

PayPal P2P Team Case Study

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Objective & Context

The goal of this initiative is to add Universal Search to the PayPal mobile app. We want to make it easier and faster for PayPal users to find what they need. This initiative maps up to our organizational mission of providing convenient products and services to help users take control of their financial lives.

In this doc, we'll be evaluating the PayPal ecosystem and user base to determine common pain points PayPal users have. From there, we'll define an MVP solution that addresses those core pain points. Finally, we'll set success metrics and a rollout plan to test our MVP solution with a subset of the PayPal user base.

PayPal Users

At a high level, there are two main users of PayPal: **individuals** and **merchants**. This initiative is focused specifically on adding Universal Search to the *PayPal* mobile app, not the *PayPal Business* app. This means we'll focus on our **individual** user base. Some quick facts:

- 24% of PayPal's US users are 58 years or older (~48M users).⁵
- On average, an individual user transacts 45 times per year.²
- PayPal has users in 200 countries/regions and supports 25 currencies, but the United States has the most users.⁶

PayPal use cases

- Securely pay online with purchase protection
- Pay internationally without converting currency
- Pay for subscriptions
- Transfer money between friends/family
- Link multiple payment methods
- Defer payments with PayPal Credit
- Get/link Loyalty cards
- Buy, sell, and securely hold cryptocurrencies with PayPal
- Save with high yield savings
- Get cash back on deals
- Donate to a charity
- Create a fundraiser
- Get a debit card
- Send invoices/estimates
- Cash pickup / reload phone

Without explicit usage data around the use cases listed above, we can make an assumption based on UI prominence that the two primary Individual user use cases are:

1. Sending and requesting money
2. Managing transactions with individuals and merchants

Our target user segment

To design the most impactful Universal Search feature, we'll solve core pain points for a target user segment based on these primary use cases. We'll be focusing on users who:

- Live in the United States
- Are over the age of 58
- Send money, request money, and manage their transaction history

Our Universal Search solution will ultimately provide value for all PayPal users (in the US and globally, and under the age of 58), and cover various use cases, but solving core pain points for *this* user segment is table stakes.

Why? A user within this older demographic (which makes up about a quarter of our US user base) may not have as easy of a time adopting new search functionality⁷ – so if we can build a solution

that works for them, expanding to younger demographics will be easier. Additionally, because we've observed increasing growth amongst users over 50, we need to ensure our solution works well for these users.⁸ Finally, these core use cases are done by almost all PayPal users so if we can solve pain points surrounding them, we will be able to provide value to a large percentage of our user base.

Pain Points

Core pain points for our target user segment:

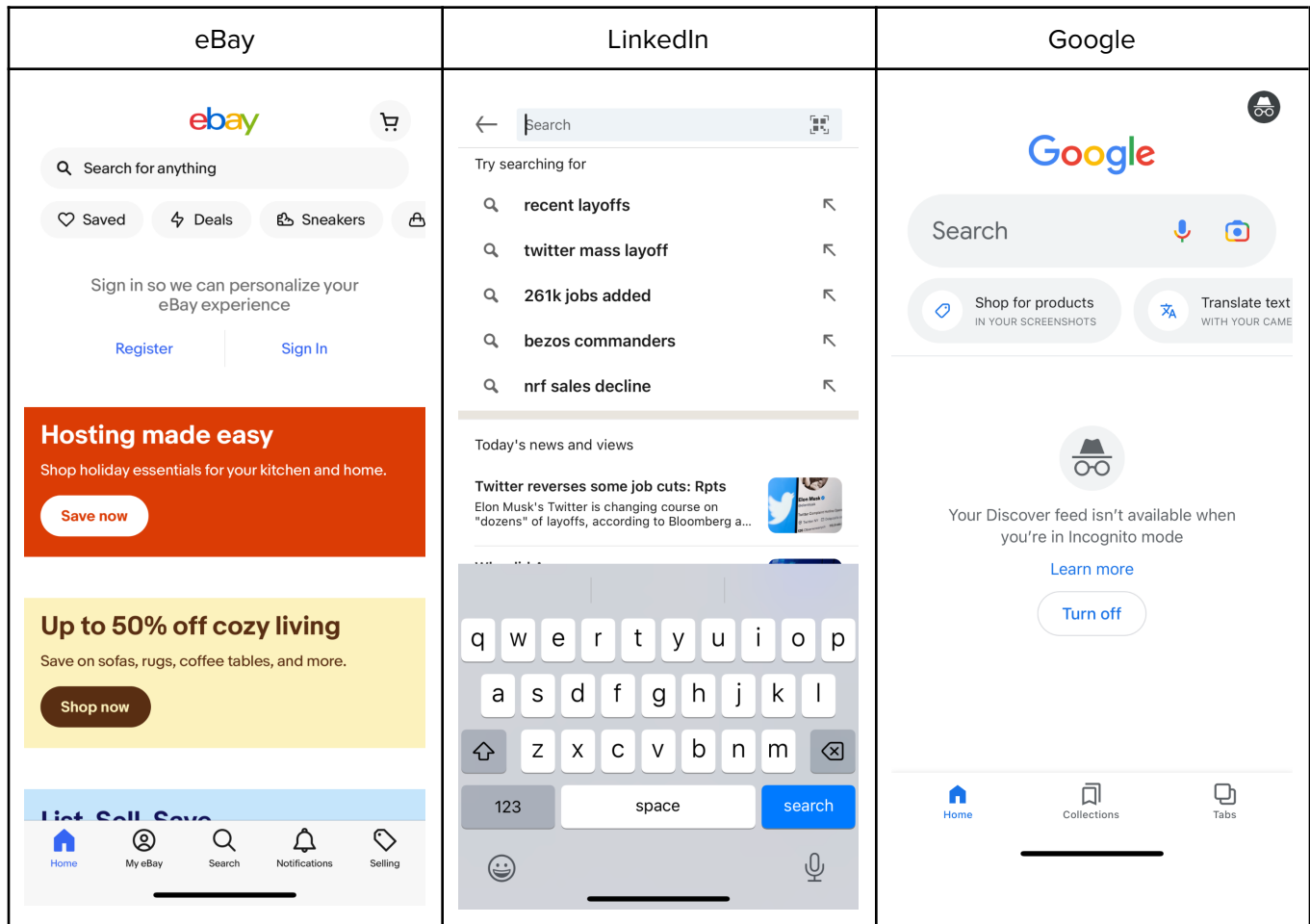
- 1. Hard time finding a contact to request money from or send money to**
 - a. The person may not be a PayPal user yet
 - b. The person may only be searchable in PayPal's database by contact info the user doesn't have
 - c. The person's name may be different on PayPal compared to how the user knows them
- 2. Hard time sifting through a lot of transactions to find the one they want**
 - a. There may be older transactions that don't appear on the Home tab or too far down on the Wallet -> Activity tab
 - b. Users may want to find transactions by different criteria (date vs name vs amount)
- 3. It takes a long time to see all past history with a specific merchant**
 - a. Seeing history with a specific merchant can take 4-5 clicks to get to
- 4. Not knowing what they can type in to find a person (email, phone, name, etc.)**
 - a. Users may spell emails wrong
 - b. Users may enter phone numbers differently than how PayPal is expecting them (+12037223285 vs 203-722-3285 vs 203 722 3285)
 - c. The person may have a different name than how the user is searching (ex: Tony vs Anthony)
- 5. Not knowing where to go on their PayPal app to find what they need**
 - a. User may not know they need to navigate to a specific tab to access certain information/features
 - b. Users may go to one tab thinking they'll find what they need just to later discover it was in another area of the app

Learning From Others

When designing an ideal Universal Search, we evaluated other native mobile solutions. A few common themes were identified:

- The Search bar placeholder text copy is high level: "Search for anything" or "Search" in order to not box the user into thinking they can only search for one/a few specific thing(s).
- The Search bar is typically on the Home tab/first tab and is at the top of the screen. It grounds the user and sets the stage that they can find whatever they need from it.

- The empty states include prompts to spark ideas in the user's brain about what they may be able to search.



Our Goal & Vision

We will be focusing on solving these core pain points through our Universal Search feature. By helping users find contacts to request/send money, find and manage transactions, and more quickly navigate through the app, we're helping execute on PayPal's overall mission to make it more convenient to transact and control their financial lives.

We believe our Universal Search feature will empower PayPal users to search through all content/features available to them from one search box, ultimately decreasing the time it takes to complete core actions on PayPal.

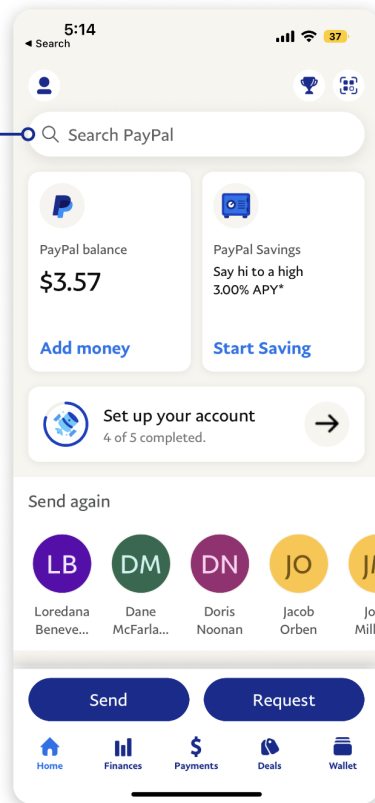
Feature Design & Prioritization

Creating a Universal Search that encompasses all content across the entire PayPal app will be a very big undertaking. In order to ensure it is worth investing resources here, we want to start by testing an MVP of Universal Search. If successful, we will continue to build out a powerful Universal Search that helps users find contacts, cryptocurrencies, and everything in between.

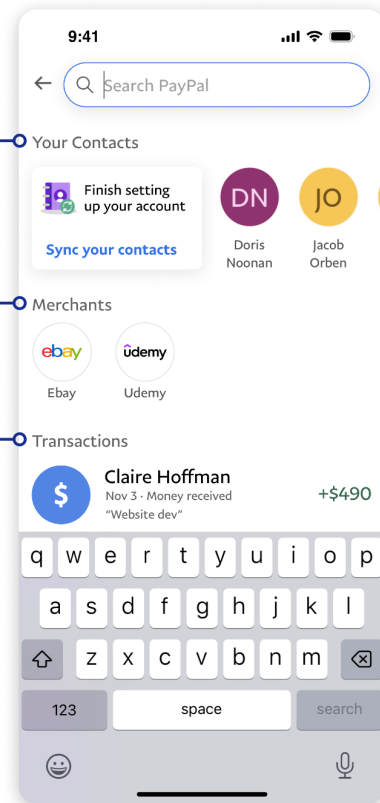
MVP Features

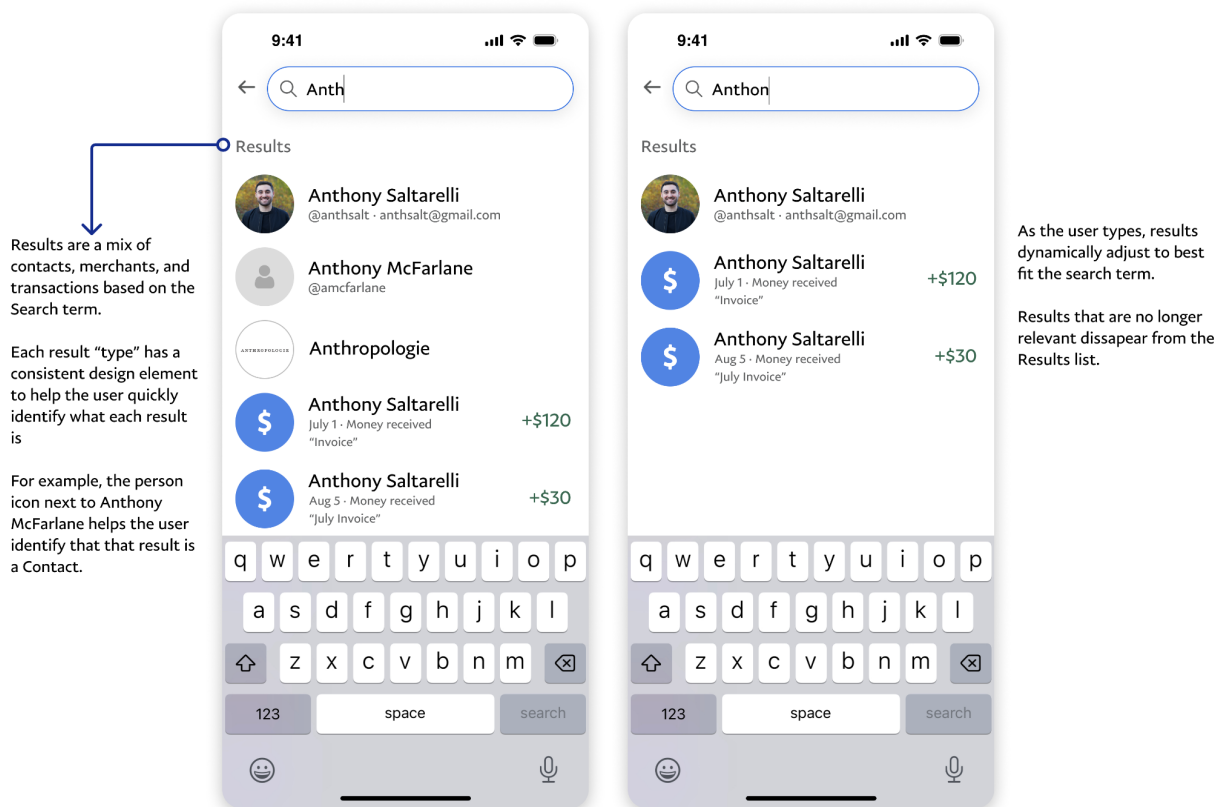
- Universal Search bar on the Home screen. Tapping will open Search autocomplete view with keyboard
- Empty state after a user taps to search with quick access to:
 - Individual Contacts the user frequently engages with
 - Prompt to request permission to access local phone contacts
 - Merchants the user frequently engages with
 - Recent transactions
- Search for Contacts, Merchants, and Transactions in one place:
 - Autocomplete search for Individual Contacts by: Name (first name, last name, or both), Email, Phone Number (normalizing different ways a user could type in number), Username
 - Autocomplete search for Merchants you've transacted with by Name
 - Autocomplete search for Transactions by Name
- Dynamic results to visually reflect result types (contacts vs transactions vs merchants)

"Search PayPal" used instead of "Name, email, etc" in an effort to not box the user into thinking they can only search for contacts. Instead, encourage them to search the entirety of PayPal.



"Your Contacts", "Merchant", and "Transactions" to provide users with context into what they can search





MVP Justification

The feature set for our Universal Search MVP is limited to an empty state and a results state because:

- These states are the fewest required to provide users with context/value and allow us to begin learning if Universal Search is really solving pain points for the user.
- Additionally, querying multiple data sets across PayPal's ecosystem at the same time, while returning results quickly, will be a big technical challenge/undertaking. In an effort to keep scope limited, features like "Auto expand core options" mentioned in [Future Iterations](#) have been deprioritized from the MVP.

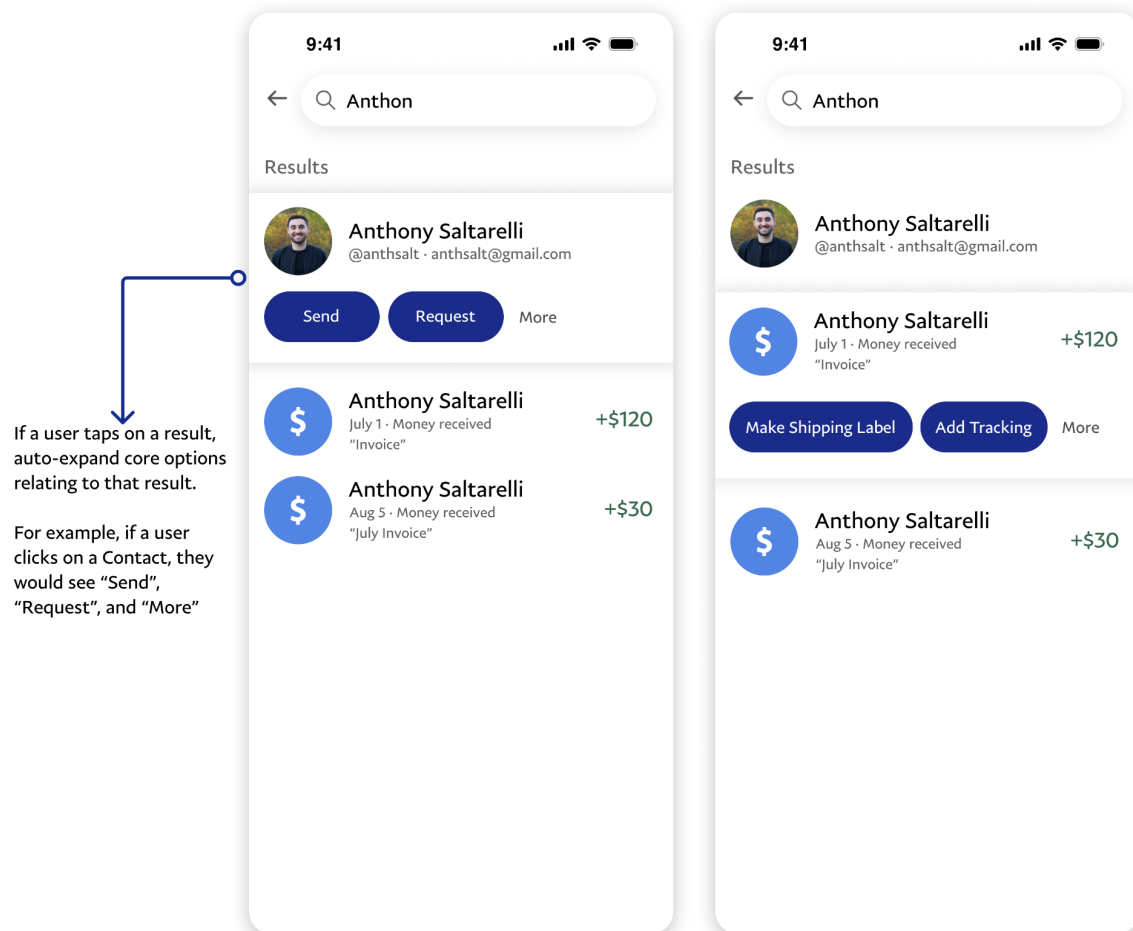
Risks & Tradeoffs

1. Including the Search bar on the Home screen:
 - By taking up prominent real estate on the Home Screen, we may accidentally introduce friction to complete certain actions by pushing the rest of the Home screen content/features down
2. Getting permission to access local phone contacts

- Note: this may have been previously solved in other areas of the app, but we will still want to be cognisant of these risks for our Universal Search solution as well:
 - User privacy concern about syncing user's contact list & associated data, resulting in users not giving permission
 - Technical challenges associated with combining local phone contact information with PayPal's contacts database, all while returning results fast.
 - We need to make sure duplicate results aren't returned which could confuse users. (Seeing two Anthony Saltarelli contacts would confuse the user around which to tap)
3. MVP not including entire scope of searchable items
- Our MVP will only allow searching Contacts, Merchants, and Transactions. By not including cryptocurrencies for example, we may be accidentally training users that this Search bar will always be limited to these result types.
 - A way to guard against this in the future will be updating the empty state with different result types to educate the user.
4. Time & resources it'll take to build, launch, and maintain Universal Search
- Adding Universal Search to the UX adds another layer of complexity to maintaining the PayPal app. We have to ensure routing continues to function properly from Search & elsewhere.
 - Additionally, to be a true *Universal* Search, we should eventually support all types of PayPal content and features which will create additional work in the future as new PayPal functionality is launched.
 - Committing to Universal Search means fewer resources can be dedicated to other functionality.

When we test our MVP, we will be monitoring these areas closely.

Future Iterations



- Auto-expand core options within search results instead of navigating user to new screen
 - For example, if a user searches an individual contact and taps on a result, we can prompt them with "Send", "Request", or a "More" option. This will reduce friction to complete a core option and establish Universal Search as a powerful tool.
- No results state to collect feedback about what the user was trying to search for. (can be used to prioritize order of following features)
- Improved result matching (If you search Tony Saltarelli but the contacts name is Anthony Saltarelli, the contact would still show up based on last name, despite not being an exact string match)
- Search for Invoices
- Search for Merchants deals by Name
- Search for Cryptocurrencies
- Search for Charities
- Search Transactions in additional ways (ex: date, amount)

- Filter results by category (ex: Invoices, Crypto, etc.), date, etc.
- Additional routes & search terms will be evaluated based on data we can gather from early iterations. We will specifically look at users who begin searching, fail and abandon.

Success Metrics

We will be monitoring multiple metrics with our MVP solution to determine if our Universal Search feature is providing value to users and accomplishing our goal/vision or if it needs improvement.

Primary

If we are solving our user's main pain points, we should see a decrease in the amount of time it takes for users to complete core actions:

Decreased average time between app open → core use case completion

Core use case completion is an umbrella metric measuring users who do one of the following:

- a. Send money
- b. Request money
- c. View a past transaction

Secondary

These secondary metrics will help us determine if there are different areas of the Universal Search feature we may be able to improve/optimize.

App open → core use case completion rate within a session

- Does saving time to reach a contact/transaction/etc with Universal Search get more users to complete core use cases?

Home view → search start rate

- How many users are even starting searches?
- Is the Search bar appealing and clear enough to prompt users to search?

Search start → abandon rate

- How many users begin searching for something and then abandon?

Search start → result click rate

- How many users begin searching and select a result?
- Does this differ by result type? (Ex: finding transactions takes more time than contacts)

Average time between search start → result click

- How long does it take to select a result? (Is the UI simple enough for users to quickly select what they want to select)
- Does this differ by result type?

Average clicked search result index value

- What is the average position users are clicking on results? If it's low (1-2) then our autocomplete is working very well. If it's a couple results down (3-6) our autocomplete is performing okay. If it's higher, we probably need to optimize our algorithm to return better results.

Number of WAUs using Search

- Are more users using Search over time?

Breakdown of result type clicks

- Are users just searching for one type of content (contacts for example) or are they also searching for transactions and merchants?

Search start → no results rate

- How often are we failing to find any results for the user?
- Are there any commonalities for search terms that are causing no results to appear?

App open → contact permission given rate

- Are most users giving us permission to access their contacts? If not, can we message it in a better way to increase this metric?

Counter Metrics

Since our Universal Search bar will be on the Home tab and take up prime real estate, we want to ensure we are not unintentionally hurting other core metrics. To monitor this, we will track:

Decreased new user account completion rate

- Are fewer new users completing their account set up because the Universal Search bar is pushing down critical onboarding steps?

Decreased product expansion rates

- Are fewer users signing up for PayPal savings, buying Crypto, or signing up for merchant deals?

Decreased average GMV transacted

- Are we unintentionally decreasing the amount of money processed through PayPal by introducing the Search bar and taking up Home screen real estate?

Rollout Plan

To ensure we are improving the PayPal app's user experience by introducing Universal Search, we will be testing this feature. We will A/B test our MVP with a small group of new and existing users within our target user segment.

Versions:

- Control: Current PayPal app without Universal Search (Start at 90% of audience)
- Variant: PayPal app with Universal Search (Start at 10% of audience)

Audience: Users who:

- Live in the United States

- Are over the age of 58

Primary Metric:

- Average time between app open → core use case completion

We will be including new users in this experiment to ensure adding a Universal Search bar doesn't negatively impact core account setup / top of funnel metrics. We will be starting the A/B test variant at 10% of our target audience so that we can iterate without affecting the majority of users in this audience.

If the results of the A/B test are positive (primary measure of success achieved and no negative side effects) we will expand our test cohort to all users in the United States regardless of age. If our metrics in the expanded cohort are also positive, we will roll out the MVP to all United States users.

From there, we will begin improving the Universal Search experience by executing additional features on the roadmap and eventually expand Universal Search to be supported internationally.

Note: If our A/B test results are negative, we will investigate potential causes, iterate, and re-run the experiment.

Summary

To recap, we will be A/B testing an MVP of Universal Search with the goal of decreasing the amount of time it takes to complete core actions (send money, request money, view/manage transactions). We based this MVP on solving core pain points that users in our target user segment face. If the test returns positive results, we will expand the functionality of Universal Search and eventually roll out the feature globally.

If you have any questions, please let me know! Anthony Saltarelli

Appendix

1. In 2021, PayPal had 426 million users, who transacted at least once in the year. ([source](#))
2. The average account transacted 45 times per year on PayPal in 2021. ([source](#))
3. There were 24 million merchant accounts on PayPal in 2019. ([source](#))
4. 81% of US millennials, 79% of Gen-Xers, 65% of Gen-Zers, 68% of baby boomers use PayPal ([source](#))
5. Population in the US: Boomers- 70M, Gen X- 65M, Millennial- 72M, Gen Z- 68M. ([source](#))
 - a. Approximate PayPal user base in 2021 taking into account percent of population using PayPal⁴:
 - i. Boomers (58-76): 48M

- ii. Gen X (42-57): 51M
 - iii. Millennial (26-41): 58M
 - iv. Gen Z (10-25): 44M
- 6. The USA is the country that uses PayPal the most. ([source](#))
- 7. “Older adults face a number of hurdles to adopting new technologies” ([source](#))
- 8. PayPal users aged 50 and over grew rapidly in the first two quarters of 2020. ([source](#))