In addition, privacy issues are managed by initial deletion of personally identifiable information. Data integrity has been carefully examined. All data is organized by each month with detailed information for all rides of both rider types. The data will most definitely provide us with thorough insight on how each rider type uses this service differently, which will further allow us to develop a marketing strategy to convert casual riders to annual members.

Process - Done in R Markdown file

Guiding questions:

- What tools are you choosing and why?
- Have you ensured your data's integrity?
- What steps have you taken to ensure that your data is clean?
- How can you verify that your data is clean and ready to analyze?
- Have you documented your cleaning process so you can review and share those

results?

Deliverable: Documentation of any cleaning or manipulation of data

Analyze - Done in R Markdown file

Guiding questions:

- How should you organize your data to perform analysis on it?
- Has your data been properly formatted?
- What surprises did you discover in the data?
- What trends or relationships did you find in the data?
- How will these insights help answer your business questions?

Deliverable: A summary of your analysis

Share - Done in Tableau

Guiding questions:

- Were you able to answer the question of how annual members and casual riders use Cyclistic bikes differently?
- What story does your data tell?
- How do your findings relate to your original question?
- Who is your audience? What is the best way to communicate with them?
- Can data visualization help you share your findings?
- Is your presentation accessible to your audience?

Deliverable: Supporting visualizations and key findings

Act

Guiding questions:

- What is your final conclusion based on your analysis?
- How could your team and business apply your insights?
- What next steps would you or your stakeholders take based on your findings?
- Is there additional data you could use to expand on your findings?

Deliverable: Your top three recommendations based on your analysis

1. Consider the development of a new annual membership program to target weekend users that ride for 15-30 mins

- Casual riders make up the majority of riders that utilize the service during weekends for the 15-30 minute trip duration range. Rather than trying to convert a smaller population of casual riders that exhibit similar riding profiles as annual members (weekdays up to ~10 mins), we believe it to be more effective to target another subpopulation of casual riders of substantial size and established riding habits that we could reliably count on to repeatedly use our services.

2. Investigate past data sources to verify whether the target subpopulation are repeated riders or not

- The limitation of our analysis is that we cannot tell how many of the casual riders are repeaters. Although we assumed the trends we observed could be extended to claim a certain riding profile about casual riders on weekends, this observation could be a result of our services simply attracting a larger, mostly new population of casual riders on weekends, not the same population of casual riders returning as repeaters. Having said that, since our services are offered only in Chicago, we believe there is good enough reason to attribute the observed trend to a subpopulation of casual rider repeaters. Verifying this limitation would be very effective in making a data-driven decision on whether this target group is an effective selection to convert to annual members.

3. Consider the development of a rewards/mileage program that could incentivize riders with longer trip durations.

- The subpopulation we are targeting are weekend casual riders. Since they would in total ride less in terms of frequency as compared to annual members that frequently use our service on weekdays, the annual membership may not be appealing enough to weekend casual riders in its current state. To address this, we must strongly consider suggestion 1. One way we could reinforce that suggestion is by implementing a mileage program that rewards longer trip durations or distance traveled - a riding profile more closely associated with the subpopulation of interest.