

Why and when consumers prefer products of user-driven firms: A social identification account

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SUPPLEMENTAL MATERIAL

Stimuli, Manipulations, Measures, and Further Analysis

Study 1: Main Study

Stimuli and Manipulations

Please imagine that you want to shop for a T-shirt. In a minute you will see two T-shirts of two different firms – Firm “A” and Firm “B” (real brand names blinded). The T-shirts are unisex.

Please note that large user communities have evolved around both firms; anyone who is interested can participate in the communities.

[T-shirt designs used]

T-shirt Firm A



T-shirt Firm B



[Firm philosophy manipulation]

The two firms differ in their “market philosophy”, i.e., in their way to generate new product designs.

[User Firm A] The T-Shirts of Firm “A” are exclusively designed by users of the community (“designed by the user-community”).

In contrast, the T-Shirts of Firm “B” are exclusively designed by designers employed by the firm (“designed by designers”).*

[Designer Firm A] The T-Shirts of Firm “A” are exclusively designed by designers employed by the firm (“designed by designers”).*

In contrast, the T-Shirts of Firm “B” are exclusively designed by users of the community (“designed by the user-community”).

[Follow-up Study II: same design as main study but customer orientation cue added; see asterisk]

*The firm, however, is very customer-oriented. Their designers regularly talk to community members, read their postings and discussions, try to figure out users’ needs and preferences, etc.

Measures

Product preference. As described in the paper, product preference was captured by asking participants to indicate which T-shirt they would buy if they needed a T-shirt at that moment. We complemented this choice question by a 7-point horizontal product preference scale (7 = strong preference for the T-shirt of Firm A, 1 = strong preference for the T-shirt of Firm B) and by a 7-point vertical preference scale (7 = I would more likely buy a T-shirt from Firm A, 1 = I would more likely buy a T-shirt from Firm B)¹. The measures were standardized to form a compound product preference index ($\alpha = .96$).

Firm identification. Firm identification was captured by four items ($\alpha = .98$). The items were: (1) “I can identify more with Firm A / B”, (2) “I feel more connected with Firm A / B”, (3) “I feel closer to Firm A / B”, and (4) “I feel a stronger bond to Firm A / B” (where 7 = Firm A and 1 = Firm B).

Perceived empowerment. Perceived empowerment was captured by six items ($\alpha = .97$). The items were: (1) “When I think about this firm, I feel like I could have an impact on the design of the T-shirts”, (2) “This firm makes me feel that I can make a difference”, (3) “This firm makes me almost feel like I have been ‘empowered’”, (4) “When I think about this firm, I personally feel important, valuable and worthy”, (5) “This firm makes me feel like I have power on the firm’s product offerings”, and (6) “This firm makes me feel like I could directly influence the firm’s T-shirt designs” (where 7 = more true for Firm A and 1 = more true for Firm B).

Customer orientation. Customer orientation was captured by six items ($\alpha = .90$). Following the preamble “How customer-oriented do you perceive Firm A in relation to Firm B?”, participants completed the following items: (1) “The firm tries to help customers to achieve their goals”, (2) “... has the customers’ best interest in mind”, (3) “... tries to figure out what customers’ needs are”, (4) “... tries to find out what kind of product would be most helpful to a customer”, (5) “... tries to get customers to discuss their needs with them”, and (6) “Customers can count on this firm to take action to address customers’ needs” (where 7 = more true for Firm A and 1 = more true for Firm B).

Perceived similarity. Respondents’ perceived similarity with the users of the user-driven firm’s community was captured by four items ($\alpha = .93$). The preamble read: “Please think of the specific user community of Firm A (B). How similar do you think are the members of the user community to yourself?” Participants completed four five-point bipolar rating scales: (1) “I feel not similar (I feel similar)” [1; 5], (2) “There are no (many) similarities between me and members of the community”, (3) “I feel not (very) close to the members of the community”, and (4) “I cannot (can) identify with the community members.”

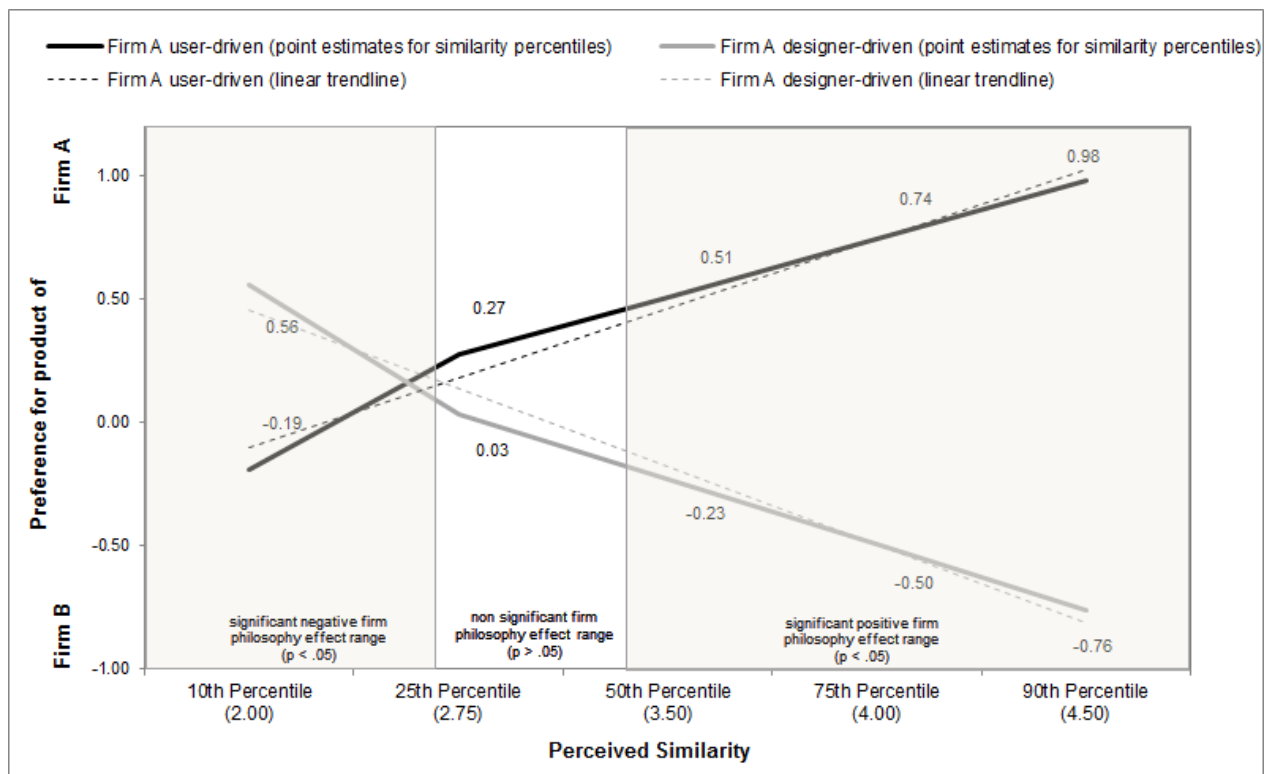
Further Analyses

Firm philosophy x similarity interaction. As an exploratory effort, we analyzed consumers’ perceived similarity to the user-driven firm’s community. If our social identification account is valid, perceived similarity should moderate the identified effects such that they should be stronger for consumers who feel similar to participating users (H2). Such a pattern would also alleviate demand concerns for the main effects reported in the paper. In order to explore this, we ran a hierarchical multiple regression analysis with product preference as the dependent variable. In a first step, both the firm philosophy factor and perceived similarity were entered as independent variables. In a second step, the respective interaction term was added (firm philosophy x similarity). We first find that perceived similarity does not have a significant effect on preference ($t < 1$, NS); consistent with the findings reported in the paper, however, we find that the firm philosophy factor has a positive and significant effect on preference ($\beta = .31$, $t(241) =$

¹ Note that for expository purposes, the items of this and other constructs were recoded (originally, 1 = I would more likely buy a T-shirt from Firm A, and 7 = I would more likely buy a T-shirt from Firm B).

5.05, $p < .001$). Importantly, this main effect is qualified by an interaction whereby the user-driven philosophy effect looms larger the higher the perceived similarity ($\beta = 1.76$, $t(240) = 8.90$, $p < .001$).² We employed the Johnson-Neyman (JN) technique to further explore this interaction (see Figure 1). We can thereby identify the range(s) of perceived similarity for which there is a significantly positive (or negative) effect of the market philosophy factor. Interestingly, results reveal that participants who perceive themselves as *dissimilar* to the user base have a stronger preference for products of the *designer-driven* firm. Specifically, we find a significantly *negative* user-driven philosophy effect for respondents who scored a 2.47 or lower on similarity (where 1 = low and 5 = high; $M_{\text{similarity}} = 3.34$; significance range for similarity (shaded in grey in Figure 1): [1.00, 2.47], $p < .05$). Participants who scored a 2.98 or higher on similarity, in contrast, demonstrate a significantly *positive* user-driven philosophy effect (significance range for similarity): [2.98, 5.00], $p < .05$). These results provide preliminary evidence for H2: observing consumers' preference for products of user-driven firms seems to be moderated by their perceived similarity with participating users.

Figure 1: The user-driven philosophy effect as a function of perceived similarity



Study 1: Follow-up Study I

² A similar pattern of results is obtained if we replace product preference with firm identification or perceived empowerment as dependent variables, i.e., we find a significant firm philosophy x similarity interaction (firm identification as dependent variable: $\beta = 1.89$, $t(240) = 9.95$, $p < .001$; perceived empowerment as dependent variable: $\beta = .99$, $t(240) = 6.07$, $p < .001$). These findings thus provide additional convergent evidence for our overarching social identification account.

Stimuli and Manipulations

Please imagine that you want to shop for a T-shirt. Below you will see two T-shirts of two new and different firms – Firm “A” and Firm “B” [participants were informed that the real brand names were blinded].

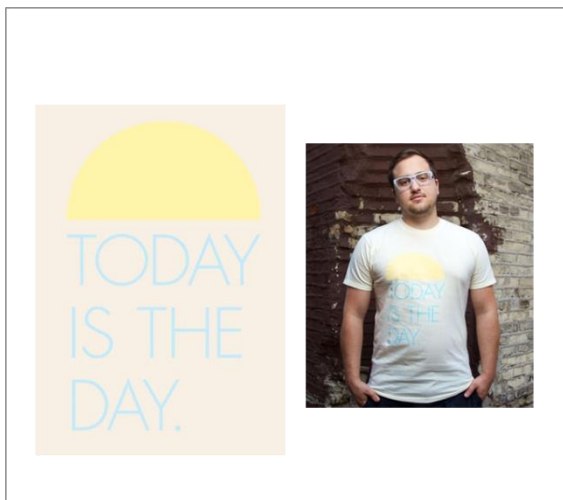
[Firm philosophy manipulation]

The two firms differ in their “market philosophy”:

[User Firm A] Firm “A” is positioned as a company that is strongly “driven by its user community” (e.g., it is customers/users that come up with new product ideas/designs to be marketed to the general public – like the T-shirt you see below). Firm “B” instead, is positioned as a company that is strongly “driven by its designers” (e.g., it is firm-internal designers that come up with new product ideas/designs to be marketed to the general public – like the T-shirt you see below).

[Designer Firm A] Firm “A” is positioned as a company that is strongly “driven by its designers” (e.g., it is firm-internal designers that come up with new product ideas/designs to be marketed to the general public – like the T-shirt you see below). Firm “B” instead, is positioned as a company that is strongly “driven by its user community” (e.g., it is customers/users that come up with new product ideas/designs to be marketed to the general public – like the T-shirt you see below).

[T-shirt designs used; framed as “exemplary T-shirts for both companies (unisex)”]



[T-shirt of Company A]



[T-shirt of Company B]

Measures

Product choice. Product choice served as our dependent variable. Participants were informed that they would enter into a raffle to win one of the two T-shirts and were asked to indicate which of the two they would like to win. Upon completion of the study, we randomly determined the winner who was handed over his/her chosen T-shirt for free.

Study 2: Main Study

Stimuli and Manipulations

Below, we introduce you to two new cereal firms (Firm “A” and Firm “B”; real brand names blinded) which have started to gain ground in [country of respondents]. The cereals of both firms came off well in a recent consumer report conducted by an independent party. The report is based on a representative [country of respondents]-study, the sample is representative in terms of age, gender, and region of origin of respondents. While competitor products, on average, only received a “fairly good” or “good”, the cereals of Firm “A” and Firm “B” both scored a “very good” in terms of “taste” and “functionality” (feel good-effect, healthiness, calories, energy etc.).

[Firm philosophy manipulations]

The two firms differ, however, in their “market philosophy”:

[User Firm A] When creating new cereal mixes, Firm “A” draws on its user-community.* In contrast, Firm “B” draws on its firm-internal employees with regard to creating new cereals. The cereal of Firm “A”, which you will see in a minute, as is the case with any other of the firm’s cereals, was created by product developers of Firm A.

[Designer Firm A] When creating new cereal mixes, Firm “A” draws on its firm-internal employees. The cereal of Firm “A”, which you will see in a minute, as is the case with any other of the firm’s cereals, was created by product developers of Firm A. In contrast, Firm “B” draws on its user-community with regard to creating new cereals.*

*[Similarity manipulation of user-community]

[high similarity: female user-community] This community consists of 95% females (female consumers and cereal fans) who are dedicated to create new cereal mixes. The cereal of Firm “A” (“B”), which you will see in a minute, as is the case with any other of the firm’s cereals, was designed by female users.

[low similarity: male user-community] This community consists of 95% males (male consumers and cereal fans) who are dedicated to create new cereal mixes. The cereal of Firm “A” (“B”), which you will see in a minute, as is the case with any other of the firm’s cereals, was designed by male users.

[The cereal mixes stimuli used]



[Cereal mix of Company A]



[Cereal mix of Company B]

Study 2: Follow-up Study

Stimuli and Manipulations

[Note: stimuli are identical to those employed in Study 3 if not indicated otherwise]

Please imagine that you are searching for a software product with which you can edit videos online (e.g., you can edit and save videos for Youtube). You find a consumer report which compares two firms (Firm “A” and Firm “B”, real brand names blinded). The firms differ along certain performance dimensions (see the Table below). The prices of the firms’ products are very similar.

[The consumer report employed]

	Company “A” Product	Company “B” Product
Functionality & Innovativeness		
(1 = low; 7 = high)	6.4	5.7
Average score of competitors: 4.15		
Reliability & Usability		
(1 = low; 7 = high)	5.2	5.9
Average score of competitors: 4.31		

[Study 2: Follow-up Study and Study 3: Firm philosophy manipulation]

A further difference between the firms is their market philosophy:

[User A] In their new product development efforts, Firm “A” is positioned as a firm that is strongly driven by its user-community. That is, it is exclusively firm-external people (the user-community) who develop and program new applications, features, updates, etc. for the software.*

Firm “B”, instead, is positioned as a firm that is strongly driven by firm-internal people in their new product development efforts. That is, it is exclusively employees of the firm who develop and program new applications, features, updates, etc. for the software.

[Designer Firm A] In their new product development efforts, Firm “A” is positioned as a firm that is strongly driven by firm-internal people. That is, it is exclusively employees of the firm who develop and program new applications, features, updates, etc. for the software.

Firm “B” instead, is positioned as a firm that is strongly driven by its user-community in their new product development efforts. That is, it is exclusively firm-external people (the user-community) who develop and program new applications, features, updates, etc. for the software.*

[Study 3: Openness manipulation of the user-driven firm]

*[Fully open] In that regard, Firm “A” (“B”) is very “open”: Everyone can co-develop the software and participate in its further development. This means that Firm “A” (“B”) gives any user who is interested an opportunity to advance and improve the software.

*[Selectively open] In that regard, Firm “A” (“B”) is very selective: Only selected people can co-develop the software and participate in its further development. This means that Firm “A” (“B”) only allows selected users to advance and improve the software.

Detailed Reporting of Methods and Findings

Objectives and Overview

The primary objective of this follow-up study was to explore whether observing consumers’ expertise in the focal domain might moderate consumers’ preference for user-driven firms. Building on our findings from the main study reported in Study 2, consumer expertise represents a second form of similarity that should positively impact firm connection, and the resulting preference for the user-driven firm’s products. Unlike the main study, where the gender of the user community was manipulated to test the role of similarity, the current study assesses an individual difference of the observer (i.e., expertise) and maps it to an implicit characteristic of the user community. Thus, establishing consumer expertise as a moderator of the user-driven philosophy effect would provide additional support for H2. To further add generalizability, we changed the product category to software.

Method

Participants were students from a large European university who were contacted by email via the university newsletter and asked to complete an online survey in return for a chance to win cash prizes worth € 250 Euros. In total, 609 questionnaires were completed; four participants, however, exhibited unrealistically fast response times (<100s; $M = 494s$, $ME = 341s$) which made it hard, if not impossible, to fully read the instructions and questions. They were therefore removed for further analyses. The effective sample thus consisted of 605 participants ($M_{age} = 25$, 52% female). Participants were informed that the study was a concept test for a video-editing software product (see exact stimuli reported above). They were exposed to a consumer report contrasting two competing firms in this market, Firm A and Firm B. The report contained consumer ratings for two important dimensions of the software which emerged from a pretest: (1) the software’s functionality and innovativeness and (2) the software’s user-friendliness and reliability. While both firms were described to score higher on both dimensions than the broader industry average, Firm A (B) had higher scores on the first (second) dimension. A pretest confirmed that the report had potentially diagnostic qualities; i.e., differences along the attributes are likely to affect product preference. Participants in the main study were further told that the software of the two firms was similar in terms of price. Participants were randomly assigned to one of two experimental conditions; the between-subjects treatment was again that Firm A was either described as the user-driven firm and Firm B as the designer-driven firm or vice versa.

After exposure to the manipulations and the consumer report, participants were first asked to complete the same series of items as in Study 2 capturing our dependent variable product preference ($\alpha = .92$) and after that, the measures for firm identification ($\alpha = .94$). This was followed by the same series of items capturing respondents’ perceived similarity with the user-driven firm’s community as employed previously ($\alpha = .90$). As control measures, we asked participants which video editing software (1) has a better functionality / is more innovative and (2) is more user-friendly / reliable (measured on six-point scales were 6 = software of Firm A much better and 1 = software of Firm B much better).

Finally, we captured our moderator variable, expertise, with the following seven items (measured on seven-point polar opposite scales if not indicated otherwise): (1) “I am not literate (literate) with software”, (2) “I have little (have a lot of) knowledge about software products”, (3) “Compared with computer experts, I feel not (feel) to be knowledgeable about Software”, (4) “My friends would never call

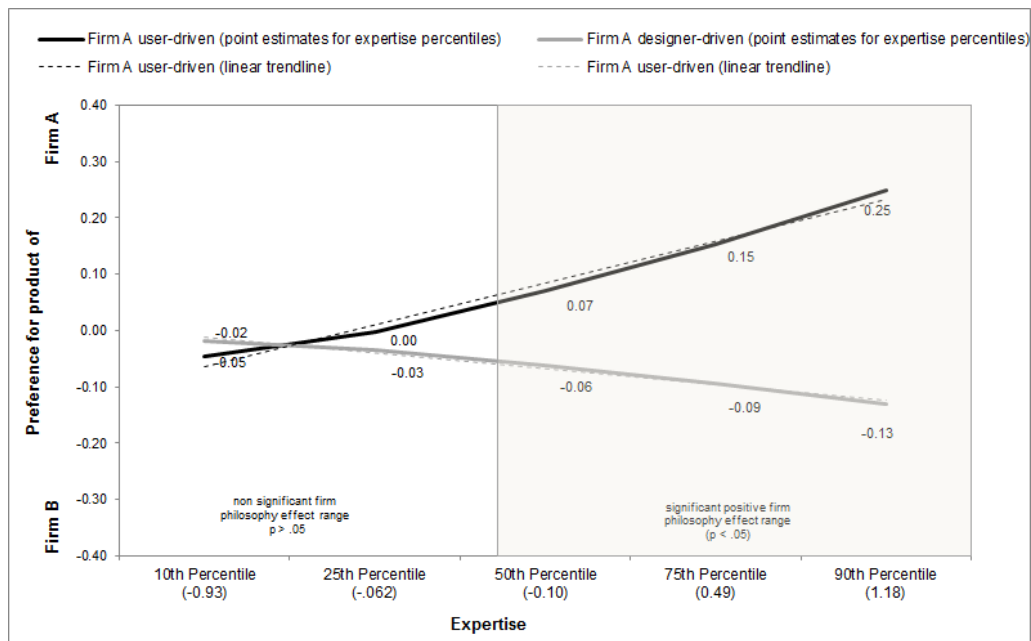
(call) me an IT or software expert”, (5) “I cannot program at all (I can program very well)”, (6) “Do your studies have a focus on IT (e.g., do you study business informatics, information science, etc.)” (no/yes), and (7) “In the course of your school education, did you specialize in computer science or IT?” (no/yes). The items were standardized and averaged to create a compound expertise index ($\alpha = .89$).

Findings and Discussion

Preliminary analysis: Similarity-expertise. Recall that the rationale underlying our main research objective in this study is that expert consumers should feel more similar to participating users. In order to test whether this conjecture is valid, we analyzed the relationship between respondents’ software expertise and their perceived similarity with the underlying user community. In support of our account, we find a positive and significant effect of expertise on perceived similarity ($\beta = .27$, $t(603) = 6.86$, $p < .001$); consumers with higher vs. lower levels of expertise feel significantly more similar to the community of the user-driven firm.

Product preference. A hierarchical regression model with product preference as the dependent variable and the firm philosophy manipulation, the expertise index, and the respective interaction as independent variables, reveals a main effect of the firm philosophy factor ($\beta = .08$, $t(602) = 1.99$, $p < .05$): if Firm A was described as a user-driven firm, respondents demonstrate a significantly stronger preference for Firm A’s software ($M_{\text{User A}} = .72$) than if Firm A was described as a designer-driven firm ($M_{\text{Designer A}} = -.72$). Second, the direct main effect of expertise on product preference proves insignificant ($t < 1$, NS). Third and as predicted, we also find a significant interaction ($\beta = .08$, $t(601) = 1.98$, $p < .05$). To explore this interaction, we employed the JN technique to identify the range(s) of expertise for which the simple user-driven philosophy effect is significant. Results indicate that consumers’ preference for user-driven firms is significant and positive once respondents score $-.01$ or higher on expertise (empirical range: -1.20 , 2.13 ; $M_{\text{expertise}} = .00$; significance range for expertise: $-.01$, 2.13 , $p < .05$; see Figure 2). Below that threshold level of expertise, however, the user-driven philosophy effect is insignificant. In sum, these findings suggest that observing consumers’ preference for products of user-driven firms is moderated by their expertise such that for novice (vs. expert) consumers the effect is attenuated.

Figure 2: The user-driven philosophy effect as a function of expertise



Firm identification. An analogous regression model with firm identification as the dependent variable produced a similar pattern of results. In addition to a marginally significant effect of expertise ($\beta = .08$, $t(602) = 1.85$, $p = .07$), we find a significant main effect of the firm philosophy manipulation ($\beta = .14$, $t(602) = 3.51$, $p = .000$). This main effect is qualified by a significant interaction between firm philosophy and expertise ($\beta = .11$, $t(601) = 2.83$, $p < .01$). To further explore this interaction, we again applied the JN technique which revealed that the effect on firm identification is significant and positive once consumers' expertise score surpasses the $-.37$ threshold (significance range for expertise: $-.37, 2.13$, $p < .05$).

Moderated mediation. A model with firm philosophy as the independent variable, expertise as the moderator variable, preference as the dependent variable, and firm identification as the mediator variable reveals that the interaction between firm philosophy and expertise on preference is mediated by firm identification ($CI_{95\%}: .03, .18$). As expertise is measured on a continuous scale, we used bootstrapping analyses to examine at what percentile level of expertise (10th, 25th, 50th, 75th, and 90th) there is a significant indirect (mediation) effect of firm philosophy on preference through firm identification. Results reveal that firm identification does not mediate the user-driven philosophy effect at the 10th ($CI_{95\%}: -.09, .09$) and 25th expertise percentile ($CI_{95\%}: -.04, .11$). At the 50th percentile and greater, however, we find that firm identification mediates the user-driven philosophy effect on product preference (50th percentile: $CI_{95\%}: .04, .15$; 75th percentile: $CI_{95\%}: .09, .23$; 90th percentile: $CI_{95\%}: .12, .34$). Importantly, these results are again robust if the two control variables (perceptions of functionality and user-friendliness of the software) are added as covariates to the model ($CI_{95\%}: .02, .16$; mediating effect at expertise percentiles: 10th: $-.09, .09$; 25th: $-.04, .10$; 50th: $.03, .14$; 75th: $.08, .20$; 90th: $.10, .30$). We further note that both attribute perceptions had diagnostic qualities as they significantly affected product preference ($\beta_{Innov.} = .39$, $t(602) = 7.05$, $p < .001$, $\beta_{User-f.} = .41$, $t(602) = 7.30$, $p < .001$). These latter results underline the meaningfulness of the research instrument; in addition to a user-driven philosophy effect, we also find that the attributes described in the consumer report, and more specifically consumer perceptions thereof, affected consumers' product preferences.

Discussion. This follow-up study validates H2 by highlighting the theoretical and managerial importance of similarity shared between observing consumers and the user community. We found that observing consumers' expertise, which is related to their perceived similarity to participating users, moderates the resulting preference for user-driven firms. Indeed, expert consumers were shown to demonstrate higher levels of firm identification and product preferences for the user-driven firm.

To explore the underlying account further, we examined whether perceived similarity mediates the moderation effect of expertise on firm identification. A model with firm philosophy as the independent variable, expertise as the moderator variable, firm identification as the dependent variable, and perceived similarity as the mediator variable reveals that the interaction between firm philosophy and expertise on preference is mediated by perceived similarity ($CI_{95\%}: .11, .25$). Thus, expert consumers identify with user-driven firms more strongly because they feel more similar to participating users of the community. In sum, this study provides convergent evidence for our proposed social identification account and directly points to managerial implications (e.g., expertise seems an effective positioning variable for user-driven firms).

Study 3

Stimuli and Manipulations

As reported above (Study 2: Follow-up Study). The order of product preference and firm identification measures was counterbalanced. The third preference item was measured on a 9-point scale.