

## Online Supplement

### S1 Survey Development and Response Analysis Approach

The pre- and post-explainability platform surveys used in the user feedback activity were designed to enable direct comparison. As introduced in Section 5.1, each attendee completes a pre- and post-explainability platform survey for each episode. For the 1st Episode, the pre-explainability platform survey includes two multiple-choice questions:

- *Please put yourself in the shoes of{a participant in the episode story}. Do you understand the rationale behind why you were not awarded{a specific resource}, even though your bid is highest? A. No; B. Yes, but only partially; or C. Yes, fully.*
- *Please put yourself in the shoes of{the same participant in the episode story}. Do you understand the rationale behind why you were awarded{another specific resource} instead? A. No; B. Yes, but only partially; or C. Yes, fully.*

The post-explainability platform survey for the 1st Episode includes five multiple-choice questions, grouped into three key areas:

- For attendees who selected *A. No* on one or both pre-explainability platform questions, a follow-up question is asked: *Do you now understand the rationale behind{the same context from one of the two pre-explainability platform survey questions}? A. No, still not; B. Yes, but only partially; or C. Yes, fully.*
- For attendees who selected *B. Yes, but only partially* on one or both pre-explainability platform questions, a follow-up question is asked: *Do you now fully understand the rationale behind{the same context from one of the two pre-explainability platform survey questions}? A. No, still not; B. No, but I understand better; or C. Yes, fully.*
- All attendees are asked a general feedback question (multiple selections allowed): *Overall, do you think the explainability platform helps you understand the rationales in this episode? A. No; B. Yes, it's easier to understand; C. Yes, it's quicker to understand (saves time compared to figuring it out on my own); or D. Yes, other beneficial aspect(s) with a free-text box.*

The pre-explainability platform survey for the 2nd Episode includes one multiple-choice question: *"Please put yourself in the shoes of{the same participant in the episode story}. With the context slightly changed, do you understand the rationale behind why you were still not awarded{a specific resource}, even though your bid is highest? A. No; B. Yes, but only partially; or C. Yes, fully."* The post-explainability platform survey for the 2nd Episode contains three multiple-choice questions in the same three key areas as in the 1st Episode. As the logic and structure of the questions mirror those used in the 1st Episode, we do not repeat

Episode pairings and rationales for feedback study.

Group Number	1st Episode Rationale A	2nd Episode Rationale B
Group One	Instance 1	Instance 1 Upgrade
Group Two	Instance 2	Instance 2 Upgrade
Group Three	Instance 3	Instance 3 Upgrade

them here. All four surveys used in Group One are included in S2. After both episodes are completed, each attendee is asked a final open-ended question: "*Any other comments you have about the explainability platform?*"

The surveys were designed and reviewed by four experts across the fields of statistics, data science, computer science, industrial engineering, and business. The design process followed key principles of readability, validity, and reliability, ensuring that the collected data would be both meaningful and trustworthy.

## **S2 User Feedback Survey Activity Full Surveys for Attendee Group One**

Below are the full text of the user feedback surveys administered to Attendee Group One. These questions were used to assess attendee understanding of resource allocation decisions, both before and after exposure to the explainability platform.

Group One - 1st Episode pre-explainability platform Survey

Question 1: Please put yourself in NPO B's shoes. Do you understand the rationale behind why you were not awarded the Social Media Marketing, even though your bid is highest?

- A. No
- B. Yes, but only partially
- C. Yes, fully

Question 2: Please put yourself in NPO B's shoes. Do you understand the rationale behind why you were awarded the Grant Writing instead?

- A. No
- B. Yes, but only partially
- C. Yes, fully

Group One - 1st Episode post-explainability platform Survey

=¿ If you answer *A. No* in Question 1:

Question 3: Do you now understand the rationale behind why you were not awarded the Social Media Marketing, even though your bid is highest?

- A. No, still not
- B. Yes, but only partially
- C. Yes, fully

=¿ If you answer *B. Yes, but only partially* in Question 1:

Question 4: Do you now fully understand the rationale behind why you were not awarded the Social Media Marketing, even though your bid is highest?

- A. No, still the same
- B. No, but I understand better

C. Yes, fully

=> If you answer *A. No* in Question 2:

Question 5: Do you now understand the rationale behind why you were awarded the Grant Writing instead?

A. No, still not

B. Yes, but only partially

C. Yes, fully

=> If you answer *B. Yes, but partially* in Question 2:

Question 6: Do you now fully understand the rationale behind why you were awarded the Grant Writing instead?

A. No, still the same

B. No, but I understand better

C. Yes, fully

Question 7 (Select All That Apply): Overall, do you think the explainability platform helps you understand the rationales in the updated episode story?

A. No

B. Yes, it's easier to understand

C. Yes, it's quicker to understand (saves time compared to figuring it out on my own)

D. Yes, other beneficial aspect(s): [free text]

Group One - 2nd Episode pre-explainability platform Survey

Question 8: Please put yourself in NPO B's shoes. With the context slightly changed, do you understand the rationale behind why you were still not awarded the Social Media Marketing?

A. No

B. Yes, but only partially

C. Yes, fully

Group One - 2nd Episode post-explainability platform Survey

=> If you answer *A. No* in Question 8:

Question 9: Do you now understand the rationale behind why you were still not awarded the Social Media Marketing?

A. No, still not

B. Yes, but only partially

C. Yes, fully

=> If you answer *B. Yes, but partially* in Question 8:

Question 10: Do you now fully understand the rationale behind why you were still not awarded the Social Media Marketing?

A. No, still the same

B. No, but I understand better

C. Yes, fully

Question 11 (Select All That Apply): Overall, do you think the explainability platform helps you understand the rationales in the updated episode story?

A. No

B. Yes, it's easier to understand

C. Yes, it's quicker to understand (saves time compared to figuring it out on my own)

D. Yes, other beneficial aspect(s): [free text]

Question 12 (Open-Ended Question): Any other comments you have about the explainability platform?

### S3 User Feedback Survey Activity Instances

Given the time constraint of completing two episodes and four surveys in approximately 20 minutes per group, each instance and its upgrade version were designed with a relatively small number of participants, offers, and bids. This allowed attendees to quickly review the full scenario and become familiar with the offering and bidding behaviors of each participant. To assist attendees in staying focused on the specific rationale being tested, each was asked to assume the perspective of a particular participant within the instance and requested to closely follow that participant's decisions and outcomes. These designated individuals are referred to as **focal participants**, and were designed to submit multiple bids that, taken together, exceed their initial balance and create competition with other participants.

Table 4: Resource offers and bid outcomes for Instance 1 (NPO B focus).

Resource	Offer NPO	Ask Value	Bid NPO	Bid Value	Result
Social Media Marketing-3 Hours	NPO D	5	NPO A	9	Yes
			NPO B	10	No
Grant Writing-3 Hours	NPO D	5	NPO B	9	Yes
			NPO C	6	No
Spanish Translation-6 Hours	NPO B	7	N/A	N/A	N/A

Table 5: Resource offers and bid outcomes for Upgraded Instance 1 (NPO B focus).

Resource	Offer NPO	Ask Value	Bid NPO	Bid Value	Result
Social Media Marketing-3 Hours	NPO D	5	NPO A	9	Yes
			NPO B	10	No
Grant Writing-3 Hours	NPO D	5	NPO B	9	Yes
			NPO C	6	No
Spanish Translation-6 Hours	NPO B	7	NPO D	8	Yes

Table 6: Resource offers and bid outcomes for Instance 2 (NPO C focus).

Resource	Offer NPO	Ask Value	Bid NPO	Bid Value	Result
Conference Room–5 Hours	NPO A	8	NPO D	9	Yes
			NPO C	10	No
ChatGPT Paid Version–A Week	NPO A	5	NPO C	9	Yes
			NPO B	5	No

Table 7: Resource offers and bid outcomes for Instance 2 (NPO C focus).

Resource	Offer NPO	Ask Value	Bid NPO	Bid Value	Result
Conference Room–5 Hours	NPO A	8	NPO D	9	Yes
			NPO C	10	No
ChatGPT Paid Version–A Week	NPO A	5	NPO C	9	Yes
			NPO B	5	No
Volunteer Management–2 Hours	NPO C	5	NPO B	5	Yes

Table 8: Resource offers and bid outcomes for Instance 3 (NPO D focus).

Resource	Offer NPO	Ask Value	Bid NPO	Bid Value	Result
Training for Tableau–2 Hours	NPO A	4	NPO C	5	No
			NPO D	9	Yes
Website Design–6 Hours	NPO A	9	NPO D	10	No
			NPO B	9	Yes

Table 9: Resource offers and bid outcomes for Instance 3 (NPO D focus).

Resource	Offer NPO	Ask Value	Bid NPO	Bid Value	Result
Training for Tableau–2 Hours	NPO A	4	NPO C	5	No
			NPO D	9	Yes
Website Design–6 Hours	NPO A	9	NPO D	10	No
			NPO B	9	Yes
Market Research–2 Hours	NPO D	4	NPO A	5	Yes
Event Brainstorming–1 Hour	NPO D	3	NPO C	3	Yes