Follow the User?!

Data Donation Studies for Collecting Digital Trace Data

Session 3️⃣: Data Donation Studies (Researcher Perspective)

Frieder Rodewald (University of Mannheim) & Valerie Hase (LMU Munich)

👉 Part of the SPP DFG Project Integrating Data Donations in Survey Infrastructure

What are methodological decisions researchers have to take in data donation studies? 🤔

Data donation study - researcher perspective

Figure. Data donation study - researcher perspective

Agenda

1. **Research design & tool set-up**
2. **Data cleaning & augmentation**, including
   - 📣 **Task 3**: Classify search terms
3. **Modelling digital traces**

Image by Hope House Press via Unsplash

1) Research design & tool set-up (Frieder)

Source: Image by Markus Winkler via Unsplash

Step I: Research design & tool set-up

1 Research Design & Tool Set-Up

1.1 Which theoretical questions do I want to answer?

1.2 How do I operationalize key variables via my data donation tool?

1.3 How do I integrate the tool in surveys & recruit participants?

2 Data Cleaning & Augmentation

3 Modelling

Figure. Data donation study - researcher perspective

Step I: Research design & tool set-up

Key decisions:

- Which theoretical questions do I want to answer?
- How do I operationalize key variables via my data donation tool?
- How do I integrate the tool in surveys & recruit participants?

Step I: Research design & tool set-up

Key decisions:

- **Which theoretical questions do I want to answer?**
- How do I operationalize key variables via my data donation tool?
- How do I integrate the tool in surveys & recruit participants?

Step 1.1 Which questions do I want to answer?

This may sound silly but:

- Novel method, few empirical applications
- To date: methodological playground
- *What good is a method that is not used to advance theories/empirical knowledge?*

Step I: Research design & tool set-up

Key decisions:

- Which theoretical questions do I want to answer?
- **How do I operationalize key variables via my data donation tool?**
- How do I integrate the tool in surveys & recruit participants?

Step I.II: How do I operationalize key variables?

Choose a tool, e.g., ...

- Port (Boeschoten et al., 2023) (Netherlands, different platforms)
- Data Donation Module (Pfiffner et al., 2022) (Switzerland, different platforms)
- WhatsR (Kohne & Montag, 2024) (Germany, WhatsApp)

Step I.II: How do I operationalize key variables?

- Participants “upload” data
- Local extraction, anonymization, & aggregation
- Users can delete data
- Informed consent, only then: send to researcher server

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Step I.II: How do I operationalize key variables?

Extraction🔍:

Specific folders & metrics are extracted via CSS

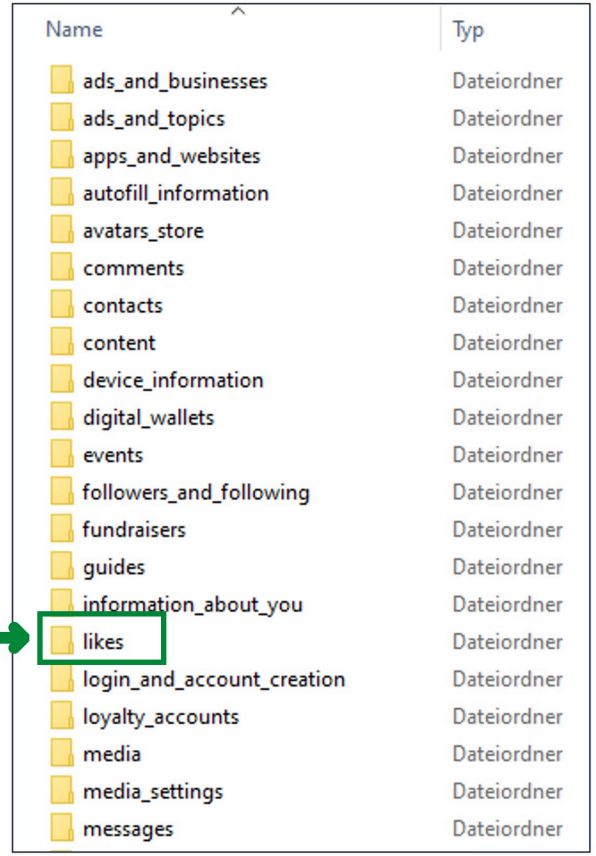

Figure. Filtering data - File extraction

Step I.II: How do I operationalize key variables?

Extraction🔍:

Name	Last commit message
..	
api	Merge remote-tracking branch 'upstream/master'
__init__.py	Refactor for extensibility
instagram_extraction_functions.py	add functions for search, messages, time spent and sessions frequency...
instagram_extraction_functions_dict.py	add device usage, search queries, positions, profile and reaction to ...
linkedin_extraction_functions.py	add linkedin function to process saved jobs and change device_usage f...
linkedin_extraction_functions_dict.py	add linkedin function to process saved jobs and change device_usage f...
main.py	Refactor Feldspar component integration and update worker URL; remove...
script.py	Merge remote-tracking branch 'upstream/master'
youtube_extraction_functions.py	remove redundant error checking
youtube_extraction_functions_dict.py	add device usage, search queries, positions, profile and reaction to ...

Figure. Filtering data - Python code

Step I.II: How do I operationalize key variables?

Extraction🔍:

```python
def extract_ads_seen(ads_seen_json, locale):
    """extract ads_information/ads_and_topics/ads_viewed -> list of authors per day"""

    tl_date = translate("date", locale)
    tl_value = translate(
        {"en": "Seen accounts", "de": "Gesehene Konten", "nl": "Geziene accounts"},
        locale,
    )

    timestamps = [
        t["string_map_data"]["Time"]["timestamp"]
        for t in ads_seen_json["impressions_history_ads_seen"]
    ]  # get list with timestamps in epoch format (if author exists)
    dates = [epoch_to_date(t) for t in timestamps]  # convert epochs to dates
    authors = [
        i["string_map_data"]["Author"]["value"]
        if "Author" in i["string_map_data"]
        else translate(
            {
                "en": "Unknown account",
                "de": "Unbekanntes Konto",
                "nl": "Onbekend account",
            },
            locale,
        )
        for i in ads_seen_json["impressions_history_ads_seen"]
    ]  # not for all viewed ads there is an author!

    adds_viewed_df = pd.DataFrame({tl_date: dates, tl_value: authors})

    aggregated_df = adds_viewed_df.groupby(tl_date)[tl_value].agg(list).reset_index()

    return aggregated_df
```

Figure. Filtering data - Python code

Step I.II: How do I operationalize key variables?

- Participants “upload” data
- Local extraction, **anonymization**, & aggregation
- Users can delete data
- Informed consent, only then: send to researcher server

Step I.II: How do I operationalize key variables?

Anonymization 🙈:

Code | Blame | 1012 lines (1002 loc) · 40.1 KB

```
import typing
import re
from .genuine import unravel_hierarchical_fields

fb_list_usernames = ['1LIVE',
                     '12-App',
                     '20 Minuten',
                     '3sat',
                     'Aachener Nachrichten',
                     'Aachener Zeitung',
                     'Aarauer Nachrichten',
                     'Aargauer Zeitung',
                     'Abendzeitung München',
                     'Achgut.com - Die Achse des Guten',
                     'Achtzig - Die Kulturzeitung',
                     'actu.fr',
                     'Adpunktum',
                     'Advantage Wirtschaftsmagazin',
                     'Aichacher Zeitung',
                     'Aktuell Obwalden',
                     'Alfelder Zeitung',
                     'all-in.de - das Allgäu online.',
                     'Allgäuer Zeitung',
                     'Allgemeine Zeitung',
                     'Allgemeine Zeitung | Coesfeld | Billerbeck | Gescher | Rosendahl | azonline',
                     'Alpenparlament.TV',
                     'Alpenschau.com',
                     'Andelfinger Zeitung',
```

Figure. Anonymization - Example of Whitelists

Step I.II: How do I operationalize key variables?

Anonymization 🙈:

engagement_timestamp	day	engagement_type	donation_platform	donation_type
2021-12-04 05:41:51	2021-12-04	non-news	Instagram	followed
2021-11-30 13:58:03	2021-11-30	non-news	Instagram	followed
2021-11-26 15:11:16	2021-11-26	non-news	Instagram	followed
2021-11-22 22:00:22	2021-11-22	news	Instagram	followed
2021-11-19 15:22:43	2021-11-19	non-news	Instagram	followed
2021-11-08 16:13:18	2021-11-08	news	Instagram	followed
2021-11-07 15:56:43	2021-11-07	non-news	Instagram	followed
2021-11-01 07:25:09	2021-11-01	non-news	Instagram	followed

Figure. Example of anonymized data

Step I.II: How do I operationalize key variables?

- Participants “upload” data
- Local extraction, anonymization, & **aggregation**
- Users can delete data
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Step I.II: How do I operationalize key variables?

Aggregation 🧮:

```python
def extract_ads_seen(ads_seen_json, locale):
    """extract ads_information/ads_and_topics/ads_viewed -> list of authors per day"""

    tl_date = translate("date", locale)
    tl_value = translate(
        {"en": "Seen accounts", "de": "Gesehene Konten", "nl": "Geziene accounts"},
        locale,
    )

    timestamps = [
        t["string_map_data"]["Time"]["timestamp"]
        for t in ads_seen_json["impressions_history_ads_seen"]
    ]  # get list with timestamps in epoch format (if author exists)
    dates = [epoch_to_date(t) for t in timestamps]  # convert epochs to dates
    authors = [
        i["string_map_data"]["Author"]["value"]
        if "Author" in i["string_map_data"]
        else translate(
            {
                "en": "Unknown account",
                "de": "Unbekanntes Konto",
                "nl": "Onbekend account",
            },
            locale,
        )
        for i in ads_seen_json["impressions_history_ads_seen"]
    ]  # not for all viewed ads there is an author!

    adds_viewed_df = pd.DataFrame({tl_date: dates, tl_value: authors})

    aggregated_df = adds_viewed_df.groupby(tl_date)[tl_value].agg(list).reset_index()

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Figure. Aggregation - Python code

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Step I.II: How do I operationalize key variables?

Data deletion by users ❌:

Figure. Data deletion

Step I.II: How do I operationalize key variables?

This is how much “fun” testing DDTs is:

Figure. Github issues - Testing the tool

Step I.II: How do I operationalize key variables?

Key issues 🚨 (Hase et al., 2024)

- Missing documentation by platforms (e.g., file structure)
- Sudden changes in DDPs
- Differences across languages & devices
- Insufficient in-tool classification (e.g., LLM integration)

Let's have a look at the technical set-up 💻:

https://github.com/eyra/mono
https://github.com/eyra/feldspar

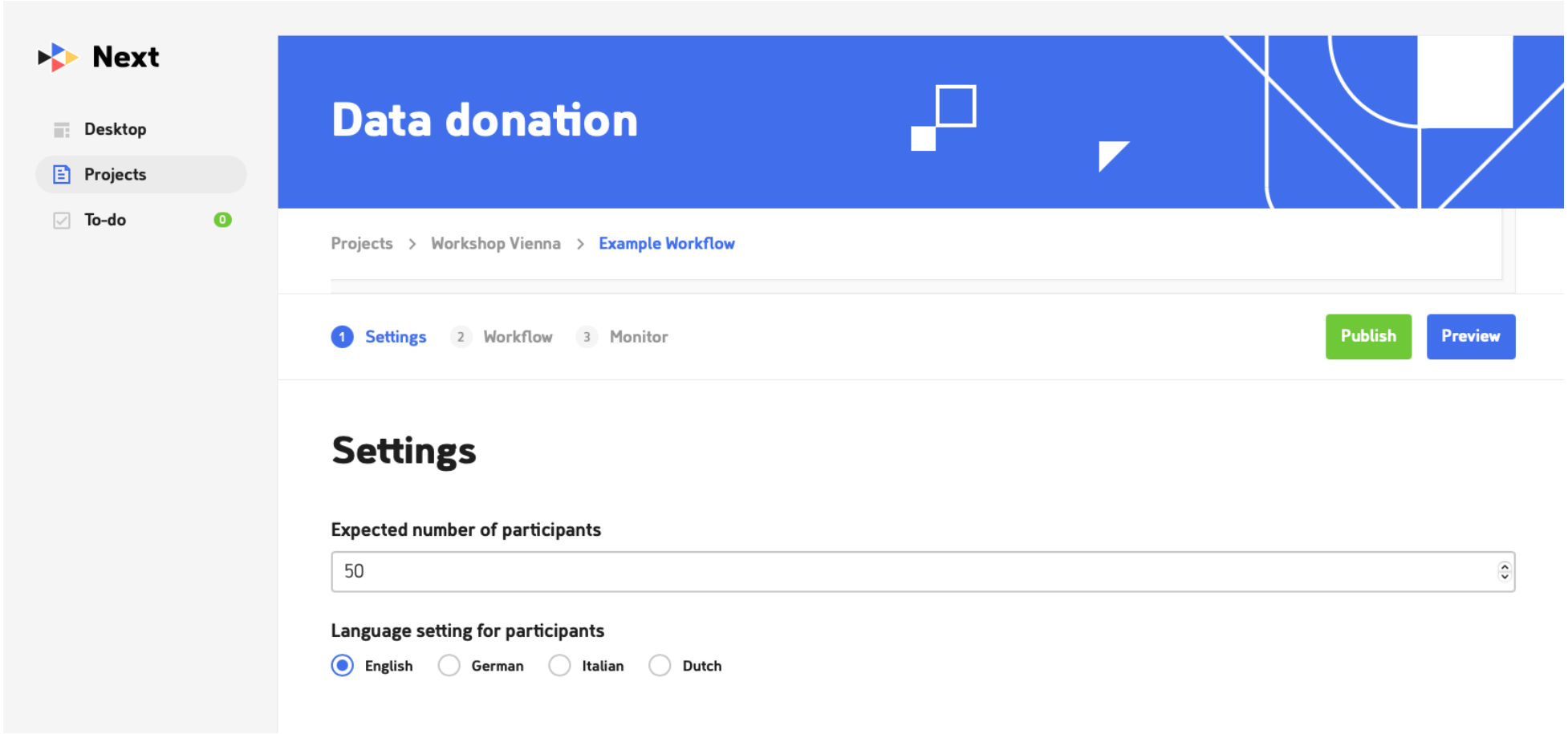

Figure. Next setup 1

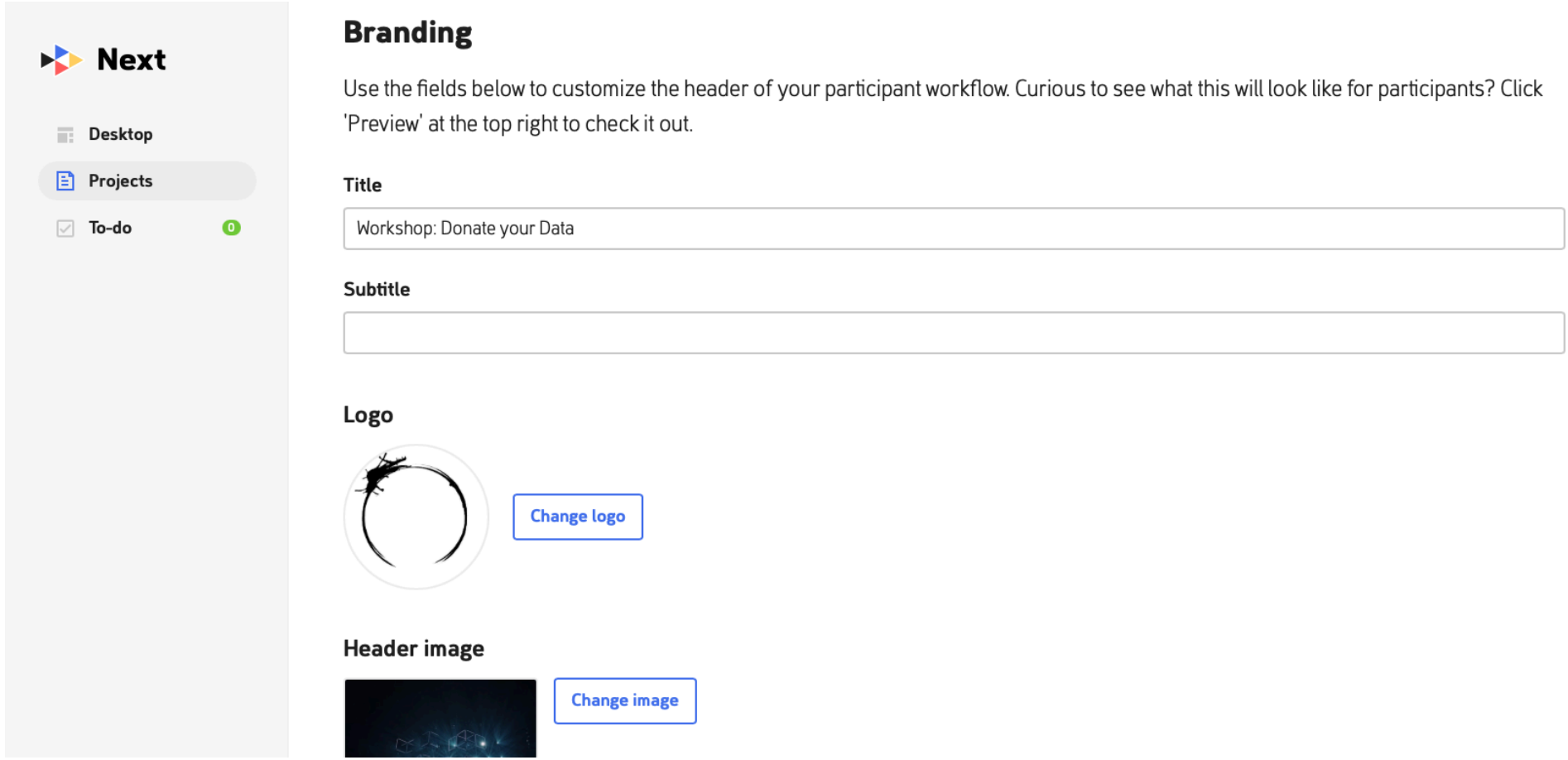

Figure. Next setup 2

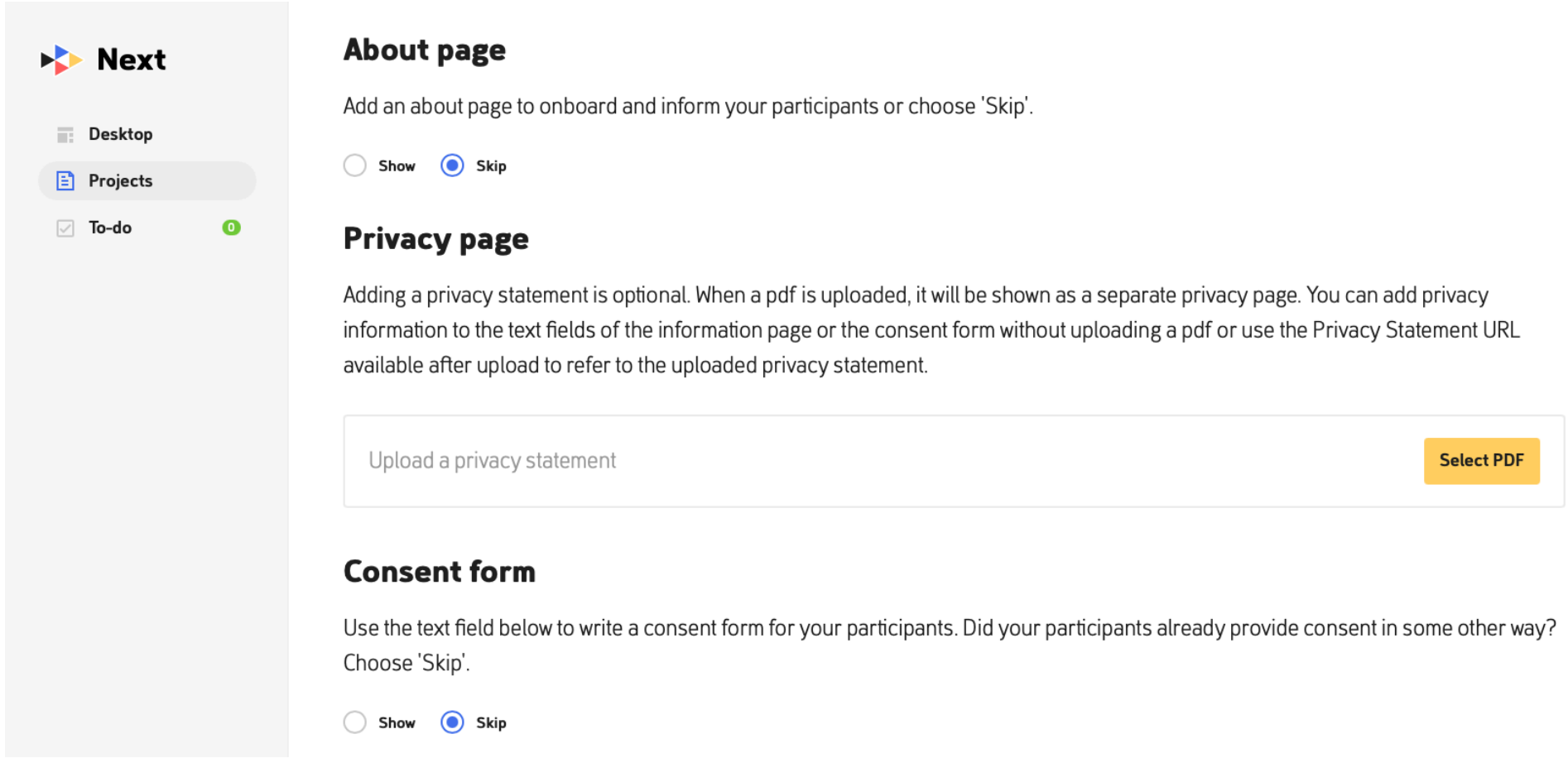

Figure. Next setup 3

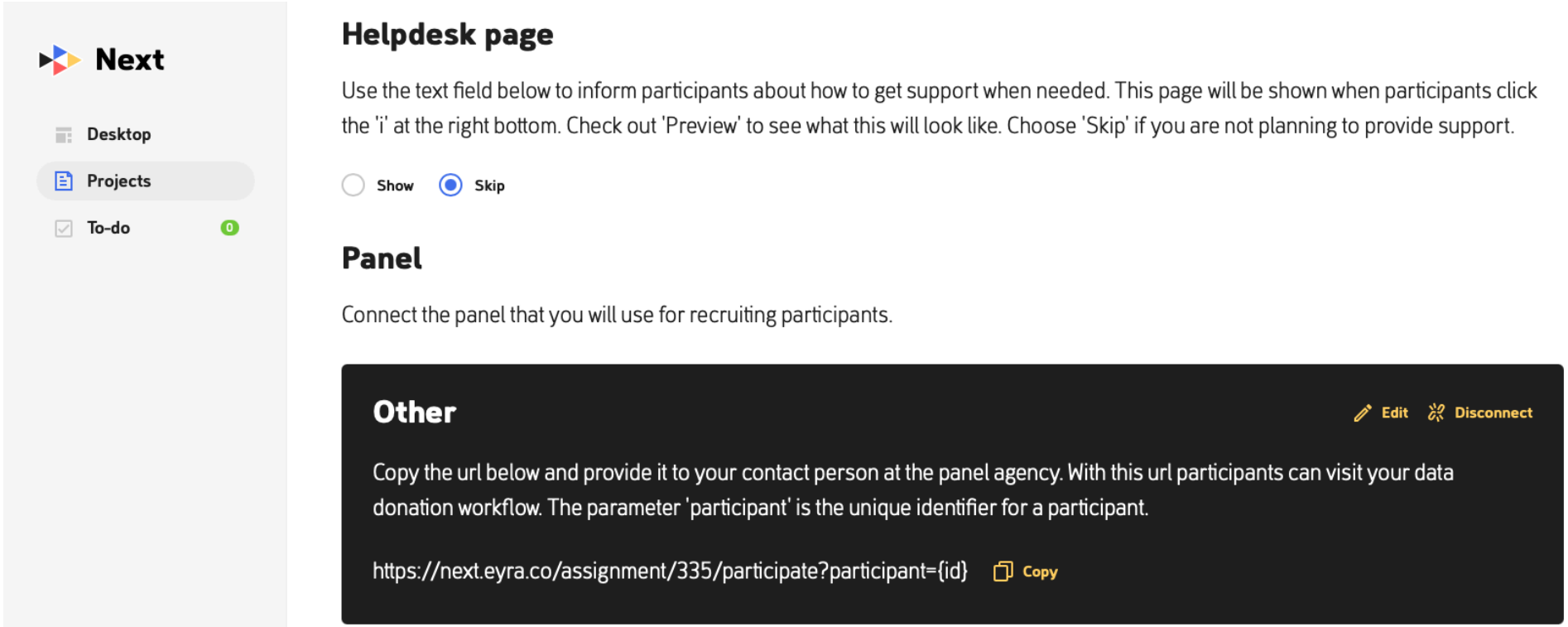

Figure. Next setup 4

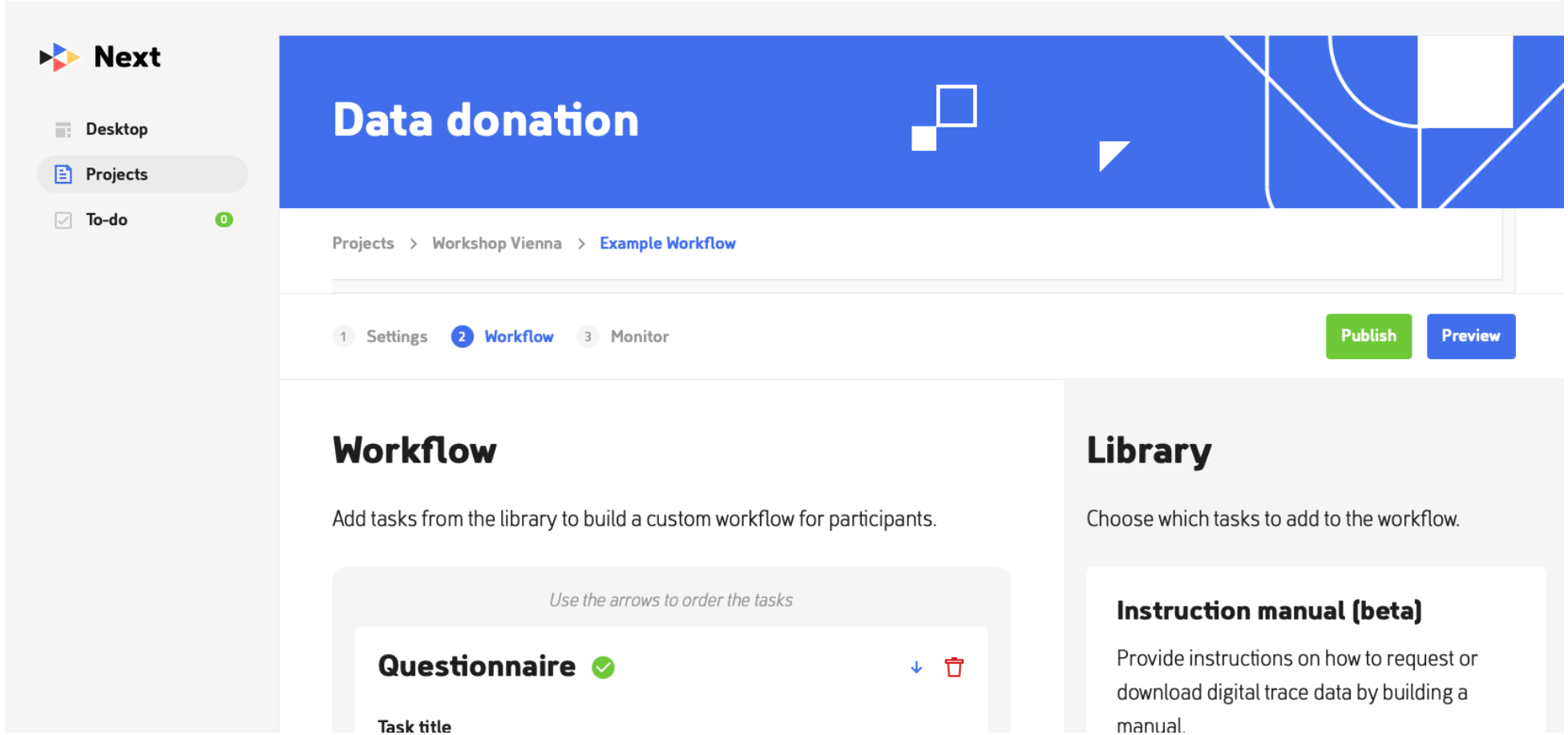

Figure. Next setup 5

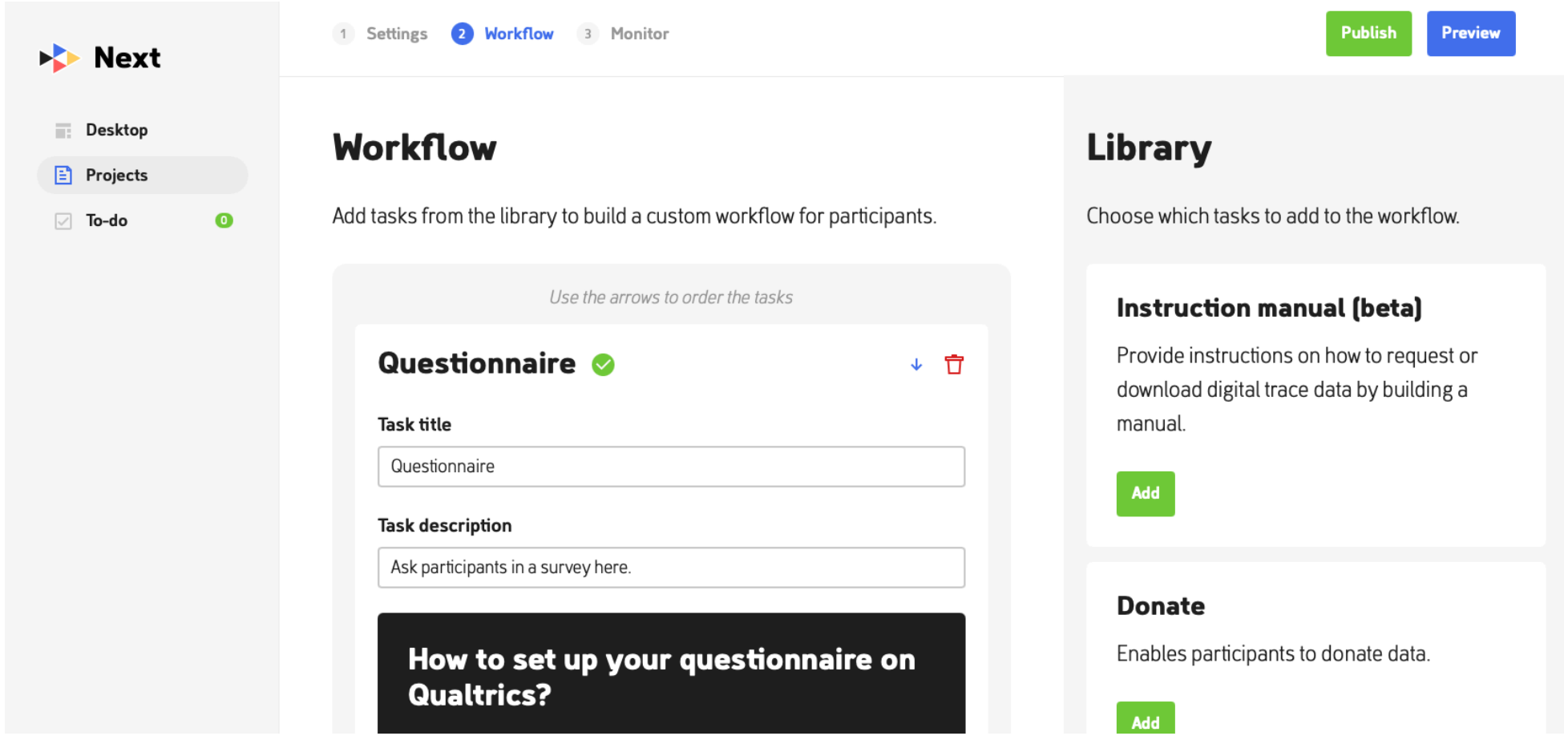

Figure. Next setup 6

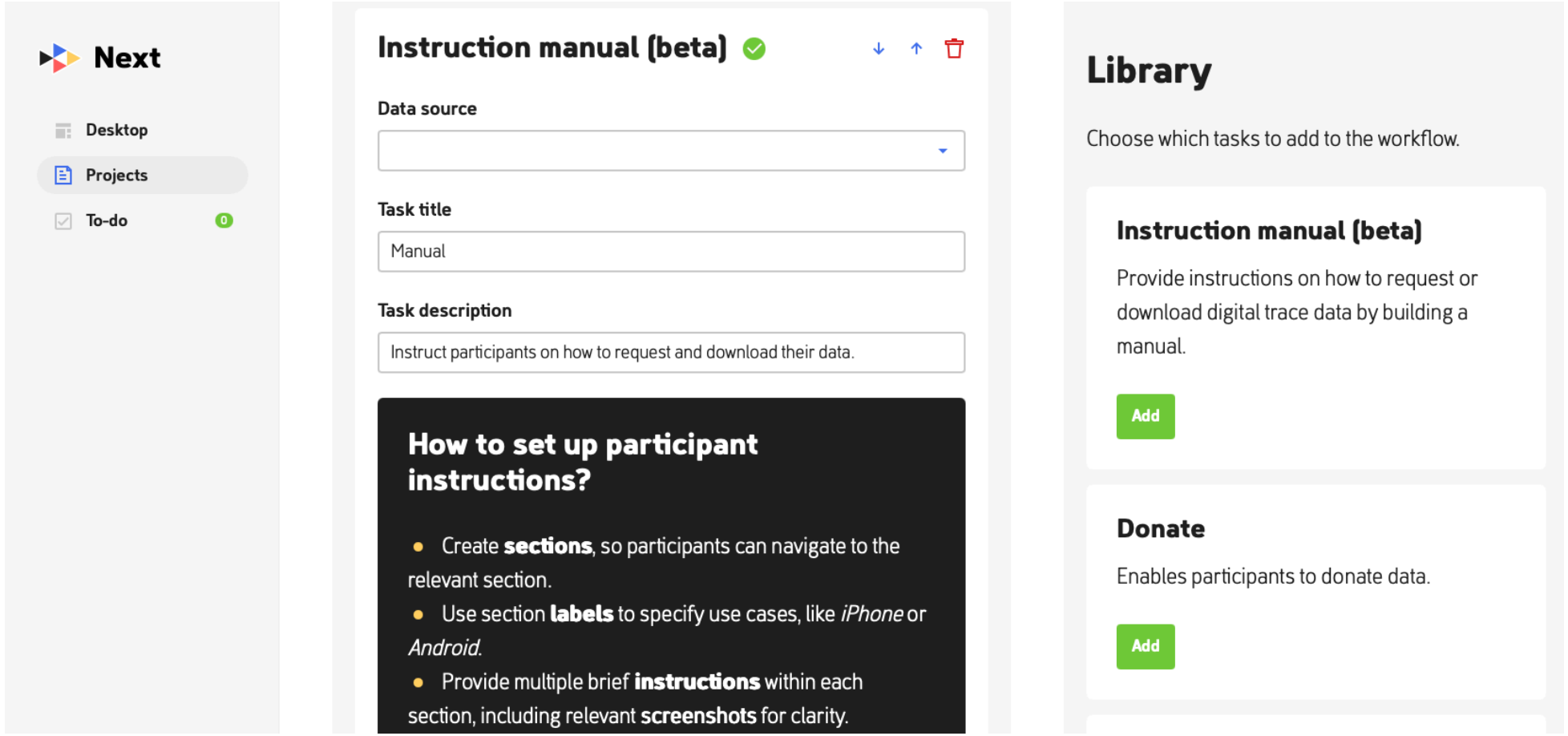

Figure. Next setup 7

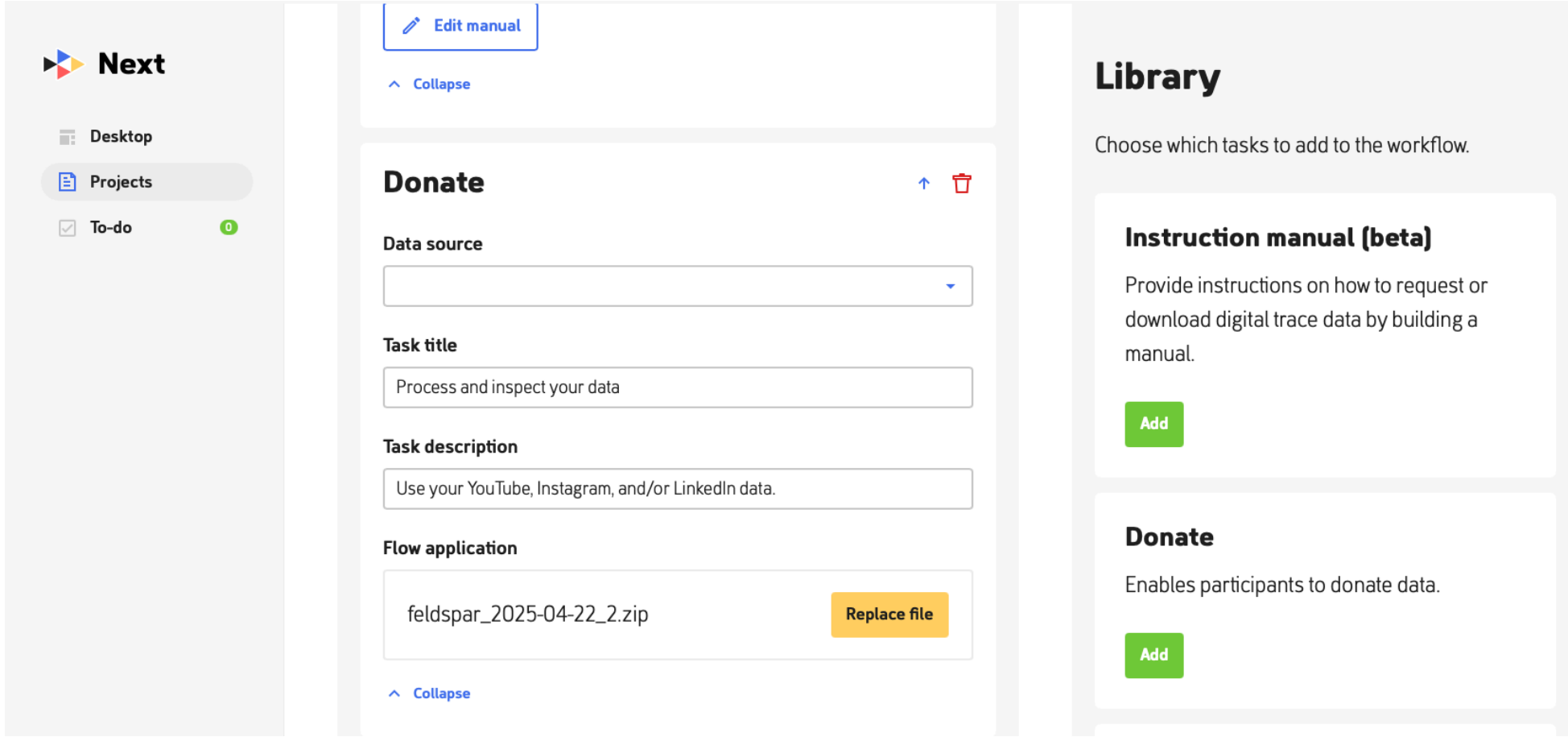

Figure. Next setup 8

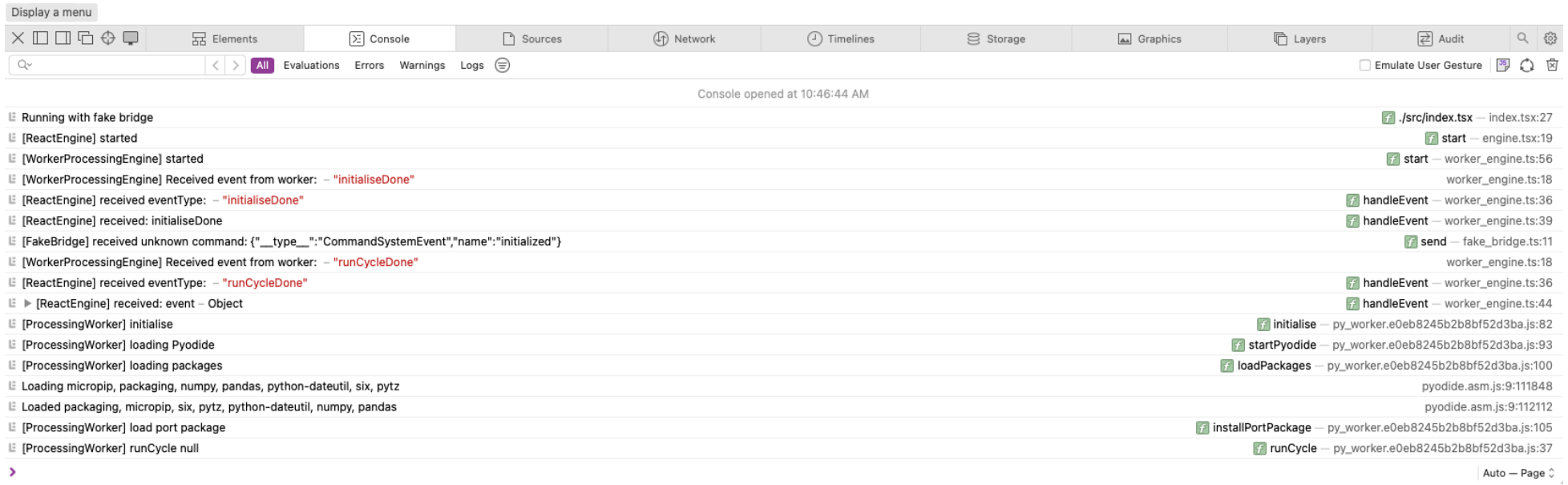

Figure. Next setup 9

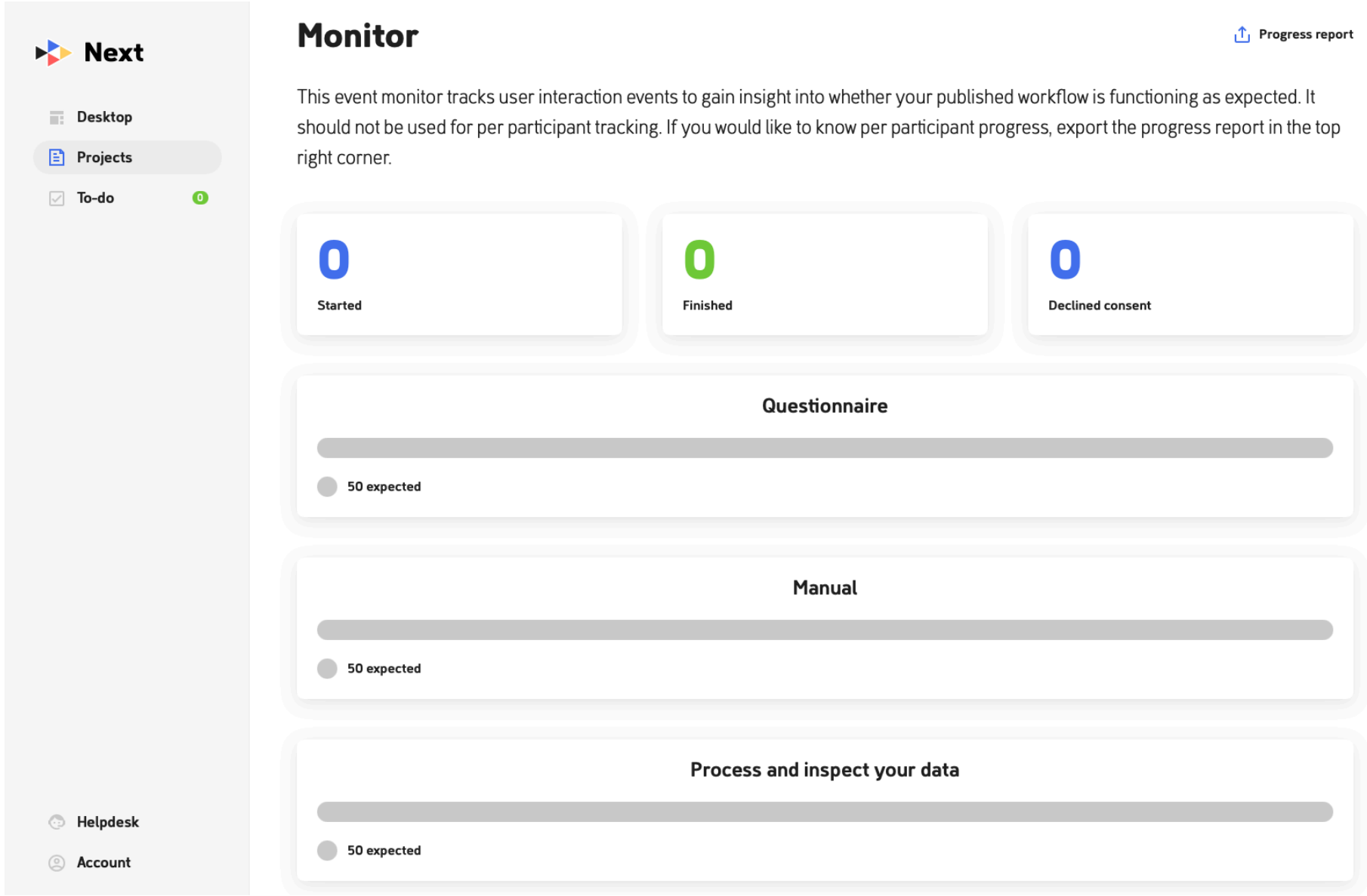

Figure. Next setup 10

Strategy to make the extraction work

1. Take a look at the DDP; download it, best for multiple time periods and for different languages
2. Understand the structure of the JSON or CSV.
3. Get an example file running.
4. Write the code for the extraction script.
5. Test your script, first locally and then in the wild.
6. Adapt your script.

Example: Extract list of subscriptions

	A	B	C	D
1	**Channel Id**	**Channel Url**	**Channel Title**	
2	UC0vBXGSyV14uvJ4hECDOl0Q	http://www.youtube.com/channel/UC0vBXGSyV14uvJ4hECDOl0Q	Techquickie	
3	UC1H1NWNTG2Xi3pt85ykVSHA	http://www.youtube.com/channel/UC1H1NWNTG2Xi3pt85ykVSHA	Jordan Harrod	
4	UC4NNPgQ9sOkBjw6GlkgCylg	http://www.youtube.com/channel/UC4NNPgQ9sOkBjw6GlkgCylg	Ben Vallack	
5	UC6-ymYjG0SU0jUWnWh9ZzEQ	http://www.youtube.com/channel/UC6-ymYjG0SU0jUWnWh9ZzEQ	Wisecrack	
6	UC6DUUo63tKyr1_BHN26OiJw	http://www.youtube.com/channel/UC6DUUo63tKyr1_BHN26OiJw	Wahre Verbrechen.Wahre Stories	
7	UCAD-xOOaUI6N7Uq9laOVbcw	http://www.youtube.com/channel/UCAD-xOOaUI6N7Uq9laOVbcw	Code Therapy w/ RenÃ© Rebe	
8	UCAXCI-ASTfZqfv9-YklfPlA	http://www.youtube.com/channel/UCAXCI-ASTfZqfv9-YklfPlA	PacKMeN	
9	UCApPPpJ4d3ueW38lArwiWoA	http://www.youtube.com/channel/UCApPPpJ4d3ueW38lArwiWoA	Kenny Beats	
10	UCBa659QWEk1AI4Tg--mrJ2A	http://www.youtube.com/channel/UCBa659QWEk1AI4Tg--mrJ2A	Tom Scott	
11	UCDhu1klCDnf2glev0YbYkDA	http://www.youtube.com/channel/UCDhu1klCDnf2glev0YbYkDA	BeHaind	
12	UCFZms3ivokCP_HO8o5JzxEw	http://www.youtube.com/channel/UCFZms3ivokCP_HO8o5JzxEw	moTricksTV	
13	UCGII8SK7YD2B0Gd43DZk4NQ	http://www.youtube.com/channel/UCGII8SK7YD2B0Gd43DZk4NQ	mattes	
14	UCHnyfMqiRRG1u-2MsSQLbXA	http://www.youtube.com/channel/UCHnyfMqiRRG1u-2MsSQLbXA	Veritasium	
15	UCJXa3_WNNmIpewOtCHf3B0g	http://www.youtube.com/channel/UCJXa3_WNNmIpewOtCHf3B0g	LaurieWired	
16	UCJkMlOu7faDgqh4PfzbpLdg	http://www.youtube.com/channel/UCJkMlOu7faDgqh4PfzbpLdg	Nerdwriter1	
17	UCMELMEuQqmxTqM4_ArhHPjQ	http://www.youtube.com/channel/UCMELMEuQqmxTqM4_ArhHPjQ	High5	
18	UCMI9UhY1ehLGfOP5KNIKIaQ	http://www.youtube.com/channel/UCMI9UhY1ehLGfOP5KNIKIaQ	Doktor Allwissend	
19	UCMu5gPmKp5av0QCAajKTMhw	http://www.youtube.com/channel/UCMu5gPmKp5av0QCAajKTMhw	ERB	
20	UCN29LJGZ8FY30ysxdTnDsaw	http://www.youtube.com/channel/UCN29LJGZ8FY30ysxdTnDsaw	Filmanalyse	
21	UCNTwGcSEDHIbGhk7l5xFGwA	http://www.youtube.com/channel/UCNTwGcSEDHIbGhk7l5xFGwA	tinseltown	
22	UCOpcACMWblDls9Z6GERVi1A	http://www.youtube.com/channel/UCOpcACMWblDls9Z6GERVi1A	Screen Junkies	
23	UCU98JVxJf-VQXbPQPNbkbQQ	http://www.youtube.com/channel/UCU98JVxJf-VQXbPQPNbkbQQ	Meditations for the anxious mind	
24	UCUyeluBRhGPCW4rPe_UvBZQ	http://www.youtube.com/channel/UCUyeluBRhGPCW4rPe_UvBZQ	ThePrimeTime	

Figure. subscriptions.csv

```
...
    "subscriptions": {
        "extraction_function": ef.extract_subscriptions,
        "possible_filenames": ["Abos.csv", "subscriptions.csv"],
        "title": {
            "en": "Which channels are you subscribed to?",
            "de": "Welche Kanäle haben Sie abonniert?",
            "nl": "Op welke kanalen ben je geabonneerd?",
        },
    },
...
```

```python
def extract_youtube_content_from_zip_folder(zip_file_path, possible_filenames):
    """Extract content from YouTube data export zip file using filenames"""

    try:
        with zipfile.ZipFile(zip_file_path, "r") as zip_ref:
            # Get the list of file names in the zip file
            filenames = zip_ref.namelist()
            # Look for matching files
            for possible_filename in possible_filenames:
                for filename in filenames:
                    if possible_filename in filename:
                        try:
                            # Process based on file extension
                            if filename.endswith(".json"):
                                with zip_ref.open(filename) as json_file:
                                    json_content = json.loads(json_file.read())
                                    return json_content
                            elif file_name.endswith(".csv"):
                                with zip_ref.open(file_name) as csv_file:
                                    csv_content = pd.read_csv(csv_file)
                                    return csv_content

                        # Try the next matching file if there's an error
                        except Exception as e:
                            print(f"Error reading file {file_name}: {e}")
                            continue
            # If we've checked all files and found no match
            print(f"No file matching file '{possible_filenames}' found")
            return None
    except Exception as e:
        print(f"Error extracting YouTube content: {e}")
```

```python
def extract_subscriptions(subscriptions_csv): # csv file is read before
    """Extract YouTube channel subscriptions"""

    # Define column name
    if "Kanaltitel" in subscriptions_csv.columns:  # language sensitive
        channel_column = "Kanaltitel"
    else:
        channel_column = "Channel Title"

    # Define description
    channel_name = "Subscribed Channel"

    # Create DataFrame with just the channel names
    subscriptions_df = pd.DataFrame({channel_name: subscriptions_csv[channel_column]})

    return subscriptions_df
```

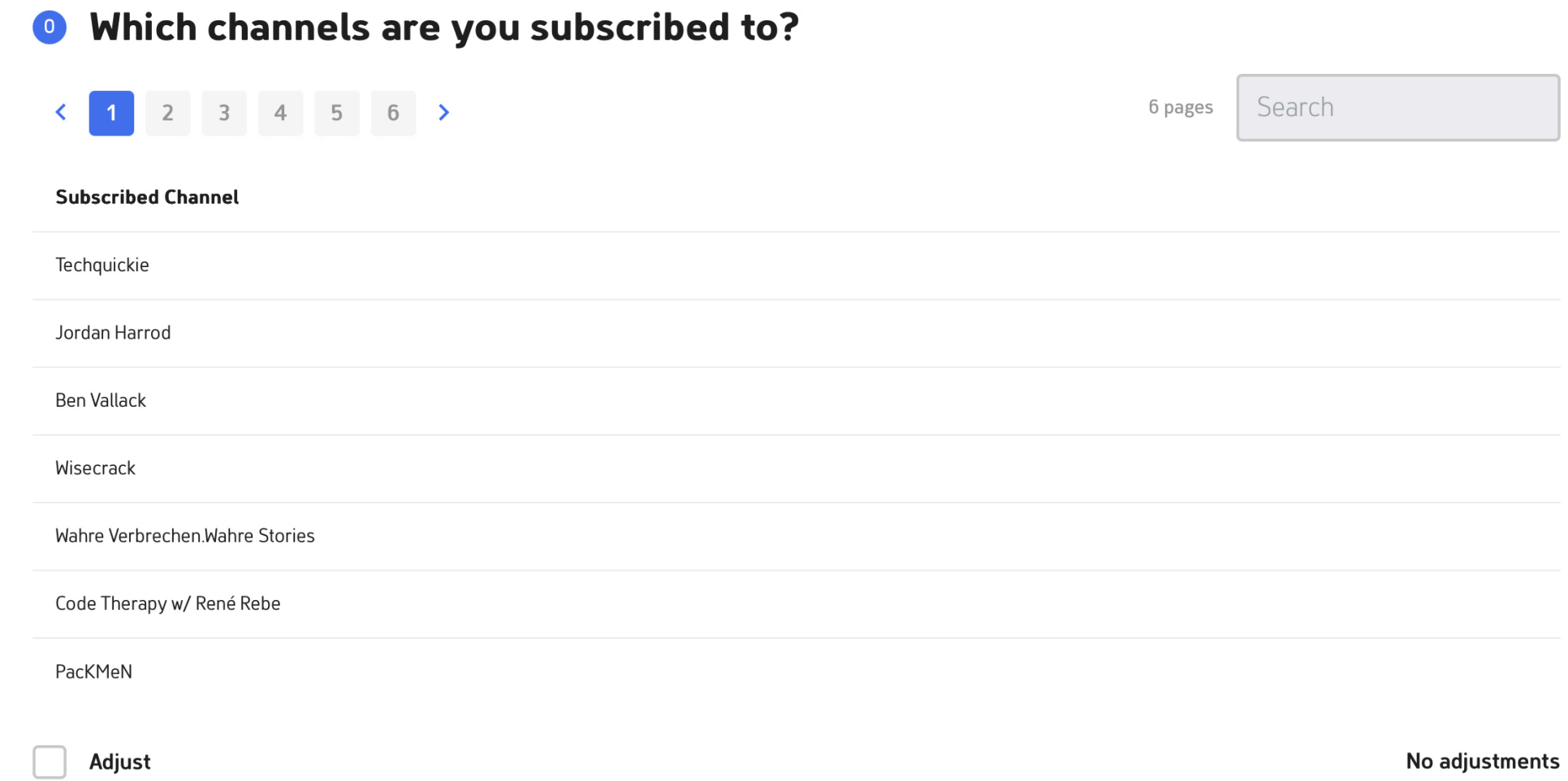

Figure. Processed subscriptions.csv

Step I: Research design & tool set-up

Key decisions:

- Which theoretical questions do I want to answer?
- How do I operationalize key variables via my data donation tool?
- **How do I integrate the tool in surveys & recruit participants?**

Step I.III: How do I integrate the tool in surveys & recruit participants?

- Often: survey, then forwarding to an external site
- Less often: Integration in existing survey infrastructure (Haim et al., 2023)

Step I.III: How do I integrate the tool in surveys & recruit participants?

- Low response rates (e.g., Hase & Haim, 2024; Keusch et al., 2024)
  - Behavioral intentions as “willingness to donate” high (79-52% of survey respondents)
  - Actual behavior as “participation in data donation” low (37-12% of survey respondents)
  - Well known intention-behavior gap (Kmetty & Stefkovics, 2025)
- Non-response bias
- Primary used in non-probability panels (e.g. online access panels)
- Survey design strategies: For now, 🤑 is the only thing that works.
- 👉 Again, we will talk about this in session 4️⃣.

Step I: Research design & tool set-up

1 Research Design & Tool Set-Up

1.1 Which theoretical questions do I want to answer?

1.2 How do I operationalize key variables via my data donation tool?

1.3 How do I integrate the tool in surveys & recruit participants?

2 Data Cleaning & Augmentation

3 Modelling

Figure. Data donation study - researcher perspective

Step II: Data cleaning & augmentation (Valerie)

1 Research Design & Tool Set-Up

1.1 Which theoretical questions do I want to answer?

1.2 How do I operationalize key variables via my data donation tool?

1.3 How do I integrate the tool in surveys & recruit participants?

2 Data Cleaning & Augmentation

2.1 How do I clean and extend data?

2.2 How do I check for bias?

3 Modelling

Figure. Data donation study - researcher perspective

Step II.I: How do I clean and extend data?

This is how your data may look like:

	id	submission_id	filename	n_deleted	insert_timestamp	update_timestamp	entry
7868	308142	5345	liked_posts.json	0	2022-12-09 10:37:45.458707+00:00	2022-12-09 10:37:45.458714+00:00	{"string_list_data":[{"timestamp":1654035032}],"title":"<user>"}
7869	308143	5345	liked_posts.json	0	2022-12-09 10:37:45.458731+00:00	2022-12-09 10:37:45.458737+00:00	{"string_list_data":[{"timestamp":1654034499}],"title":"<user>"}
7870	308144	5345	liked_posts.json	0	2022-12-09 10:37:45.458754+00:00	2022-12-09 10:37:45.458761+00:00	{"string_list_data":[{"timestamp":1654034341}],"title":"<user>"}
7871	308145	5345	liked_posts.json	0	2022-12-09 10:37:45.458777+00:00	2022-12-09 10:37:45.458784+00:00	{"string_list_data":[{"timestamp":1654020807}],"title":"<user>"}
7872	308146	5345	liked_posts.json	0	2022-12-09 10:37:45.458801+00:00	2022-12-09 10:37:45.458808+00:00	{"string_list_data":[{"timestamp":1654020127}],"title":"<user>"}
7873	308147	5345	liked_posts.json	0	2022-12-09 10:37:45.458824+00:00	2022-12-09 10:37:45.458831+00:00	{"string_list_data":[{"timestamp":1654020057}],"title":"tagesschau"}
7874	308148	5345	liked_posts.json	0	2022-12-09 10:37:45.458847+00:00	2022-12-09 10:37:45.458854+00:00	{"string_list_data":[{"timestamp":1654019851}],"title":"<user>"}
7875	308149	5345	liked_posts.json	0	2022-12-09 10:37:45.458871+00:00	2022-12-09 10:37:45.458878+00:00	{"string_list_data":[{"timestamp":1654019739}],"title":"<user>"}
7876	308150	5345	liked_posts.json	0	2022-12-09 10:37:45.458894+00:00	2022-12-09 10:37:45.458901+00:00	{"string_list_data":[{"timestamp":1654019708}],"title":"<user>"}
7877	308151	5345	liked_posts.json	0	2022-12-09 10:37:45.458918+00:00	2022-12-09 10:37:45.458925+00:00	{"string_list_data":[{"timestamp":1653940335}],"title":"<user>"}
7878	308152	5345	liked_posts.json	0	2022-12-09 10:37:45.458941+00:00	2022-12-09 10:37:45.458948+00:00	{"string_list_data":[{"timestamp":1653938012}],"title":"<user>"}
7879	308153	5345	liked_posts.json	0	2022-12-09 10:37:45.458965+00:00	2022-12-09 10:37:45.458971+00:00	{"string_list_data":[{"timestamp":1653937848}],"title":"<user>"}
7880	308154	5345	liked_posts.json	0	2022-12-09 10:37:45.458988+00:00	2022-12-09 10:37:45.458995+00:00	{"string_list_data":[{"timestamp":1653937307}],"title":"<user>"}
7881	308155	5345	liked_posts.json	0	2022-12-09 10:37:45.459011+00:00	2022-12-09 10:37:45.459018+00:00	{"string_list_data":[{"timestamp":1653808843}],"title":"<user>"}
7882	308156	5345	liked_posts.json	0	2022-12-09 10:37:45.459035+00:00	2022-12-09 10:37:45.459042+00:00	{"string_list_data":[{"timestamp":1653781269}],"title":"<user>"}
7883	308157	5345	liked_posts.json	0	2022-12-09 10:37:45.459058+00:00	2022-12-09 10:37:45.459065+00:00	{"string_list_data":[{"timestamp":1653753711}],"title":"sz"}
7884	308158	5345	liked_posts.json	0	2022-12-09 10:37:45.459082+00:00	2022-12-09 10:37:45.459089+00:00	{"string_list_data":[{"timestamp":1653691455}],"title":"<user>"}
7885	308159	5345	liked_posts.json	0	2022-12-09 10:37:45.459105+00:00	2022-12-09 10:37:45.459112+00:00	{"string_list_data":[{"timestamp":1653674965}],"title":"<user>"}
7886	308160	5345	liked_posts.json	0	2022-12-09 10:37:45.459128+00:00	2022-12-09 10:37:45.459135+00:00	{"string_list_data":[{"timestamp":1653674398}],"title":"<user>"}

Figure. Donated data - example

Step II.I: How do I clean and extend data?

This is how your data may look like:

	id	submission_id	filename	n_deleted	insert_timestamp	update_timestamp	entry
1	708905	9073	Suchverlauf.json	0	2022-12-17 12:43:07.127782+00:00	2022-12-17 12:43:07.127790+00:00	{"title":"Gesucht nach: kinocheck","titleUrl":"https://www.youtube.com/results?search_query=kinocheck"}
2	1050798	10102	Suchverlauf.json	0	2022-12-20 11:08:43.968028+00:00	2022-12-20 11:08:43.968035+00:00	{"title":"Gesucht nach: anno 1602 denkmal","titleUrl":"https://www.youtube.com/results?search_query=anno+1602+denkmal"}
3	619493	8665	Suchverlauf.json	0	2022-12-16 21:04:58.414825+00:00	2022-12-16 21:04:58.414832+00:00	{"title":"Gesucht nach: ytitti","titleUrl":"https://www.youtube.com/results?search_query=ytitti"}
4	938862	9908	Suchverlauf.json	0	2022-12-19 13:26:30.762649+00:00	2022-12-19 13:26:30.762657+00:00	{"title":"Coop Erbjudande v6 angesehen","titleUrl":"https://www.youtube.com/watch?v=ql1goWZD8nQ"}
5	1289477	10178	Suchverlauf.json	0	2022-12-28 15:33:30.872355+00:00	2022-12-28 15:33:30.872362+00:00	{"title":"The spring collection angesehen","titleUrl":"https://www.youtube.com/watch?v=fi49A9iB1hA"}

Figure. Donated data - example

Step II.I: How do I clean and extend data?

- Manual annotation by participants during data donation
- APIs/scraping to extend collected data
- Text-as-data methods for classification

📣 Task 3: Classify search terms

Download the data for Task 4 from the workshop website. This contains YouTube searches collected from a German social media sample. Either discuss this (no-code group) or do this in R/Python (code group).....

1. How you would clean the data?
2. How you would identify health-related searches using NLP methods?

external_submission_id	search_query	donation_platform
3862	https://www.youtube.com/results?search_query=theorien+d...	YouTube
3862	https://www.youtube.com/results?search_query=Gero+hesse	YouTube
3862	https://www.youtube.com/results?search_query=macarons	YouTube
3862	https://www.youtube.com/results?search_query=Weihnacht...	YouTube
3862	https://www.youtube.com/results?search_query=sallys+welt...	YouTube
9296	https://www.youtube.com/results?search_query=reitmaier	YouTube
9296	https://www.youtube.com/results?search_query=zotero+ma...	YouTube
9296	https://www.youtube.com/results?search_query=einfach+inka	YouTube
9296	https://www.youtube.com/results?search_query=tissot+197...	YouTube
9296	https://www.youtube.com/results?search_query=Druck	YouTube
9272	https://www.youtube.com/results?search_query=der+pate+...	YouTube

Figure. Donated data - example

Step II.II: How do I check for bias?

- Errors in representation and measurements, e.g.
  - based on systematic drop-out (Pak et al., 2022)
  - based on systematic misclassification of digital traces (TeBlunthuis et al., 2024)

👉 You know the drill: We will talk about this in session 4️⃣.

Step II: Data cleaning & augmentation

1 Research Design & Tool Set-Up

1.1 Which theoretical questions do I want to answer?

1.2 How do I operationalize key variables via my data donation tool?

1.3 How do I integrate the tool in surveys & recruit participants?

2 Data Cleaning & Augmentation

2.1 How do I clean and extend data?

2.2 How do I check for bias?

3 Modelling

Figure. Data donation study - researcher perspective

Step III: Modelling (Valerie)

1 Research Design & Tool Set-Up

1.1 Which theoretical questions do I want to answer?

1.2 How do I operationalize key variables via my data donation tool?

1.3 How do I integrate the tool in surveys & recruit participants?

2 Data Cleaning & Augmentation

2.1 How do I clean and extend data?

2.2 How do I check for bias?

3 Modelling

3.1 How do I analyze results?

Figure. Data donation study - researcher perspective

Step III.I: How do I analyze results?

Think carefully about...

- How to create indices from different metrics (e.g., liking, sharing, or commenting on content)
- Hierarchical structure (nested in time, metrics, platforms)
- Skewed data, non-linearity

Summary: Researcher perspective 📚

- **Summary**: Key steps include...
    1. Research design & tool set-up
    2. Data cleaning & augmentation
    3. Modelling
- **Further literature**:
    - Boeschoten et al. (2022)
    - Carrière et al. (2024)

Questions? 

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