Innovation from within: Empowering your workforce through crowdsourcing

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EY
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Contents

Introduction

Crowdsourcing is a process that involves leveraging the collective intelligence, expertise, and creativity of employees (or other groups of stakeholders) to generate new ideas, solutions, or innovations. While many forms of crowdsourcing involve companies or organizations seeking input from external participants, crowdsourcing can also be a powerful tool to help organizations operationalize an underutilized workforce by providing opportunities for ideation and upskilling or training, supporting a sense of agency and purpose in the employee experience, facilitating social connections among diverse groups, and uncovering innovative solutions to both organizational and client problems. Particularly for larger organizations, crowdsourcing can accelerate product and solution development by facilitating more rapid ideation and evaluation processes.

In collaboration with Cornell University, Ernst & Young Americas Innovation team (EY team) conducted research to identify best practices for crowdsourcing in large-scale organizations. The aims of this project included developing a comprehensive framework for crowdsourcing and examining the effectiveness of specific extrinsic, intrinsic, and social incentives in motivating crowdsourcing participation. Through a careful review of the extant literature on crowdsourcing, supplemented with novel insights from internal test cases, the team developed a framework that organizations can leverage to harness the collective intelligence and creativity of their workforce. This framework encompasses several distinct elements, including the identification of best practices for structuring the "asks" (prompts) of crowdsourcing campaigns and crafting effective incentive structures to motivate participation and performance. The EY team deployed 30 test cases and analyzed over 5,700 crowdsourcing interactions across several internal groups to glean insights about motivation. These test cases were primarily ideation focused and varied in their incentive structure, duration, and participation intensity. These test cases showed that, while all three types of incentives were effective at motivating crowdsourcing participation, intrinsic motivation and social incentives provided relatively stronger motivation compared to financial incentives.

The remainder of this paper will describe relevant structures for crowdsourcing, provide a detailed outline of the proposed crowdsourcing framework, and detail the testing efforts of the EY team.

Collaborative communities and informal organizational structures for open innovation

Crowdsourcing relies on cross-organizational collaboration to identify innovative solutions to challenges faced by clients. Numerous types of formal structures can also facilitate this type of collaboration, such as open innovation labs, innovation networks and centers, and innovation teams. While these formal structures create dedicated spaces for collaborative innovation within an organization, building and supporting such structures can be costly given the need to invest in dedicated facilities and personnel.

Organizations also have access to informal structures that can be utilized to better harness creativity and insights across the workforce. Collaborative communities, one example of such informal structures, are groups of individuals who work together to achieve a common goal or purpose by actively sharing knowledge, resources, and expertise. A key feature of collaborative communities is that members are equal participants who engage in consensus-building processes and decision-making. While these communities are often organized around a specific interest, industry, or geographic region, members may come from across the organization. Tapping collaborative communities for

crowdsourcing purposes can help organizations harness the creative resources of their workforce. The combination of interest-related perspectives and diverse individual expertise can yield a broader range of ideas and facilitate shorter implementation times [1]. While these communities need not be explicitly dedicated to open innovation efforts, they may nonetheless contribute to organizations' innovation efforts when engaged for that purpose.

Among the numerous methods to engage collaborative communities in crowdsourcing, two proved to be the most successful: strategic campaigns and skill-based support tasks. Strategic campaigns are challenges or contests that target specific communities with applicable expertise and relevant interests to collect information and ideate on trends, best practices, and solutions to problems. These campaigns tend to be broader in scope and aim to source multiple ideas and/or solutions that can then be evaluated and potentially implemented. Success metrics for these types of campaigns can be both quantitative (i.e., volume focused) or qualitative (i.e., quality focused). These types of metrics are not mutually exclusive. For example, a campaign to identify new investment targets will benefit from a high volume of participation across company ranks while ultimately implementing only a small fraction of the highest-quality submissions. Skill-based support tasks, by contrast, engage collaborative communities on more narrowly focused tasks, such as testing products, surveying existing research (as opposed to ideating), or identifying and implementing solutions to well-defined problems. Success metrics for skill-based support tasks are more focused on specific and measurable endpoints (e.g., Does the product work? Have we gathered enough information to understand the problem or issue? Does our solution work?). Skill-based support tasks may also support practical organizational aims of providing training and upskilling opportunities for employees, thereby simultaneously supporting innovation and human capital development activities. This sort of dual-purpose crowdsourcing task is becoming increasingly important as the pace of technological progress increases with the introduction of generative AI and other productivity-enhancing technology. Furthermore, while strategic campaigns may be prolonged over extended periods with broader, more ambiguous goals, skill-based support tasks typically have clearly defined time frames and a limited scope. In both cases, engaging with existing collaborative communities allows companies to easily identify groups with a strong motivation to participate and the necessary skills to execute.

Best practices in crowdsourcing

The EY team's experimentation, backed by prior research, has identified several best practices that can help companies engage with collaborative communities in crowdsourcing:

- Clearly define the problem or challenge, provide context for the purpose and intention of the challenge using narrative framing [2], and use dedicated crowdsourcing platforms with streamlined dashboard interfaces and task search functionality to minimize participant search and participation costs [3].
- Strategically leverage ambiguity by keeping the "how" open ended indefinite so participants are afforded a broader scope and may consider more innovative solutions [2].
- Expedite ideation and product development processes by harnessing the power of existing, interest-driven collaborative communities. These groups deliver high levels of engagement, creativity, and response quality [4].
- Provide appropriate incentives to garner strong participation and quality engagement [5]. The most effective incentive levers will depend on the specific characteristics of the crowd. Both intrinsic and extrinsic incentives should be considered.
- Facilitate interactivity among participants to foster a sense of community and encourage a free exchange of ideas and knowledge [6].

- Communicate transparently to build trust and credibility. Similarly, provide clear and measurable evaluation criteria [6].

Incentives and motivation

Several types of incentives can be deployed to motivate participation and performance in crowdsourcing. These include extrinsic incentives, such as financial rewards and merchandise and intrinsic incentives, such as personal motivations, social incentives, and socialization needs. These incentive types may overlap. In the following sections, each of these incentive types and hypotheses described in greater detail.

4.a Extrinsic incentives: financial and merchandise

4.a.i Financial and merchandise incentives

Financial incentives are extrinsic rewards or compensation given to individuals or groups in exchange for achieving certain goals or targets [5]. In crowdsourcing settings, these are typically onetime cash awards or points in corporate programs that are exchangeable for cash or gift cards. Financial incentives are generally an effective source of motivation as they tap into economic security and stability needs while potentially also stimulating social comparisons and competitive drives (for competitively awarded incentives) [7] [8].

Another type of extrinsic reward that can be used to motivate participation in crowdsourcing campaigns is merchandise. Some merchandise is desirable to employees due to its economic value and/or exclusivity [9], while other merchandise, such as company-branded merchandise, provides additional motivation by supplementing its economic value with intrinsic or social incentives, including a sense of belonging, identity, and feelings of affiliation between the company and its employees [9].

There are circumstances, however, where financial incentives may not be effective at motivating effort and performance among employees. Financial incentives may undermine intrinsic motivation by making the work feel more like a job rather than something that is inherently enjoyable [10]. In addition, financial incentives may not be effective for complex tasks that require creativity or problem-solving skills. In these cases, financial incentives may actually reduce creativity and innovation by narrowing individuals' focus to the reward rather than inspiring them to explore a range of potential solutions.

Given the research on financial incentives and merchandise reviewed above, a variety of test cases were deployed to examine the effectiveness of these incentives at motivating crowdsourcing participation. The following hypotheses were offered:

H1 Financial incentives have a positive impact on crowdsourcing participation.

H2 Merchandise incentives have a positive impact on crowdsourcing participation.

4.a.ii Effectiveness of financial and merchandise incentives

To test the effectiveness of financial and merchandise rewards on crowdsourcing participation, the EY team deployed two distinct collections of crowdsourcing tasks. The first involved a series of skill-based support tasks focused primarily on crowdsourcing solutions to internal business process problems. These tasks, which were deployed to an internal web-based crowdsourcing platform in two

batches, targeted members of a general interest collaborative community. Members of this community were drawn from a broad cross-section of practices, backgrounds, and employee ranks. Engagement was measured using the number of times each challenge was viewed by prospective participants. Participants were offered a financial incentive that varied based on the expected level of effort required to participate in the task. This incentive was equalized so that the value per hour of expected effort was approximately equal across all tasks. After using a time trend to control for when these tasks were deployed, results showed a relatively small but positive impact of financial incentives on task views that was marginally statistically significant ($p < 0.10$). The effect was equivalent to an approximately 8% increase in views for tasks offering a financial incentive relative to tasks not offering a financial incentive. By contrast, the size of the reward showed no significant impact on task views ($p > 0.10$). This provides some limited support for H1, demonstrating the effectiveness of financial incentives on motivating crowdsourcing engagement.

Some potential reasons for the relatively small impact of financial incentives on crowdsourcing task engagement include:

- **Creative and complex tasks:** Ideation tasks involve creative thinking and can be relatively complex. For example, some of the ideation tasks required participants to plan and develop automation solutions to address internal customer problems. As previously discussed, financial rewards are not particularly effective at motivating performance of this type of crowdsourcing task.
- **Reward size:** The cash awards offered were relatively small compared to the earnings of participants. It is possible that larger rewards may have yielded higher participation levels; however, all tests involving reward size yielded statistically insignificant results ($p > 0.10$).

A second series of crowdsourcing tasks focused on ideation was deployed to a different collaborative community. This was an interest-driven community drawing diverse members from across the EY organization. The provided tasks offered either no incentive, a single type of extrinsic reward (financial or merchandise), or a choice among multiple extrinsic rewards. Offered rewards were relatively small compared to employee earnings. The results of the EY team's test cases support the idea that extrinsic rewards were effective at motivating crowdsourcing task engagement. The average number of participants was one-third fewer for tasks without incentives vs. tasks featuring incentives (difference significant at the $p < 0.05$ level). Further comparisons across extrinsic incentive types showed notable differences in participation levels between incentive types. Tasks offering solely financial incentives had the lowest levels of participation compared to those tasks offering merchandise rewards or a choice among financial and merchandise rewards. These results provide further support for both H1 and H2.

By contrast, significantly stronger motivational effects were found for merchandise compared to financial incentives. Providing firm-branded merchandise as a reward, either alone or as a choice along with cash-based awards, yielded much higher engagement relative to cash-only incentives (difference significant at the $p < 0.05$ level). When offered a choice between a cash award or equivalently valued firm-branded merchandise, participants chose firm-branded merchandise approximately 67% of the time. Anecdotal evidence suggests that employees value such merchandise for its social and affiliative benefits. For example, affiliation with the EY name through branded merchandise may provide employees a strong sense of connection and prestige when worn or used outside of work. Alternatively, using specific campaign-branded merchandise may evoke fond memories of campaign participation.

While evidence is limited (i.e., only one event was run using this specific incentive), the EY team found a very strong effect of providing participants with continuing professional education (CPE credit) for their participation in a crowdsourcing task. The effectiveness of CPE on motivating participation is likely due to its multiple potential incentives for employees. EY professionals are required to complete a set number of CPE hours per year to facilitate continued professional competence and/or to fulfill regulatory requirements (for certified employees). The provision of CPE credit, therefore, serves as a

form of firm-specific currency that appears to be highly motivational to employees. Additionally, the skills gained from CPE can trigger intrinsic motivations for upskilling and achieving. This form of dual-purpose incentive could be a potentially powerful way for companies to motivate crowdsourcing efforts if action is taken to prevent "free riding" (i.e., passive, rather than active, participation in the crowdsourcing CPE event). When combined with our test results for merchandise rewards, there is relatively strong support for H2.

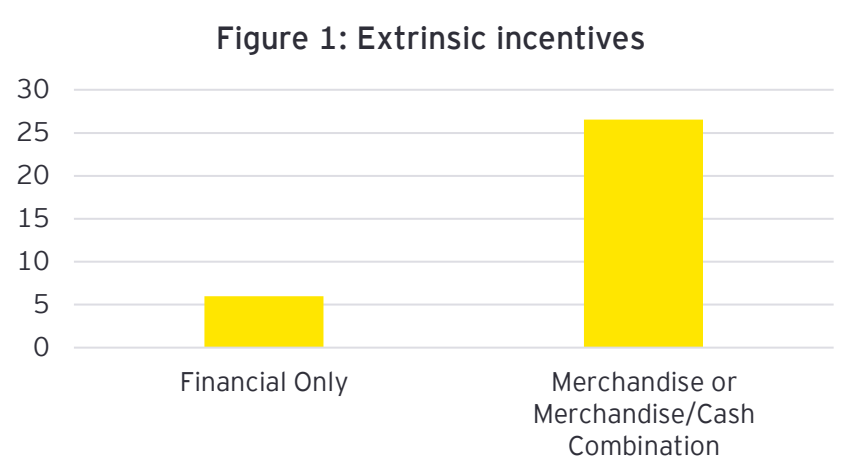


Table 1: Extrinsic incentives (one-way analysis of variance (ANOVA))

Source	DF	Sum of square (SS)	Mean square (MS)	F statistic (df_1,df_2)	P-value
Between groups	1	2163.72	2163.72	3.2419	.0527
Within groups	9	6006.832	667.4258		
Total	**10**	**8170.552**			

Table 2: Financial vs. merchandise incentives (one-way ANOVA)

Source	DF	Sum of square (SS)	Mean square (MS)	F Statistic (df_1,df_2)	P-value
Between groups	1	840.5	840.5	5.8513	0.0231
Within groups	7	1005.5004	143.6429		
Total	**8**	**1846.0004**			

4.b Intrinsic incentives

4.b.i Personal values and intrinsic motivations

Intrinsic motivation refers to the internal drive or desire to engage in an activity because it is inherently enjoyable or satisfying, rather than external factors, such as rewards or consequences. Such motivations come from within, driven by personal interest, enjoyment, and/or a sense of purpose [11]. Intrinsic motivations are particularly relevant to crowdsourcing innovation tasks as they influence which crowdsourcing campaigns individuals select as well as fulfill their needs to share ideas and develop expertise. Employees who are intrinsically motivated are also more likely to go above and beyond their job requirements and to be proactive in finding ways to improve their work, thus providing potential benefits for job satisfaction and performance levels [11]. Intrinsic motivation can also arise from personal traits such as competitiveness or a desire for self-improvement [12] [13]. Research has linked competitiveness to innovative traits within individuals. As such, competitive individuals are often highly innovative and are driven to find new and better ways to outperform others. They are motivated to develop new products or services that are better than those offered by competitors [13].

To test the impact of intrinsic motivations and personal values on crowdsourcing participation and performance, the EY team ran a strategic ideation campaign with two distinct collaborative communities within the EY organization. This campaign asked people to ideate around a specific topic of interest to help provide both potential client solutions as well as internally focused business solutions. One of these communities (hereafter, the "related-perspective community") was comprised of individuals who were members of an existing collaborative campaign organized around the campaign topic. The other community (hereafter the "unrelated-perspective community") was a general interest group with no specific interest in the campaign topic. Due to the large size difference between the two communities, participation rates were utilized for testing rather than participation levels, and idea quality ratings were captured for all participants and tested for differences between the participants from the related-perspective and unrelated-perspective groups. Hypotheses were proposed as follows:

H3 Having a related perspective for an ideation-focused crowdsourcing campaign will positively impact campaign participation rates.

H4 Having a related perspective for an ideation-focused crowdsourcing campaign will positively impact idea innovativeness.

Table 3: Executive support and related interests (two-way ANOVA)

Source	DF	Sum of square (SS)	Mean square (MS)	F statistic (df_1,df_2)	P-value
Executive support	1	0.007149	0.007149	0.09505 (1,7)	0.384
Related interest	1	25.8619	25.8619	343.8403 (1,7)	<0.001
Interaction	1	0.4038	0.4038	5.368 (1,7)	0.027
Error	7	0.5265	0.07521		
Total	**10**	**26.79935**	**2.6799**		

4.b.ii Social incentives and need for socialization

People are fundamentally social beings with a strong need for social connection and belonging. This is true regardless of an individual's level of extroversion [14]. Social incentives are rewards derived from social interactions or relationships. Such incentives can provide positive reinforcement in the form of praise, respect, recognition, or social status [15]. Distinct from other types of incentives, social incentives largely function through social comparisons either made personally or communicated to an individual by others [15]. These social comparisons are a critical mechanism by which individuals engage in social learning, a particularly important component of organizational culture development [16].

In crowdsourcing settings, social incentives are stimulated in numerous ways. Campaigns with publicly disclosed rankings or rewards, for example, can trigger social comparisons for both winners and losers [16]. The act of socializing and ideating with other participants can help individuals fulfill socialization and affiliation needs, develop their organizational reputation, and build new relationships with others [17]. Ongoing feedback from commenters or campaign organizers during crowdsourcing tasks not only rewards participants receiving the feedback but also helps signal desired behaviors to others [14] [15]. Even something as simple as up-vote or down-vote counts can trigger such reinforcement, leading participants to be more thoughtful and innovative in developing ideas to earn up-votes and/or avoid down-votes. Social rewards can be particularly powerful when aligned with personal values or goals. The potential overlapping of intrinsic and social incentives, for example, means that receiving positive feedback about ideation performance and/or building a strong reputation as a subject-matter expert will be more motivating for those with campaign-related interests compared to those who care less about the campaign topic [18]. These motivations naturally tie into the value that a culture of crowdsourcing can have for organizations via the creation of an exceptional employee experience. If employees feel that they have opportunities at work that foster deeper social connections and collaboration with their teams, they in turn feel more satisfied, have higher loyalty to their employer, and exhibit higher levels of productivity.

To test the effectiveness of social incentives at motivating crowdsourcing participation, the EY team deployed an ideation campaign where the prize involved public recognition and an opportunity to present ideas to a group of interested executives. These rewards may trigger social comparisons that motivate campaign participation. Two forms of social incentives were tested. First, a subset of participants was sent a video invitation to participate in the campaign by an executive affiliated with the group sponsoring the ideation campaign. This video encouraged campaign participation and highlighted the importance of the campaign to the executive as well as the value of the ideas to the organization. This video sought to motivate participation by demonstrating visible leadership support, triggering affiliation needs, highlighting the socialization benefits of participation, and triggering anticipation of positive social benefits (positive social comparisons, public recognition, opportunities for reputation development, etc.). Second, a personal follow-up mechanism was deployed whereby a subset of participants received a personal follow-up message from a member of the team sponsoring the campaign approximately two weeks into the campaign. This mechanism provided social incentives that may trigger socialization needs and communicate norms of crowdsourcing campaign participation. The following hypotheses related to these mechanisms were proposed:

H5 Participants who share a perspective with the executives issuing the video invitation participate at higher levels compared to other groups.

H6 Participants targeted by personalized follow-up messages participate at higher rates compared to participants who do not receive such messages.

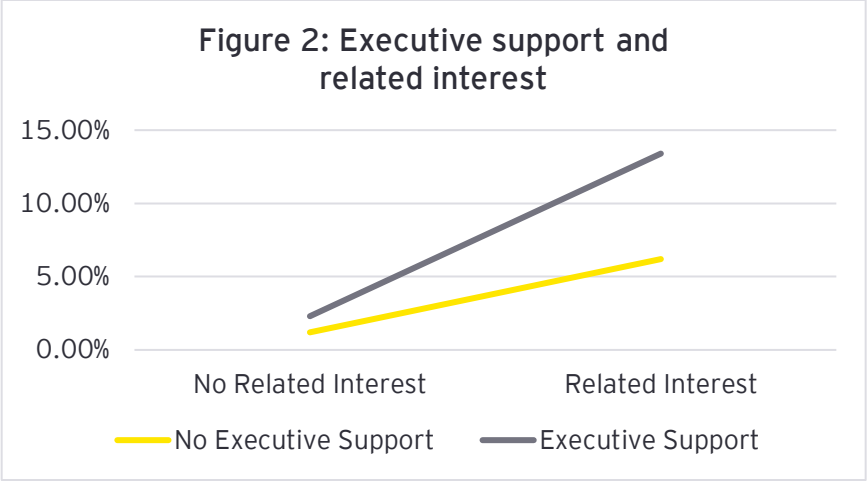
Table 4: Personal follow up and related interests (two-way ANOVA)

Source	DF	Sum of square (SS)	Mean square (MS)	F statistic (df_1,df_2)	P-value
Follow-up	1	15.9612	15.9612	70.547 (1,5)	0.001
Related interest	1	61.0513	61.0513	269.8398 (1,5)	<0.001
Interaction	1	6.3012	6.3012	27.8508 (1,5)	0.003
Error	5	0.905	0.2262		
Total	**8**	**84.218**	**10.5273**		

4.b.iii Effectiveness of personal values and intrinsic motivations

The results of this campaign provide several data points that highlight the effectiveness of such motivations at stimulating engagement with crowdsourcing tasks. First, it is important to note that related-perspective community members participated at higher rates compared to the unrelated-perspective community. As a proportion of their populations, the related-perspective community participated at between four to five times the rates of members of the unrelated-perspective community. This difference was statistically significant ($p < 0.01$). Next, ideas were screened for innovativeness using a system involving four evaluators who rated each idea for innovativeness only using a 10-point scale, with 1 (10) indicating the lowest (highest) level of innovativeness. After eliminating relatively low-effort submissions, the team observed similar levels of innovative ideas between the two collaborative communities, with an average innovativeness score of 6.37 out of 10 for unrelated-perspective community ideas and 6.74 out of 10 for ideas submitted from the related-perspective community. This difference was statistically insignificant ($p < 0.10$). The related-perspective community also provided the most innovative idea (rated an average of 9.33 out of 10) among all submitted ideas. There was also no difference observed in the number of very high-quality ideas (ideas with an average innovativeness score of 8 or higher) between the two groups, with each group providing four very high-quality ideas. Taken together, these results highlight the effectiveness of targeting collaborative communities with specific interests in the topic of crowdsourcing campaigns and provide support for both H3 and H4.

Several participants in this campaign also expressed the importance of their personal development as a motivation for participation. "We should have more crowdsourcing challenges for those who are not staffed on a project! This is a great way to upskill!" This highlights a potentially important spillover benefit for organizations in providing targeted crowdsourcing opportunities. Nevertheless, it seems that numerous employees used the opportunity to learn more about the underlying topic of the campaign, through independent research on the topic, closely following the crowdsourcing discussion boards, and by interacting with others through comments and offline discussions. These activities not only provide participants the opportunity to develop additional subject-matter skills but also encouraged socialization, critical thinking, and analysis, as well as research skills that can provide spillover benefits to their general work performance.



4.b.iv Effectiveness of social incentives

Among those participants who shared a campaign-related perspective, significantly higher levels of participation were observed when they received the video invitation from executives sponsoring the campaign, compared to an email-only invitation. For participants who did not share a campaign-related perspective with the executives issuing the video invitation, however, no significant boost in participation rates was observed. These results provide support for H5 and suggest that campaign-related issue perspectives can effectively motivate crowdsourcing campaign engagement among participants. While there isn't clear evidence that affiliation needs to underlie this boost in engagement, this mechanism seems the most likely reason why the video invitation successfully boosted participation only for those participants with related perspectives.

Participation was also significantly higher among those participants who received a personal follow-up message compared to those who did not, regardless of whether the participants maintained a campaign-related perspective. These results support H6 and suggest that personalized follow-up can effectively motivate crowdsourcing task engagement. These messages can potentially trigger several different types of social incentives, including triggering social pressure, fulfilling a desire to belong or to be wanted, or stimulating affiliation needs.

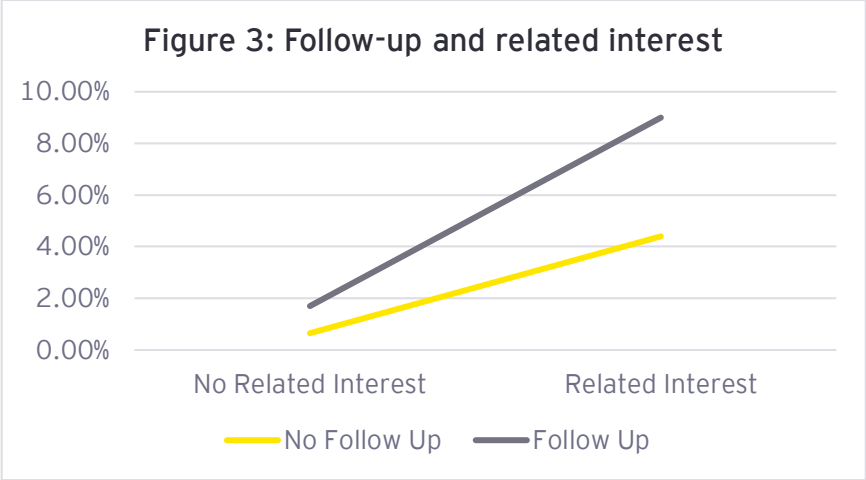
To gain further insight into the variety of social motivations underlying participation and engagement in EY crowdsourcing efforts, the EY team surveyed campaign participants and solicited specific comments about their motivation for participating in a campaign. These comments suggest strong social incentives for their participation. These comments include:

- "My favorite part was feeling heard."
- "My favorite aspect was reading others' ideas and having my voice heard by leadership."
- "I enjoy having the opportunity to participate and be creative."
- "Looking forward to seeing the strongest [idea] candidates move forward!"
- "Keep these challenges available … I do not get to apply this skill of creativity on my day-to-day, so I love to participate. It builds on my sense of belonging, innovation, and collaboration at EY."

While these comments are a subset of those submitted, they clearly demonstrate the social motivations of many participants. They reflect a desire not only to have their ideas heard but also to see others within their collaborative community succeed at the campaign task. This frequently referenced motivation elicited from survey respondents reflects a desire for socialization, affiliation, and public recognition. The opportunities to have their ideas recognized by leadership and others within the

community were an additional motivator for participants. An overwhelming majority (>83%) of respondents reported that they viewed the opportunity for public recognition as being of equal or greater value to a large cash prize. Collectively, these results highlight the effectiveness of social incentives and needs for socialization on motivating participation in crowdsourcing tasks.

The final listed comment also highlights the potential overlap in intrinsic and social incentives. The participants first highlighted a desire for personal development, a typical intrinsic motivation unrelated to social comparisons. They also highlighted their appreciation of socialization opportunities as well as affiliation needs (i.e., belonging). There is clearly some overlap between social incentives and intrinsic motivation, as previously described in the discussion of overlaps between social and financial incentives related to branded merchandise.



Conclusions

This research project provides several insights into the development of motivating and impactful crowdsourcing campaigns. Successful crowdsourcing campaigns within large organizations can both drive value creation for the company and cultivate a meaningful employee experience for participants. Furthermore, the use of dual-purpose crowdsourcing tasks to provide upskilling and training opportunities can help improve employee productivity and increase human capital development. This is especially true when crowdsourcing tasks can be leveraged to provide underutilized employees opportunities to develop mission-critical capabilities, including both general (e.g., critical thinking, creative ideation) and specific (e.g., learning to use new technology) skills. Harnessing existing, interest-driven collaborative communities to support efforts at crowdsourcing can therefore be extremely lucrative. While most academic research on crowdsourcing indicates a preference for large and diverse communities, these findings suggest that interest-focused collaborative communities can crowdsource on specific topics with higher levels of engagement and similar levels of innovativeness and creativity. Tapping into these pre-existing communities is an effective way for companies to accelerate ideation. By providing structured ideation channels, organizations have direct access to their people's ideas. In short, crowdsourcing campaigns that strategically target participants from interest-driven collaborative communities create a cost-effective, accelerated ideation framework for organizations.

Furthermore, crowdsourcing is a powerful tool that organizations can use to activate their workforce and promote a positive and fulfilling employee experience. Employees who feel engaged and valued in their work are more likely to stay within their organization. As these findings support the use of intrinsic motivators and social incentives to promote crowdsourcing engagement, it's clear that employees find value in crowdsourcing participation. Moreover, the newfound sense of agency one gains through participating in a crowdsourcing challenge can lead to increased innovation, productivity, and job satisfaction among employees. Given these benefits, the EY team plans to continue research into the optimization of crowdsourcing capabilities, assessing how various strategies and incentive levers may yield the most impactful campaigns for organizations and their employees.

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