

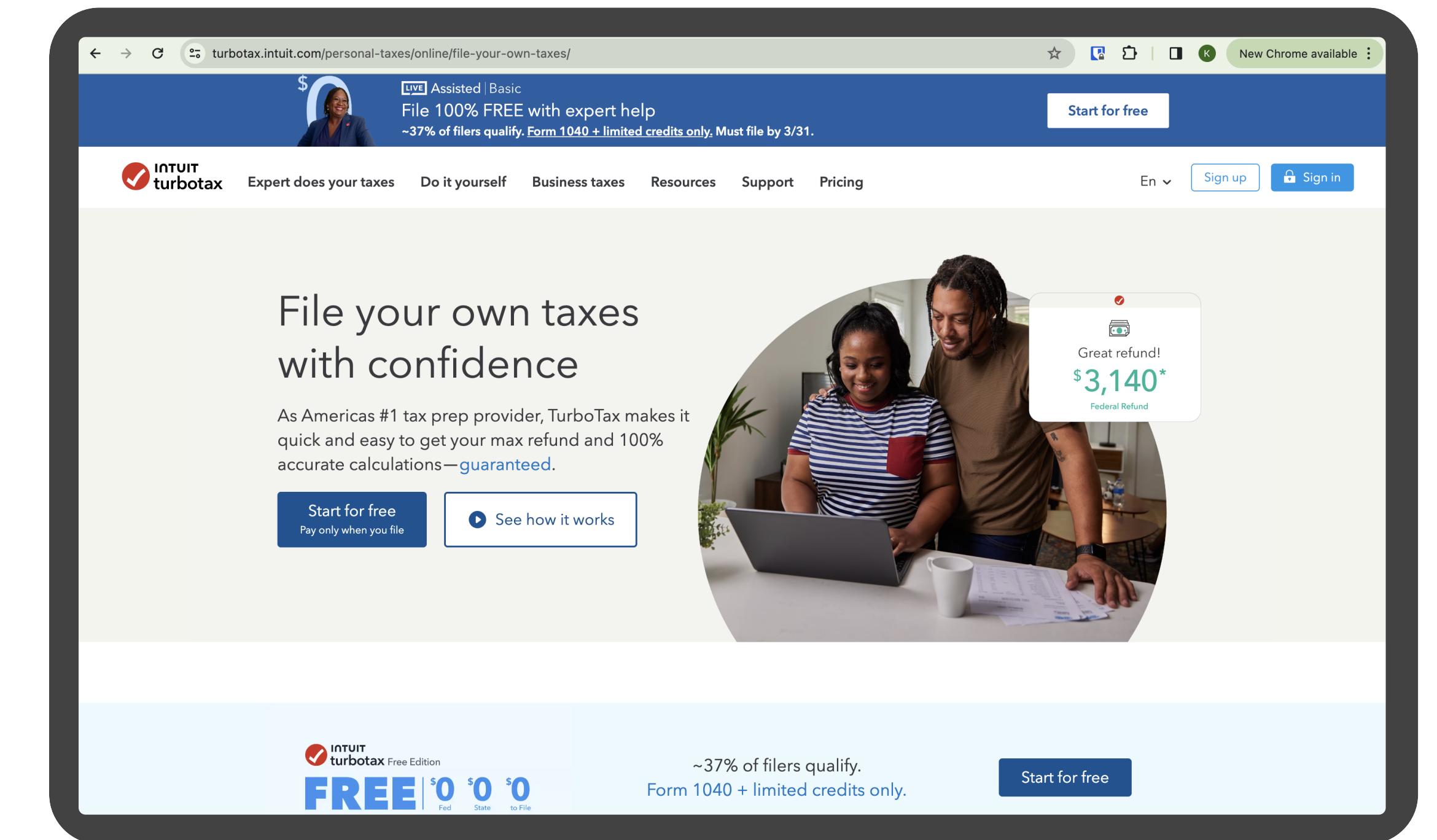
# Automating data entry through tax filing

**Karena Vongampai**

Case study from my time at Intuit TurboTax

# TurboTax is a DIY tax solution used by ~30 million customers

TurboTax is Intuit's flagship product that aims to simplify the complex and time consuming process that Americans go through each year to file their tax return.



## Problem statement

As a tax filer, I am trying to...

# Enter data into my tax return

One of the most common tax forms that Americans receive is the W-2. These forms have an average of 25 fields, and takes TurboTax users roughly 12 minutes to enter. For other forms like the 1099-B (investments), which each financial institution structures differently, this problem becomes even more severe.

**01** Minimize the number of errors I enter

**02** Minimize the time it takes to complete taxes

**03** Reduce anxiety, stress, and frustration

My objective

As the lead designer, I...

**Introduced new methods to automate data entry and designed reusable layouts to expand automation to the top 10 tax forms**

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**2 months**

Timeframe

**Product & Engineering**

Team

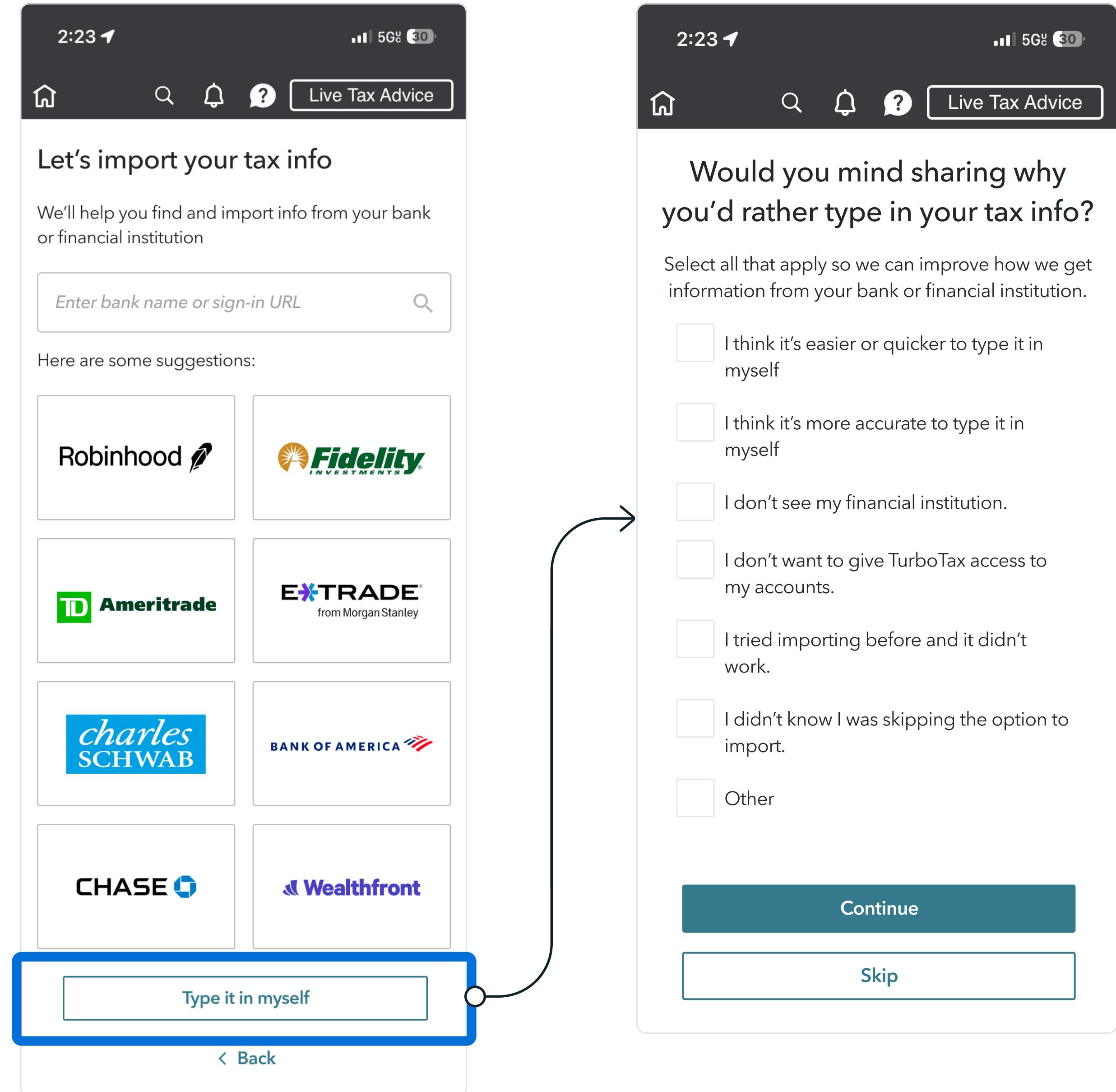
01

# Creating a plan

# Why weren't all TurboTax users importing their tax documents?

30% of all tax forms were automatically entered, but our business goal was to increase this to 55% by EOY. We had anecdotal information that explained why users did not import their forms from their financial institutions, but no quantitative data to identify the top blocker.

I pitched the idea of running a low-cost in-product survey to narrow in on the problem space.



# Importing tax docs for easier data entry wasn't a one size fits all solution

## Top survey responses

**01** “I tried importing before and it didn’t work”



Some forms are distributed physically or digitally to the user before it's available to import in TurboTax

**02** “I don't see my financial institution”



For each form we partner with a number of financial institutions, but our coverage isn't 100%

**03** “I don't want to give TurboTax access to my accounts



Some users expressed privacy concerns around sharing all their financial accounts with TurboTax

Creating a plan

# The vision for easier data entry

What we learned proved that automating data entry wasn't going to be a one-size fits all solution too. To meet user and business goals, we'd need various auto-entry methods.

2:23 ▶ 5G 30 Live Tax Advice

### Upload your 1099-R

Use a PDF or even a picture of your form saved as JPG or PNG.

Browse

How can I get a digital copy of my form?  
How many forms can I upload at once?

Change how I enter my form

◀ Back

2:23 ▶ 5G 30 Live Tax Advice

Great choice! We'll get your form entered in no time

We'll help you take a picture-perfect image and then copy the info right to your tax return.

All you'll have to do is review.

Continue

◀ Back

2:23 ▶ 5G 30 Live Tax Advice

### Let's import your tax info

We'll help you find and import info from your bank or financial institution

Enter bank name or sign-in URL

Here are some suggestions:

- Robinhood
- Fidelity INVESTMENTS
- TD Ameritrade
- E\*TRADE from Morgan Stanley
- charles SCHWAB
- BANK OF AMERICA
- CHASE
- Wealthfront

Type it in myself

◀ Back

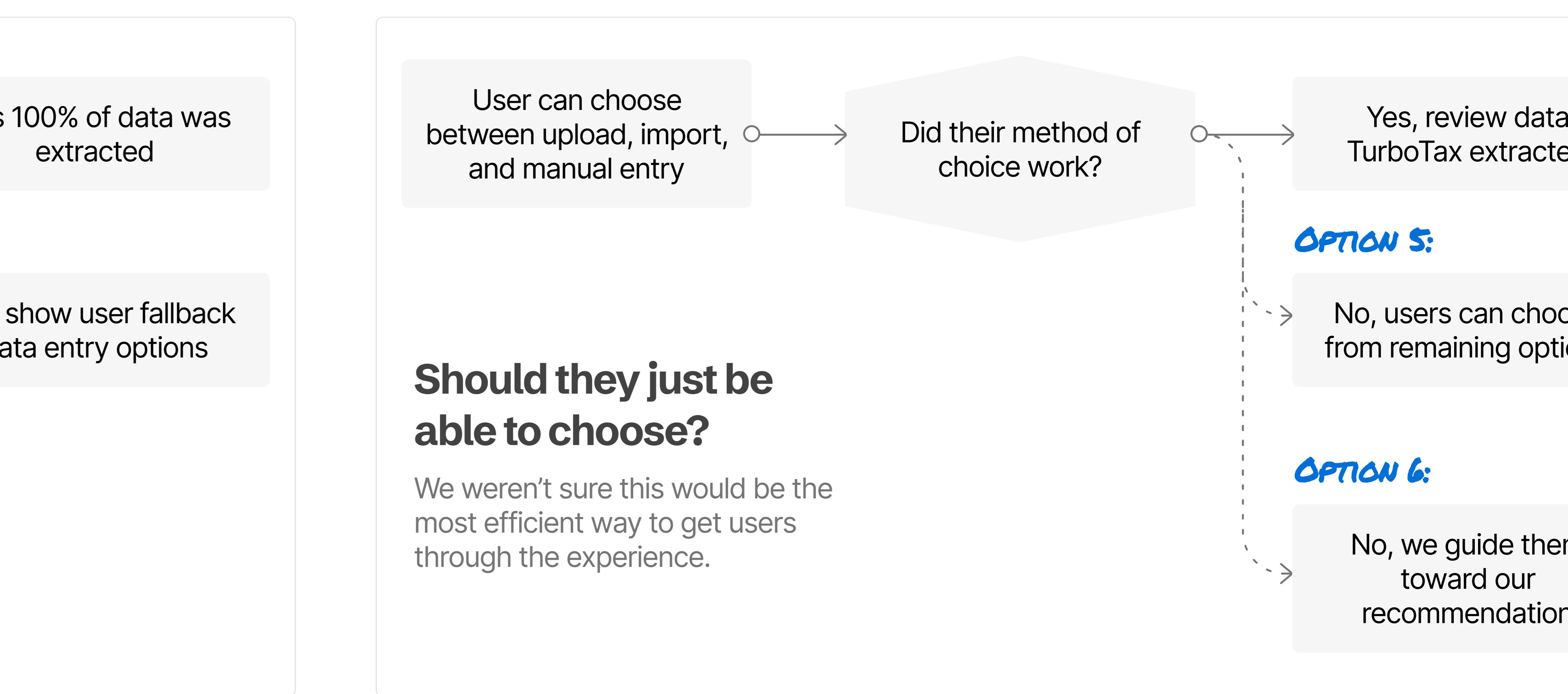
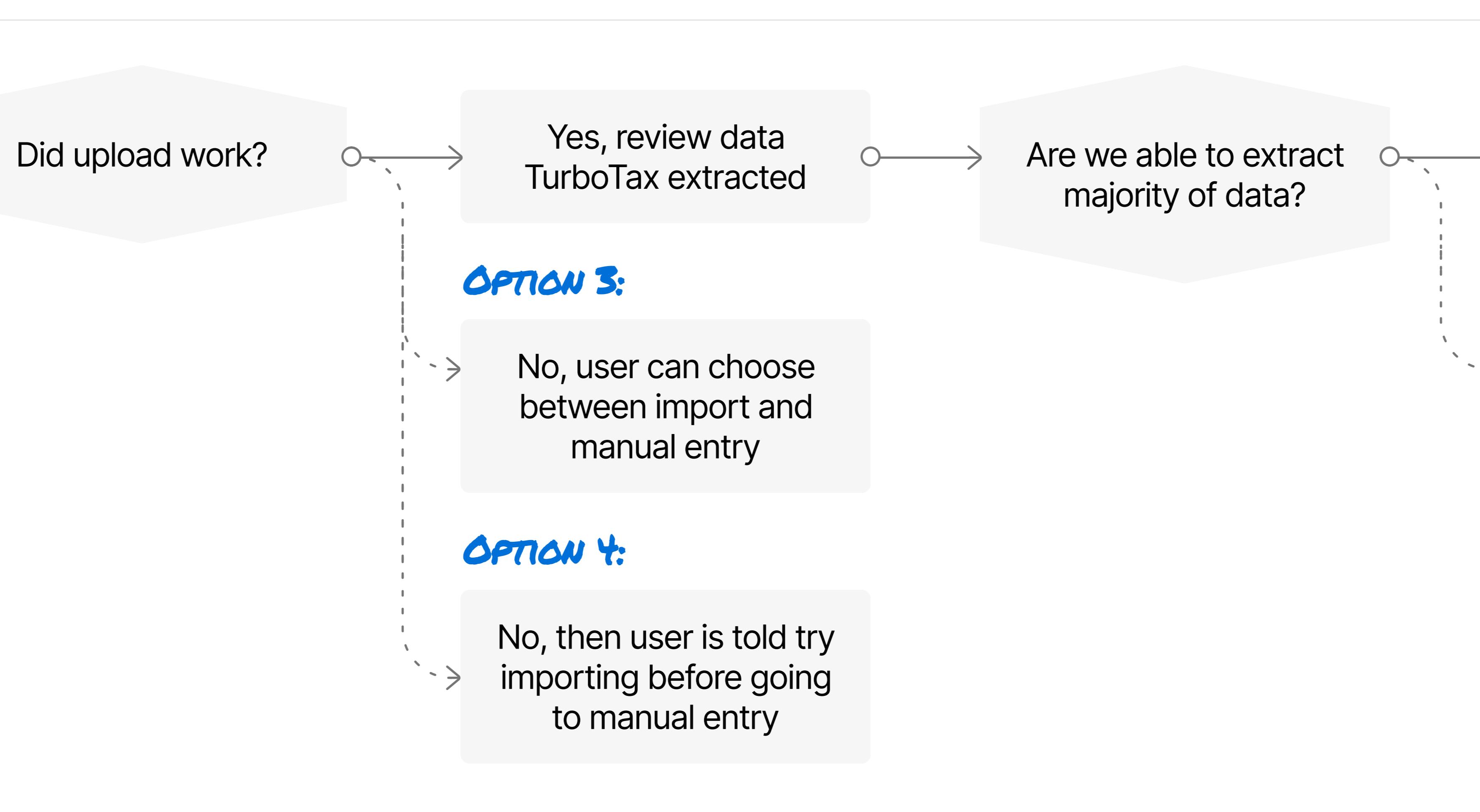
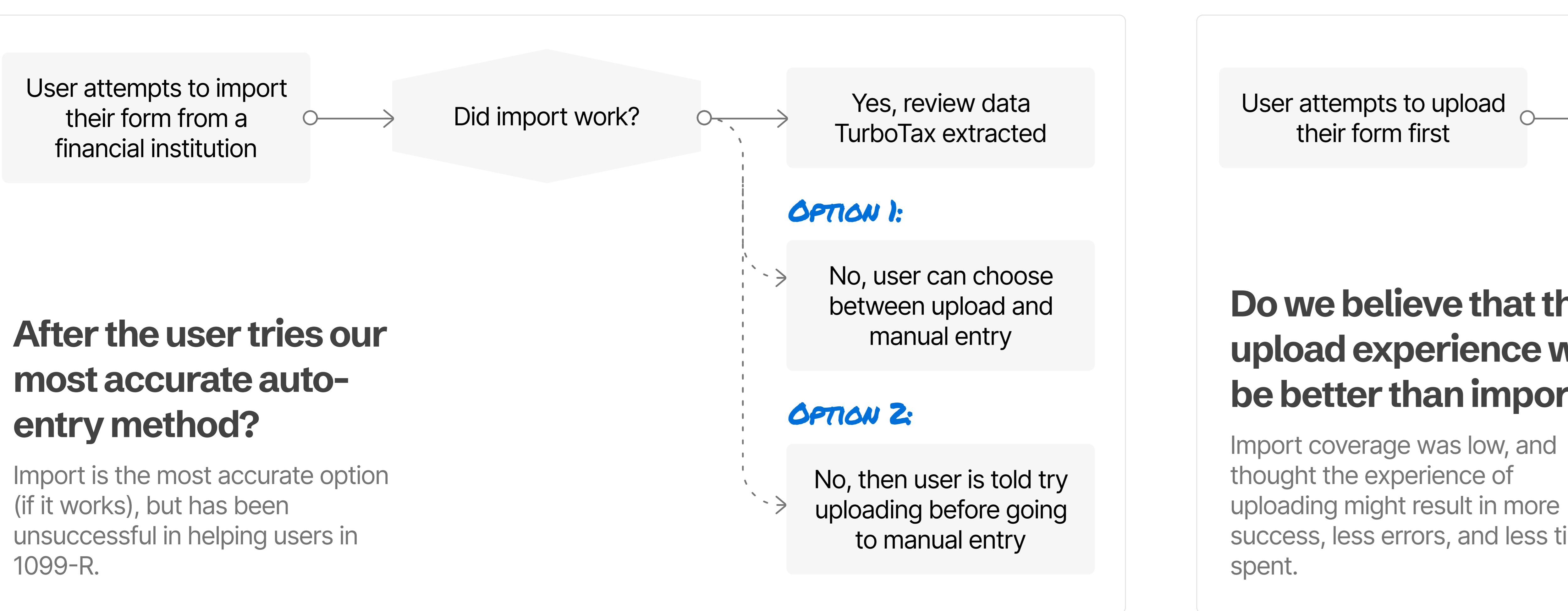
# Evaluate whether upload would increase the number of documents automatically entered

Form	Control	Treatment
1099-R	Existing experience, which offers import from financial institution	Offers upload, import from financial institution, and manual entry
1098-T	Existing experience, with no automated data entry options	Offers upload and manual entry

02

# Design explorations

# Where do we offer upload in 1099-R?



# Where do we offer upload in 1098-T?

User attempts to upload their form first



Did upload work?

Yes, review data  
TurboTax extracted

**OPTION 1:**

No, user is prompted to do manual entry

**Do we believe that the upload experience will be better than manual entry?**

Definitely! And it should be faster, more accurate, and easier.

**OPTION 2:**

User can choose between upload and manual entry

Did upload work?

Yes, review data  
TurboTax extracted

No, user is prompted to do manual entry

**Should we just let users choose their method of choice?**

Given that many users said privacy concerns caused them to choose manual entry over import, we weren't sure if choice was the best option.

# Explorations for presenting choice

With the intention of re-using across all 10 tax forms

Design explorations

**IDEA I: ALL OPTIONS VISUALLY TREATED EQUAL**

2:23 1 5G 30 Live Tax Advice

How do you want to enter your 1098-T?

We can save you time with these automated options.

Import

Upload my PDF

Type it in myself

2:23 1 5G 30 Live Tax Advice

How do you want to enter your 1099-R?

We can save you time with these automated options.

Import

Upload my PDF

Type it in myself

Continue

< Back

2:23 1 5G 30 Live Tax Advice

How do you want to enter your 1098-T?

We can save you time with these automated options.

Upload it from my phone

Use a PDF, JPG, or PNG

Type it in myself

2:23 1 5G 30 Live Tax Advice

How do you want to enter your 1099-R?

We can save you time with these automated options.

Upload it from my phone

Use a PDF, JPG, or PNG

Type it in myself

Continue

< Back

**User testing showed that people couldn't differentiate "Import" from "Upload"**

I collected feedback on different choice patterns via Validately and users didn't understand what it meant to import over upload. We needed to add more clarity for each method.

**Automated options should have higher visual hierarchy**

We can't say that uploading and manual entry are equally good options. Visual weight is interpreted as our recommendation.

2:23 1 5G 30 Live Tax Advice

How do you want to enter your 1099-R?

We can save you time with these automated options.

Upload it from my phone

Use a PDF, JPG, or PNG

Bring it over from my bank

Use your bank credentials

Type it in myself

2:23 1 5G 30 Live Tax Advice

How do you want to enter your 1099-R?

We can save you time with these automated options.

Upload it from my phone

Use a PDF, JPG, or PNG

Type it in myself

2:23 1 5G 30 Live Tax Advice

How do you want to enter your 1099-R?

We can save you time with these automated options.

Upload it from my phone

Use a PDF, JPG, or PNG

Type it in myself

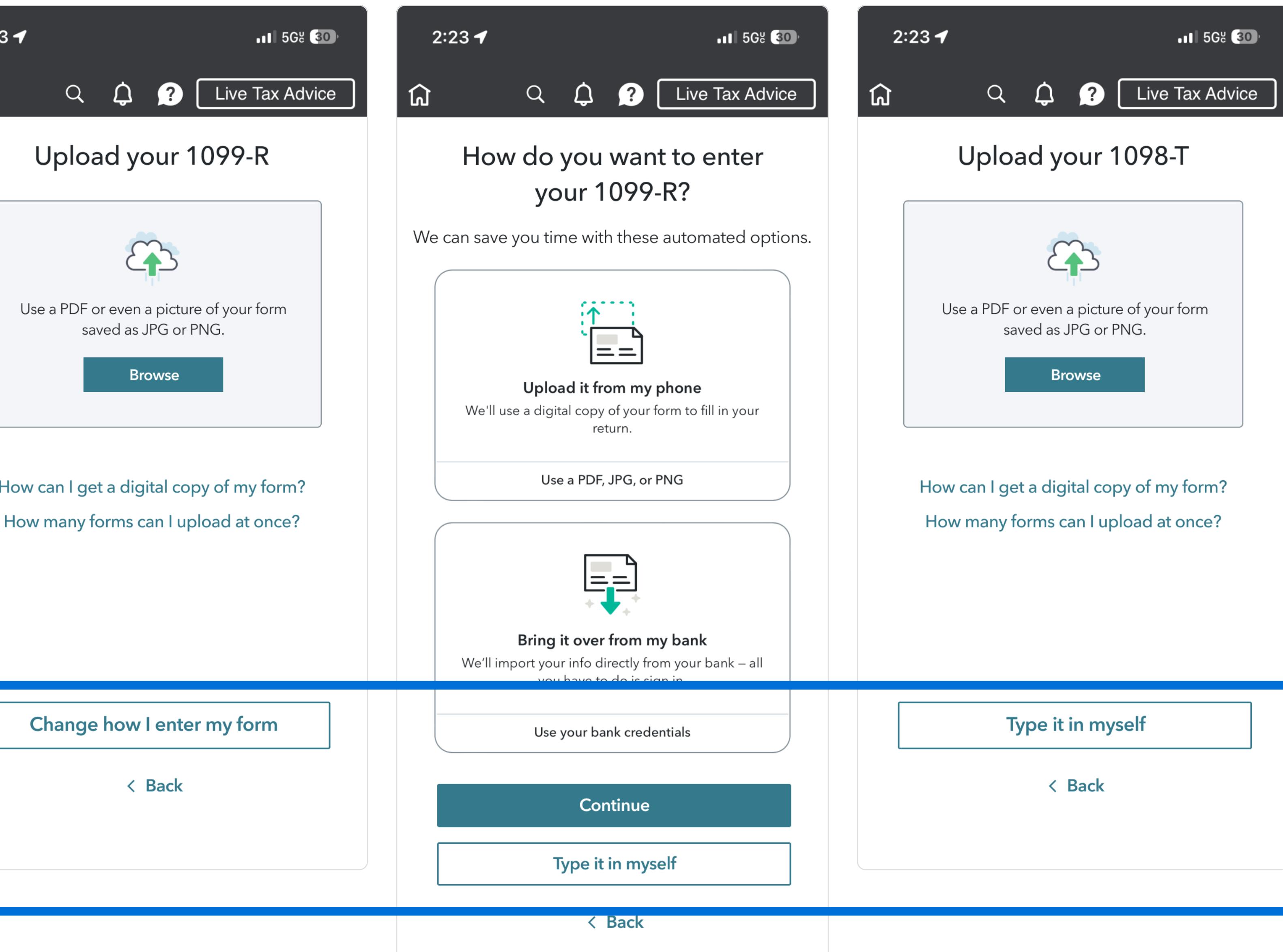
Continue

< Back

# Explorations for presenting choice

With the intention of re-using across all  
10 tax forms

## IDEA 2: ALL AUTOMATED OPTIONS HAVE EQUAL VISUAL WEIGHT, NOT MANUAL ENTRY



**Represent manual entry with tertiary button**

Typing it in requires users to do a lot more work, compared to auto-entry. This is why we gave it less visual weight on the screen.

# Explorations for reviewing extracted information

With the intention of re-using across all  
10 tax forms

## IDEA 1: UPDATE TITLE COPY W/ CONTENT DESIGN

The first screenshot shows a title message: "We got your 1099-R! Review your form and fill in any missing info". The second screenshot shows a more direct title message: "Got it! Now let's review your 1099-R info". Both screenshots show a "Live Tax Advice" header with icons for home, search, notifications, and help, and a battery level of 30%.

We got your 1099-R! Review your form and fill in any missing info

Distribution info

Box 1 - Gross distribution  
\$50,000

Box 2a - Taxable amount  
\$50,000

Box 2a - Taxable amount  
 Taxable amount checked

Box 3 - Capital gain  
\$12,200

Box 4 - Federal income tax withheld  
\$1,300

Box 5 - Employee contributions or insurance premiums  
\$400

Box 6 - Net unrealized appreciation  
\$12,200

Got it! Now let's review your 1099-R info

Distribution info

Box 1 - Gross distribution  
\$50,000

Box 2a - Taxable amount  
\$50,000

Box 2a - Taxable amount  
 Taxable amount not determined box is checked

Box 3 - Capital gain  
\$12,200

Box 4 - Federal income tax withheld  
\$1,300

Box 5 - Employee contributions or insurance premiums  
\$400

Box 6 - Net unrealized appreciation  
\$12,200

## IDEA 2: ADD BANNER MESSAGE

The first screenshot shows a banner message: "Got it! Now let's review your 1099-INT". The second screenshot shows a banner message: "Double check the information we pulled". Both screenshots show a "Live Tax Advice" header with icons for home, search, notifications, and help, and a battery level of 30%.

Got it! Now let's review your 1099-INT

Distribution info

Box 1 - Gross distribution  
\$50,000

Box 2a - Taxable amount  
\$50,000

Box 2a - Taxable amount  
 Total distribution is checked

Box 3 - Capital gain  
\$12,200

Box 4 - Federal income tax withheld  
\$1,300

Box 5 - Employee contributions or insurance premiums  
\$400

Box 6 - Net unrealized appreciation  
\$12,200

Double check the information we pulled

We pulled 100% of the info from your form and all you have to do is review

We strongly suggest reviewing the information we pulled

Make changes if any info is missing

## The banner felt unnecessarily alarming

On top of being a bit too alarming, we felt that it took up too much vertical space, since some forms have 10+ fields and checkboxes

# Explorations for reviewing poor data extraction

In the event that upload works, but a few fields are difficult to parse, users will need to fix automation's work

## IDEA 3: HIGHLIGHT THE PROBLEMATIC FIELDS

We got your 1099-R! Review your form and fill in any missing info

Distribution info

Box 1 - Gross distribution

\$

Box 2a - Taxable amount

\$

Box 2a - Taxable amount

Taxable amount not determined box is checked

Total distribution is checked

Box 3 - Capital gain

\$12,200

Box 4 - Federal income tax withheld

\$1,300

Box 5 - Employee contributions or insurance premiums

\$400

We tried, but couldn't get all the info from your form

Please review and fill in any missing info

Distribution info

Box 1 - Gross distribution

\$

Box 2a - Taxable amount

\$

⚠ Missing information

Box 2a - Taxable amount

Taxable amount not determined box is checked

Total distribution is checked

Box 3 - Capital gain

\$12,200

Box 4 - Federal income tax withheld

\$1,300

Box 5 - Employee contributions or insurance premiums

\$400

## IDEA 4: ERROR STATES

Hmm... we're having trouble uploading your file

INTUIT(W-2).pdf

Here are some common fixes that might help:

- Make sure the file you're uploading contains a W-2 form.
- Try downloading your file again from where you got it in case it's damaged.
- Check your internet, a slow connection can interrupt your upload.
- Make sure your file isn't password protected.
- Wait a few minutes and try again.

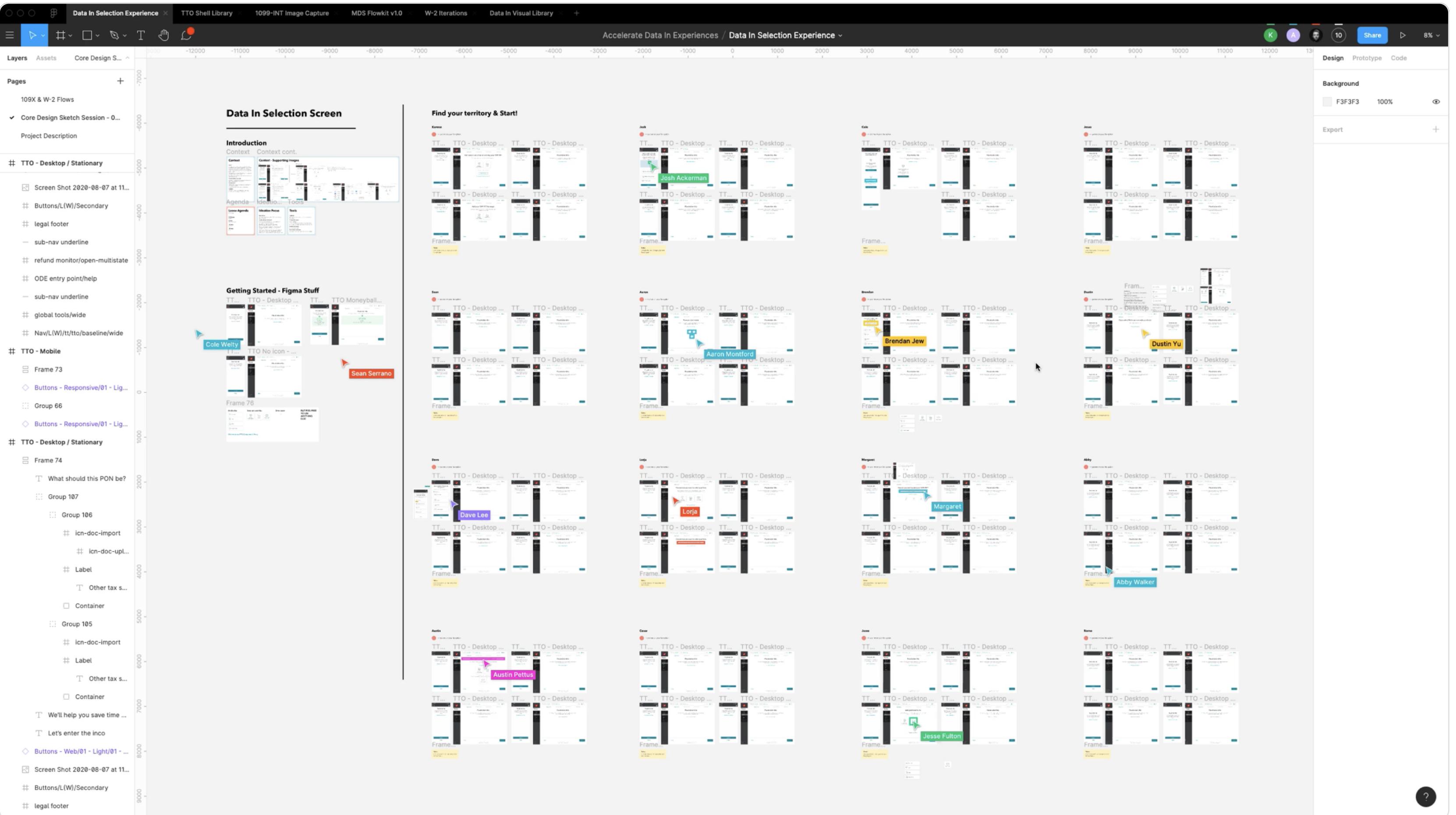
Try uploading again

Change how I enter my form

< Back

# Group brainstorm

To help me generate ideas I got a group of designers (visual, product, and content) together to sketch.



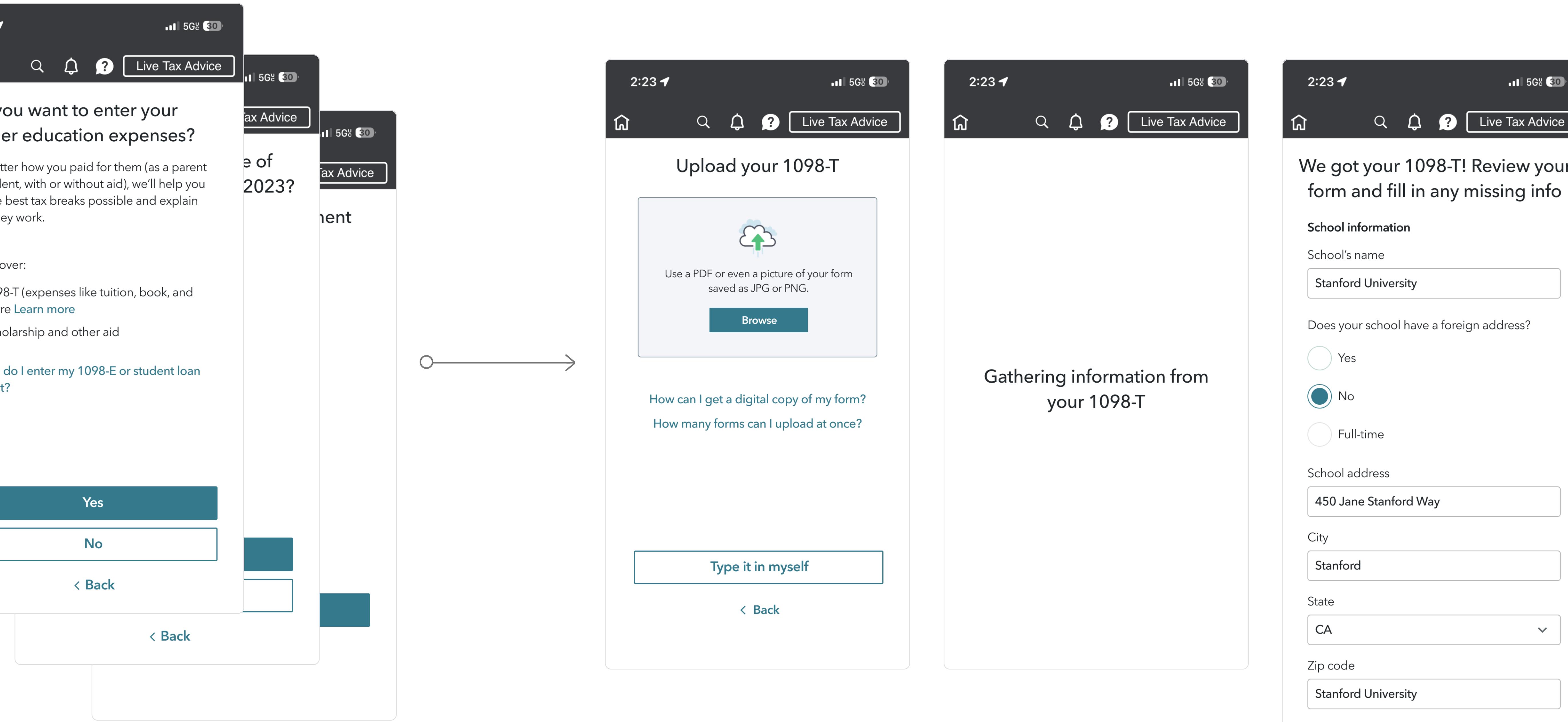
03

## A/B test treatments

Design explorations

# 1098-T upload treatment

We ran the A/B test first in 1098-T, and used a choice selection screen that de-emphasized the manual entry option, because we thought upload would provide a more efficient and satisfying user experience.



Design explorations

# 1099-R upload treatment

Happy path experience.

For 1099-R, import coverage was low, and the form becomes available for import much later than when they're physically/digitally distributed. So in this treatment, we led with offering upload because we thought it could provide a better experience ot users.

The diagram illustrates a user flow through several mobile application screens:

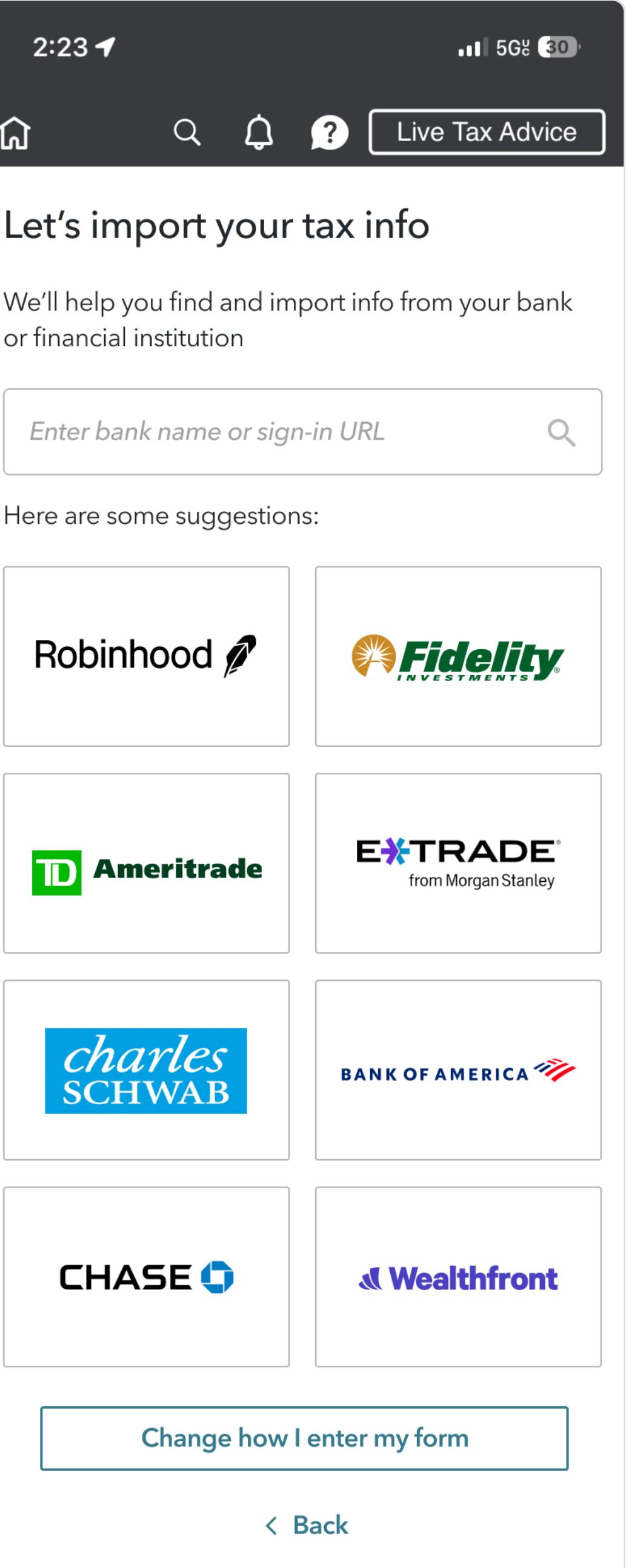
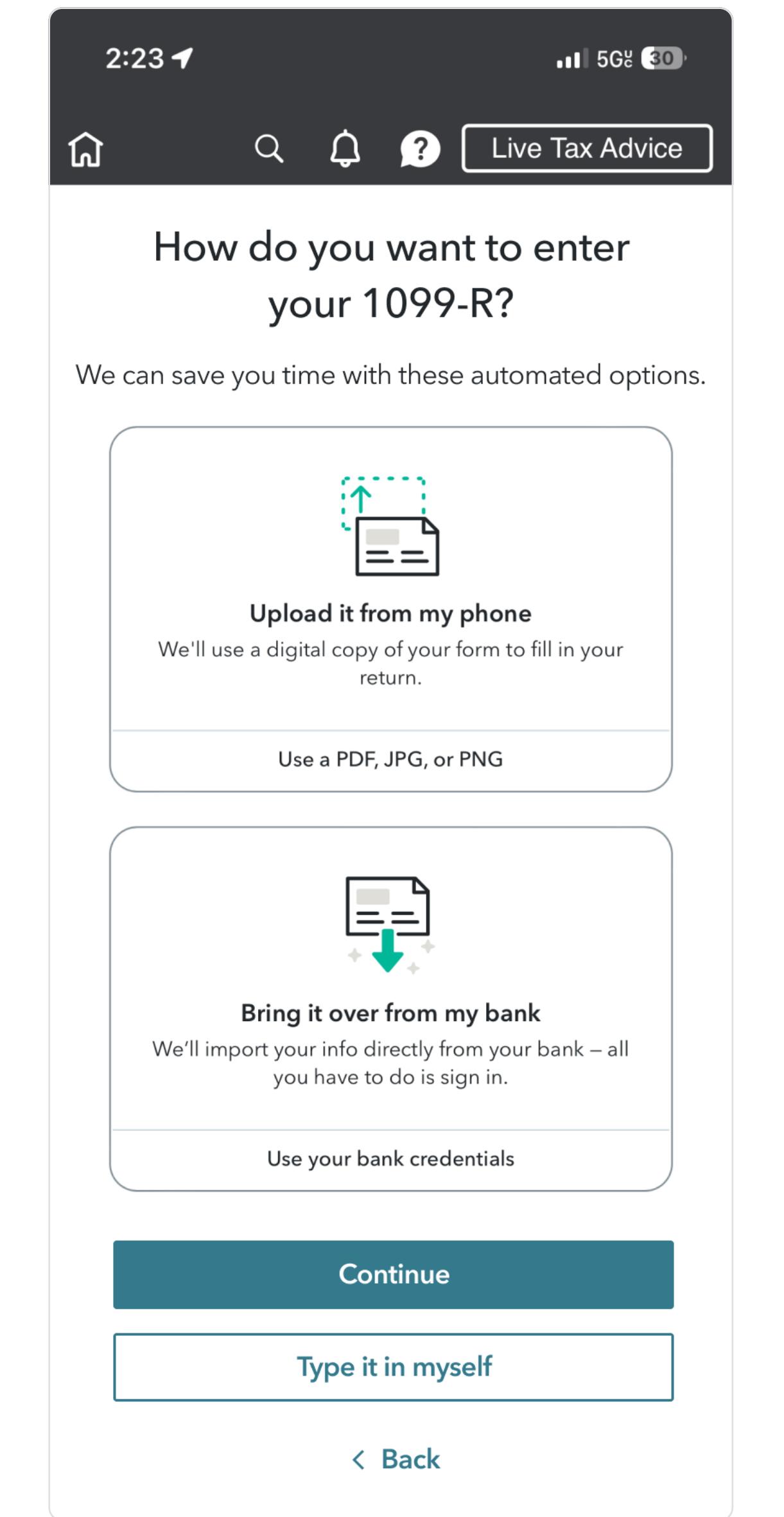
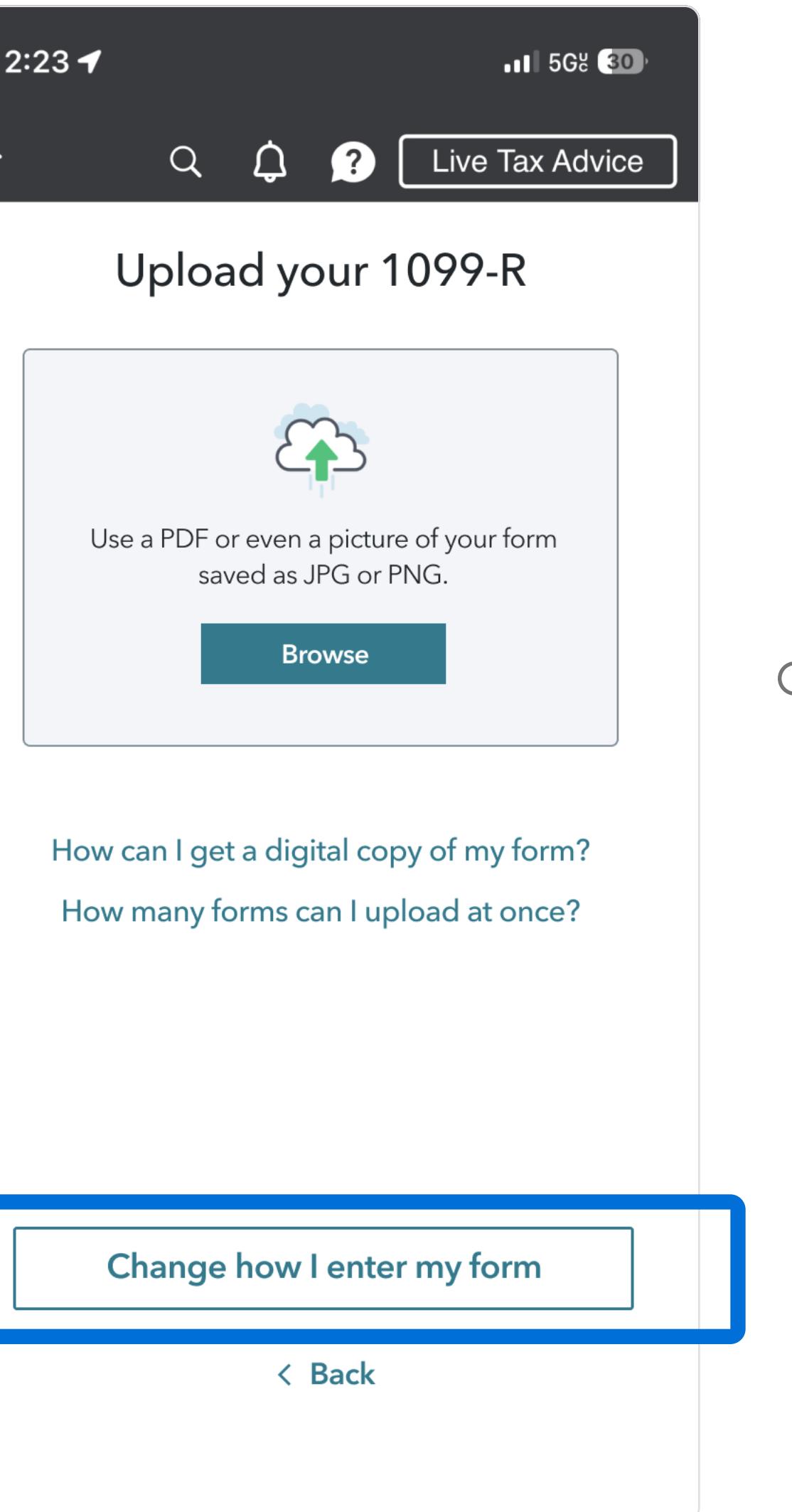
- Upload your 1099-R:** The user is prompted to upload a file (PDF, JPG, or PNG) using a 'Browse' button. A blue border highlights this input field.
- Gathering information from your 1099-R:** The system begins processing the uploaded form, displaying a progress bar.
- We got your 1099-R! Review your form and fill in any missing info:** The user is shown a summary of the imported information, including:
  - Provider info:** Who paid you? (Payer) - Vanguard Retirement
  - Payer name continued (optional):** [Empty input field]
  - Address type:** U.S. address
  - Payer's address:** 100 Vanguard Boulevard
  - City:** Malvern
  - State:** PA
  - Payer's TIN:** 88-909378933
- Live Tax Advice:** The final step shows a summary of the tax advice, including:
  - Box 1 - Gross distribution:** \$50,000
  - Box 2a - Taxable amount:** \$50,000
  - Box 2a - Taxable amount (checkboxes):**  Taxable amount not determined box is checked,  Total distribution is checked
  - Box 3 - Capital gain:** \$12,200
  - Box 4 - Federal income tax withheld:** \$1,300
  - Box 5 - Employee contributions or insurance premiums:** \$400
  - Box 6 - Net unrealized appreciation:** \$0
  - Box 7 - Distribution code:** B

Design explorations

# 1099-R upload treatment

Fallback experience.

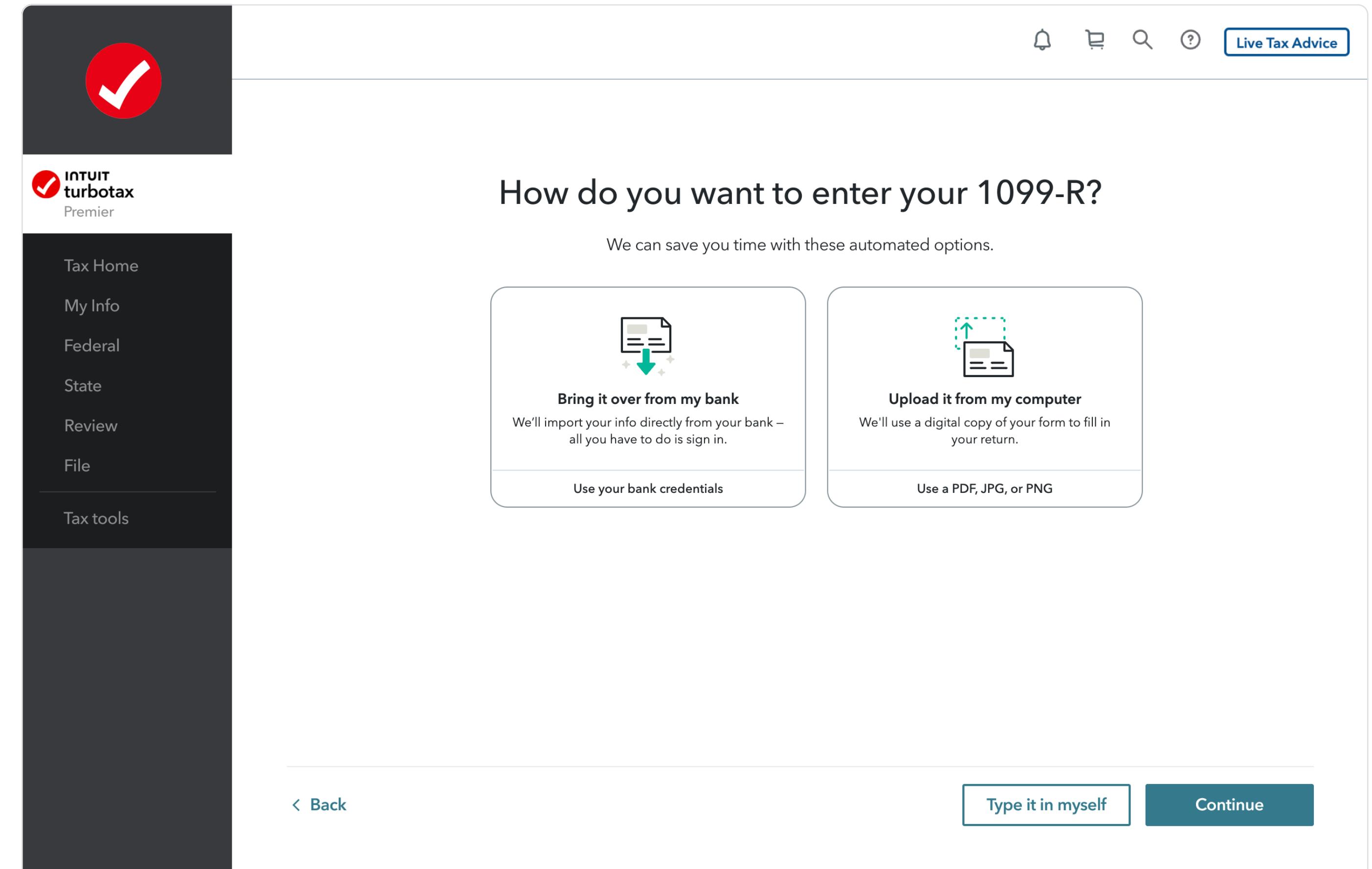
If the user wanted to opt out of upload, they could simply use the “change how I enter my form” button to see their other options for entering their form.



# Mobile & Desktop design

Started design iterations with a focus on mobile, to make UI as simple as possible.

The company had a goal of making tax filing so simple that users could file from their phones, but also designed for desktop.



The image displays two design explorations for TurboTax. On the left is a mobile interface with a dark background, featuring a large red checkmark icon at the top, followed by the Intuit TurboTax Premier logo. A vertical navigation menu on the right includes options like Tax Home, My Info, Federal, State, Review, File, and Tax tools. On the right is a desktop interface titled "How do you want to enter your 1099-R?". It features a header with icons for notifications, shopping cart, search, help, and "Live Tax Advice". Below the title is a sub-headline: "We can save you time with these automated options." Two main options are shown: "Bring it over from my bank" (with a download icon) and "Upload it from my computer" (with an upload icon). Each option has a detailed description below it. At the bottom of the desktop interface are buttons for "< Back", "Type it myself" (in a blue box), and "Continue" (in a teal box).

INTUIT  
turbotax  
Premier

Tax Home  
My Info  
Federal  
State  
Review  
File  
Tax tools

How do you want to enter your 1099-R?

We can save you time with these automated options.

Bring it over from my bank  
We'll import your info directly from your bank – all you have to do is sign in.  
Use your bank credentials

Upload it from my computer  
We'll use a digital copy of your form to fill in your return.  
Use a PDF, JPG, or PNG

< Back

Type it myself

Continue

04

# Results & Reflection

# A/B test results

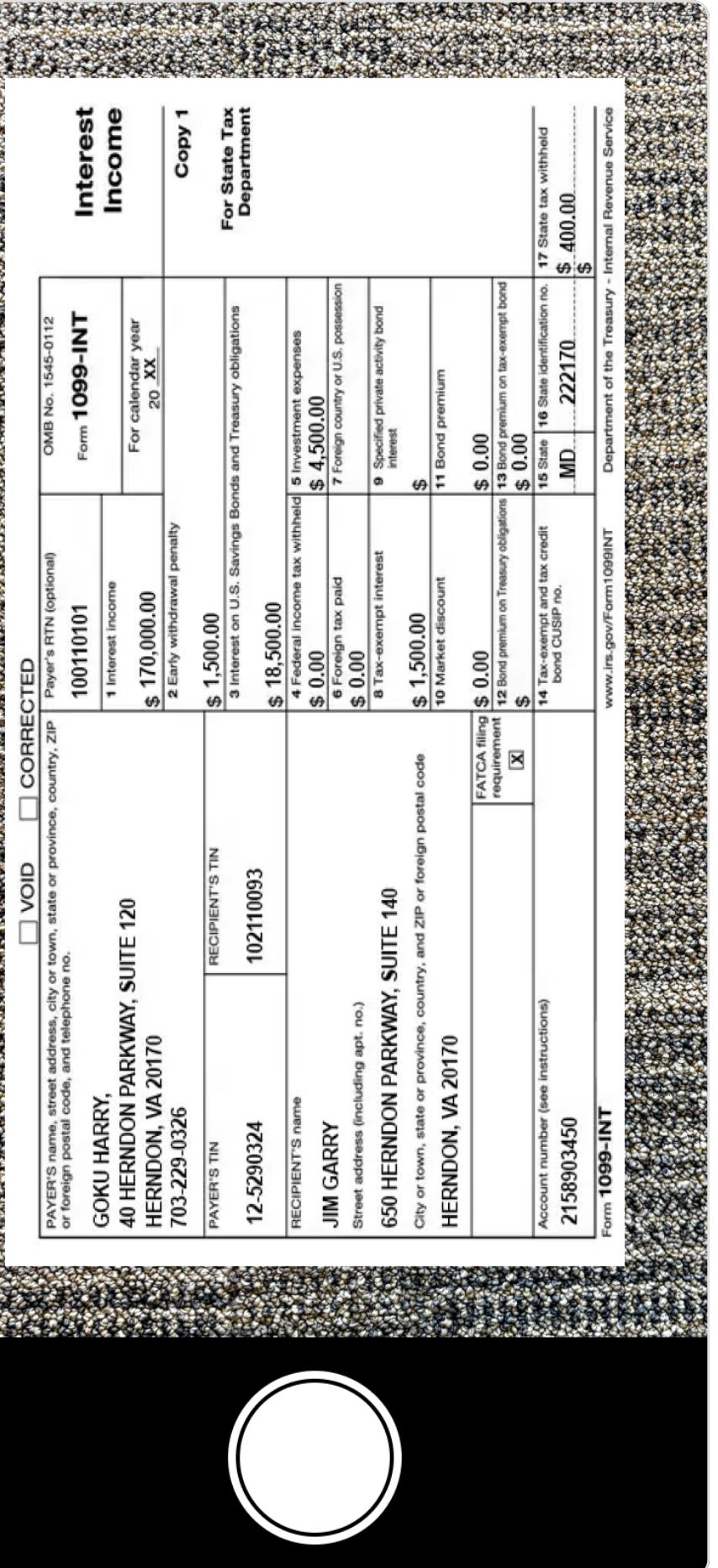
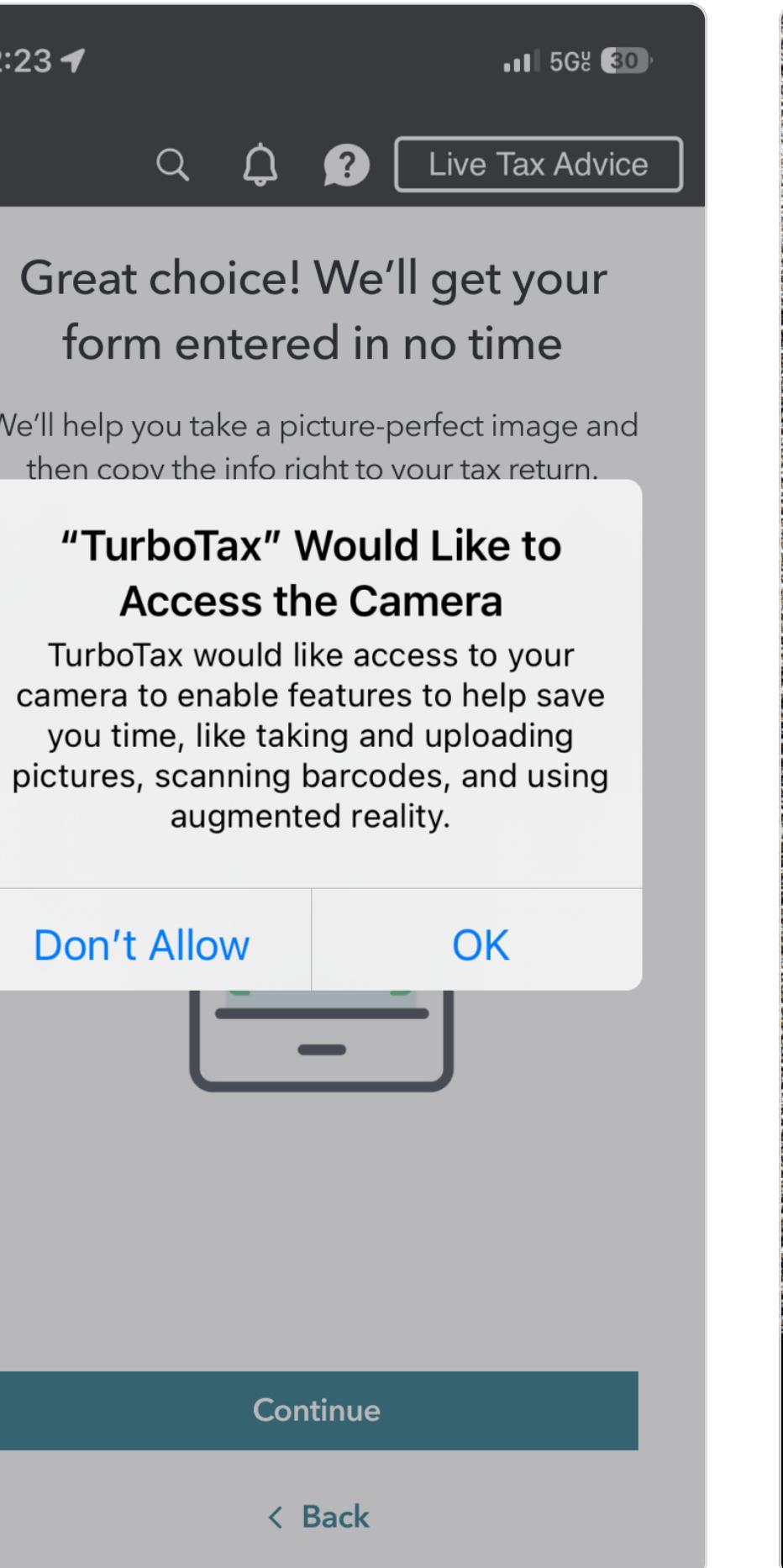
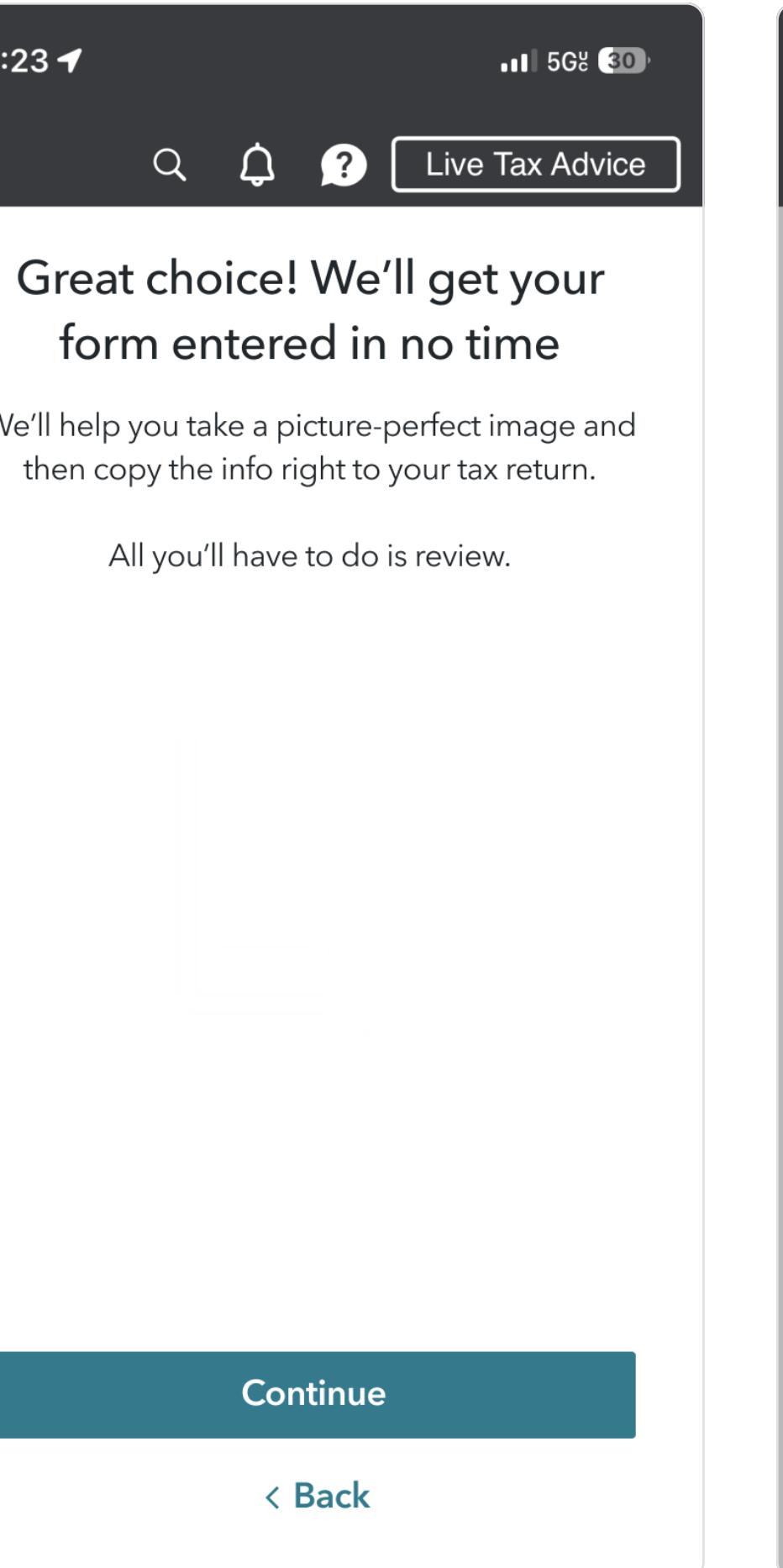
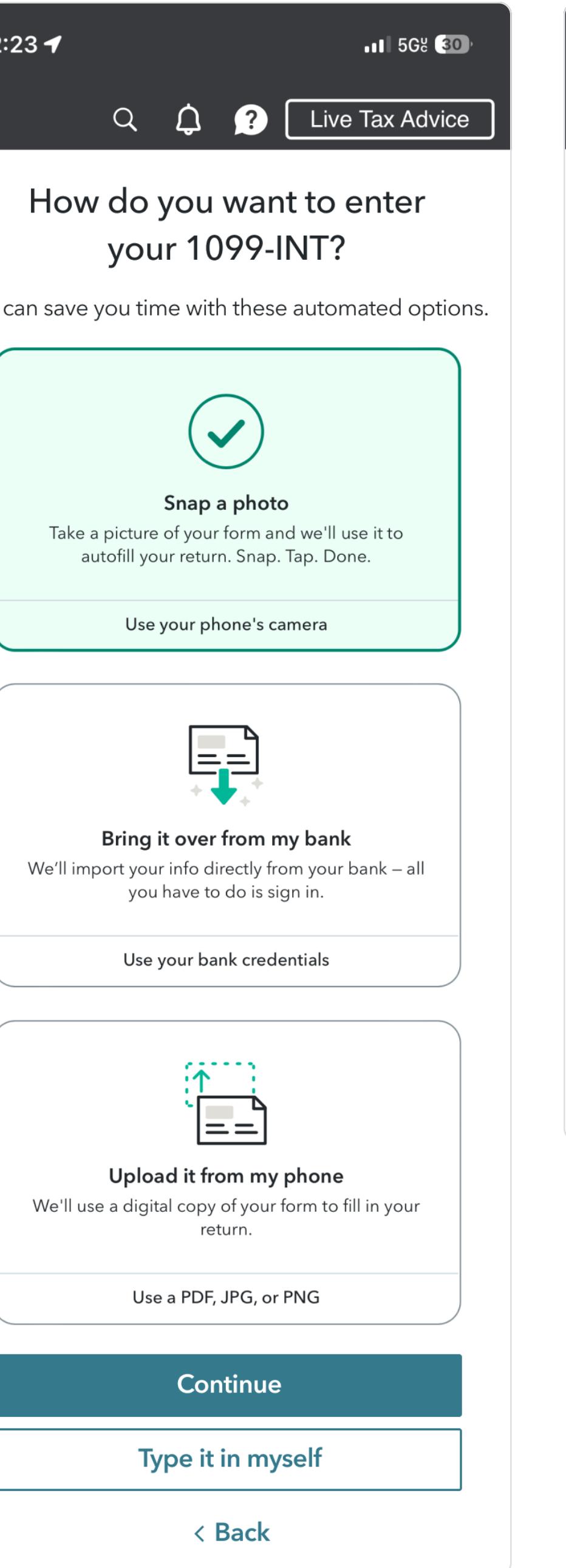
Form	Results	Details
1098-T	Successful! Rolled to baseline for all users to utilize in tax year 2019	50,000 forms automatically entered, 95% accuracy rate, and did no harm to conversion
1099-R	Needs improvement	10,000 forms uploaded, but had poor extraction accuracy (at 50%). Conversion rate dropped from 60% to 50%. We turned off upload until the centralized data platform team could improve accuracy and product could prioritize re-platforming the legacy tax topic.

# Results & Reflections

# Related projects

We continued to also test upload inside of W-2, and the results showed that offering upload in addition to import would increase the number of users who automatically enter tax forms. We made a multi-year roadmap to assess and expand to the top 10 tax forms.

I also re-used the selection screen pattern to show the option for users to snap a photo from their mobile device to automatically enter their data too.



# Reflections

During my time on this project, my product manager changed. I was originally partnered with someone who was familiar with the business, and then a new PM was brought into the company and this was one of their first projects.

I learned how to build trust with them quickly to keep the project moving.

**01** Ideas should be visualized at the right fidelity. When I was working on outlining the user flow, I used flow diagrams to show my PM what our options were and we were able to quickly determine what the best way to introduce import was.

**02** Be evidence driven to cut through assumptions. There were several times when I could've relied on "what we knew", instead of answering "what we didn't know". I spoke with users to understand their perspective and make decisions.