Examining the Influence of Trustworthiness, Financial Rewards, and Admiration for Crowdsourcing in the Post COVID-19 Period

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Examining the Influence of Trustworthiness, Financial Rewards, and Admiration for Crowdsourcing in the Post COVID-19 Period

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***Abstract*—Over the past two decades, crowdsourcing activities have expanded considerably. More recently, the COVID-19 pandemic has radically changed the way people live and work, and the way organizations do business. So far, not many studies have analyzed if and to what extent trustworthiness can influence the admiration to practice crowdsourcing and could reward financial benefits in the COVID-19 period. Against this background, in this article, the aim is to investigate the influence of crowdfunding trustworthiness and financial rewards on the success of crowdsourcing activities. The analysis is made more complete by including technology leadership support as a moderator. With the help of the existing literature and theories, a research model has been developed conceptually, which was later validated using the partial least square-structural equation modeling technique on a sample of 319 responses from participants based in Europe and Asia. The study found that lucidity, gamification, exposure, and coordination along with financial rewards positively influence admiration for crowdsourcing, which, in turn, positively impacts successful crowdsourcing practices in the COVID-19 period. The study also shows that there is a significant moderating impact of technological leadership support on successful crowdsourcing practices in the COVID-19 period.**

***Index Terms*—Admiration, coordination, COVID-19, crowdsourcing, entrepreneurship, financial rewards, gamification, lucidity, technology leadership support (TLS), trustworthiness.**

I. Introduction

FROM a societal and economic perspective, the COVID-19 pandemic can be considered as a disruptive event [1]. This health crisis has led to unforeseen consequences in most of the sectors and society [2], [3]. More specifically, the COVID-19 pandemic has acted as a catalyst to bring a change to business activities and patterns [4]. During and after the worst moments of the COVID-19 outbreak, resilience, coordination, and synergy have been critical elements for crisis management also in relation to business [5]. The challenging scenario brought about by the COVID-19 pandemic highlights that the existing traditional processes of doing business are often not adequate. More efforts are needed to appropriately coordinate resources. More specifically, digital technologies and innovative digitally informed processes are increasingly deployed to coordinate and organize resources useful to address the global pandemic. Organizations that can rely on platform business models and that are digital oriented can reach out to a global audience by using crowdsourcing to counteract societal and medical issues. By leveraging the enormous power of the crowd, crowdsourcing is considered a substantial and effective mechanism for facilitating the coordination of large groups of individuals that can help solving various business-related problems. More specifically, crowdsourcing is particularly effective in generating new information relevant to the business context along with the creation of innovative ideas [6]. This process has been widely recognized as an additional coordinative technique for businesses that need to access quickly and conveniently essential resources and outside knowledge [7]. Examples are not rare in medical contexts, where through crowdsourcing, it has been possible to collect large volumes of valuable data to develop the accurate research responses to address the outbreak of diseases brought about by the COVID-19 pandemic [8], [9]. Crowdsourcing activities help establishing working relationships with outside providers possessing specific know-how that helps crowdsourcing-seeking organizations to improve their processes in the areas of product development and supply chain reconfiguration [10]. Apart from generating quick responses to urgent business and societal needs, crowdsourcing can provide access to solutions from remote knowledge domains. Recently, crowdsourcing is effectively helping governments coordinating appropriate resources to solve multifarious societal issues and is supporting nongovernmental organizations to be able to identify novel solutions to address different societal challenges [11]. Several initiatives demonstrate that organizations have already started to harness crowdsourcing activities to address issues, such as the COVID-19 pandemic. For instance, a recent report [12] shows that the World Health Organization had developed an important database leveraging data collected from different hospitals globally. These data consist of anonymous records regarding patients who had contracted the COVID-19 viruses

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that provide details about treatment procedures and prescribed medicines. This database, which is the byproduct of crowdsourcing, is tangible global evidence of how crowdsourcing can help address societal issues and unforeseen detrimental crises situations in the present but also in the future. Crowdsourcing refers to the practice of an organization or an agent of outsourcing tasks to the wider public/society who are usually recruited using the internet [13]. To develop innovative works, many organizations are using the crowdsourcing approach in different fields [14], [15]. Many global organizations, such as Google, Dell, P&G, SAP, and others, have become successful by building their own crowdsourcing platforms to handle such tasks that need human contribution [16], [17]. These tasks include knowledge sharing and intelligence assimilation [7], operational cost saving [18], and improving organizational innovative system [19]. However, despite all these advantages, it has been observed that all the crowdsourcing initiatives have not yielded successful results in the guise of innovative outcomes, operational cost savings, and so on [15], [18], [20]. Organizations are experiencing such challenges to fetch successful outcomes using crowdsourcing due to paucity of knowledge of the salient factors that could accurately predict the success of crowdsourcing in the wake of the COVID-19 crisis [15], [21].

Apart from financial rewards, proper exposure and lucidity of the organizations seeking crowdsourcing along with trustworthiness have been considered as a decisive factor for successful crowdsourcing initiatives especially during and in the wake of the COVID-19 pandemic [6], [22], [23], [24]. Crowdsourcing may help organizations to successfully coordinate with external players for establishing working relationships to reconfigure their efficiency in supply chains, improve their processes for product development, along with enhancing specific features and functionalities of the products [10], [25]. Based on the critical role played by crowdsourcing to address the challenges brought about by the COVID-19 pandemic, this study addresses opportunities and challenges linked to crowdsourcing from a managerial and societal perspective. This can lead to develop readiness and resilience in the wake of the lingering COVID-19 pandemic and in view of similar extreme events and crises. However, unless the factors that could impact crowdsourcing practices in the wake of the COVID-19 pandemic period are properly identified to improve organizational innovation [19], it would not be possible to harness the potential stemming from crowdsourcing initiatives [26]. It is argued that technology leadership support (TLS) can influence the crowdsourcing process. Indeed, TLS encompasses how a leader uses technology during her daily tasks while leading others to successfully complete their assigned tasks [15], [27]. This can eventually influence the success of crowdsourcing activities. The process of crowdsourcing is mostly impeded because crowdsourcing seekers neither do clearly expose the rewards to be given to the crowdsourcing contributors nor do the seekers explicitly communicate to potential contributors the specific conditions for providing contributions. As a result, most of the contributors cannot trust the crowdsourcing seekers. Thus, trustworthiness and support of the crowdsourcing seekers are perceived to be highly important since they will help address information asymmetry issues, enhance effective communication and coordination with the contributors of crowdsourcing initiatives, and reduce uncertainty in the minds of the external participants as to whether the organizations will keep their promises and deliver rewards after project completion [26].

Existing studies have highlighted that despite the multiple advantages of crowdsourcing, such as intelligence assimilation, cost savings, as well as the improvement of organizational innovation capabilities [7], [18], [19], organizations have been experiencing entangled challenges to harness the potential of crowdsourcing [20]. To address such challenges, trustworthiness of the organizations involved in crowdsourcing activities is one of the main critical factors [6], [22]. In such context, although the success of crowdsourcing is increasing rapidly [17], the factors that could impact trustworthiness, financial rewards to the contributors, as well as admiration to the seekers for improving the overall crowdsourcing activities are severely underexplored [26]. Researchers have emphasized the importance of studying the success and outcomes of crowdsourcing activities [17]. However, most of these research studies have been conceptual in nature. Those studies tried to identify the factors predicting trustworthiness in the context of crowdsourcing [26]. However, those few empirical studies neither explicitly investigate the impact of trustworthiness on successful crowdsourcing activities nor did these studies analyze the moderating role that TLS can play in successful crowdsourcing activities. To bridge this research gap, the aim of this study is to address the following research questions (RQs).

RQ1: How does crowdsourcing trustworthiness impact successful crowdsourcing practices (SCPs) in the wake of the COVID-19 pandemic?

RQ2: Does TLS moderate successful crowdsourcing activities?

Our findings contributed to enhancing both theoretical and managerial knowledge by investigating the success of crowdsourcing from the organizers' trustworthiness perspective. This study, therefore, provided a granular investigation on determining how different salient factors of crowdsourcing trustworthiness are effective especially in the wake of the COVID-19 pandemic to achieve successful crowdsourcing with the help of effective technological support. To address the RQs, we have developed a theoretical model and validated it by deploying a partial least square (PLS) structural equation modeling (SEM) technique through the analysis of 319 responses from European and Asian respondents. To empirically substantiate the research findings, this study successfully integrated trust theory [28] and motivational theory [29] to explain how different factors could help improve crowdsourcing practices in the wake of the COVID-19 pandemic, considering, as a moderator, TLS.

The rest of this article is organized as follows. Section II illustrates the literature review, and it is followed by the theoretical foundations and hypotheses development in Section III. Thereafter, Section IV describes the research methodology that is followed by data analysis and results presented in Section V. Finally, Section VI develops the discussion, illustrates the theoretical contributions, the practical implications, identifies the limitations, and develops a research agenda.

II. Literature Review

The COVID-19 pandemic not only posed multiple challenges to individuals' health but it also affected several businesses and kept on affecting both individuals and organizations in the wake of the COVID-19 pandemic [30]. The challenging scenario set by COVID-19 has suggested that the prevailing business practices are not adequate, and that the world requires searching for innovative and digital means to adequately respond to such apocalyptic challenges [5], [31]. With its platform structure as well as digital nature capable of reaching global audience, crowdsourcing is perceived to be one of the most promising remedies to critical pandemic crises [9], [32]. Several studies have highlighted that crowdsourcing may be conceptualized as the activity for advertising a task to an unknown crowd rather than to a team or a designated organization [33]. Not many studies dealings with crowdsourcing have analyzed factors, such as the trust of the organizers, and no analysis has been conducted on the incentive toward participating in crowdsourcing activities. Crowdsourcing could help business organizers to address issues in the wake of COVID-19. It might also help different governments coordinate resources to solve various societal problems [11]. Some research has demonstrated that nonspecific public volunteers help the organizers of crowdsourcing, and these nonspecific volunteers are mostly recruited through virtual platforms [13], [17]. However, none of these studies have investigated the issue of incentivization of crowdsourcing and its popularity. Crowdsourcing is gaining momentum in the business domain [20], and as such, it has become an important topic for researchers to analyze how to be successful in crowdsourcing initiatives [34]. Extant studies have illustrated that the success of crowdsourcing principally depends on, and is related to, three specific factors, which include the following:

1) optimization of crowdsourcing management task design;
2) stimulation of participation toward crowdsourcing;
3) improvement of technologies for being more involved in crowdsourcing activities [19], [35].

Thus, not many studies are found in the extant literature on how trustworthiness of the organizers of crowdsourcing activities may act as an essential predictor for achieving success in crowdsourcing practice [7], [18]. Several studies have shown that the main actors and beneficiaries of crowdsourcing are the organizers who are the crowdsourcing seekers, and whose characteristics are critical to achieve success in crowdsourcing practices [22], [36]. Several studies have identified factors, such as the admiration of the crowdsourcing organizers [26], their lucidity in actions, and ability for better coordination with the crowdsourcing contributors [26] that are critical in SCPs. A study has observed that since crowdsourcing contributors are supposed to enjoy more freedom in choosing their tasks, motivating these contributors to participate in the crowdsourcing activities is also considered as a key issue for successful crowdsourcing activities [37]. To motivate the contributors, it is essential for the crowdsourcing organizers to enhance the way they present the crowdsourcing activity through game-like system designs, appropriate exposure, and ability to reward financially the contributors: this could lead the contributors to admire the organizers [38]. If these qualities of the crowdsourcing organizers are cultivated, it is argued that crowdsourcing activities will be successful even after the COVID-19 pandemic period. However, in such context, the crowdsourcing organizers need to act as champions to ensure success in crowdsourcing activities by using advanced (digital) technologies [38]. Thus, it is argued that trust in the crowdsourcing organizers and the motivation of the crowdsourcing contributors play critical role to achieve success in crowdsourcing activities even after any crisis. This corroborates motivation and trust theories [28], [29], [39]. Extant literature has emphasized that due to the abrupt outbreak of COVID-19 pandemic, the existing business practices are not adequate to address the apocalyptic situation [31] and several scholars have suggested that to reach out to a global audience in such a crisis, crowdsourcing is one of the best available solutions [9], [32]. Other studies have also demonstrated that trust of the organizations in the matter of crowdsourcing for attracting the contributors is deemed to be important [6], [22]. However, extant literature has not explicitly explained how factors, such as trustworthiness, rewarding, and innovativeness, could impact SCPs in the wake of the COVID-19 period. Consequently, there is an important gap in the literature that this study tries to bridge. To visualize the literature and the contributions, a summary has been included in Table I.

III. Theoretical Foundations and Hypotheses Development

A. Theoretical Foundations

The crowdsourcing organizers need to motivate the contributors to perform their tasks. This can be accomplished by modifying the attributes and qualities of the organizers that can ultimately drive crowdsourcing contributors. Based on the motivation theory [29], motivation is concerned with intrinsic as well as extrinsic factors that could drive human actions [40]. Intrinsic motivation is associated with developing satisfaction as well as pleasure concerning the activities, whereas extrinsic motivation is associated with desire of the actors for some specific outcomes, such as financial rewards. Again, motivations toward participating in crowdsourcing practices include enhancing skills, earning income, seeking entertainment, finding job opportunities, as well as passing time [41]. In the context of crowdsourcing, there are different types of extrinsic motivations, which are feedback-based rewards, recognition-related rewards, monetary rewards, and reputation-oriented rewards, whereas intrinsic motivation includes eudemonic rewards as well as hedonic rewards [42]. Hedonic rewards refer to the needs of crowdsourcing workers for seeking relaxation and enjoyment, whereas eudemonic rewards pertain to the needs of the crowdsourcing contributors to achieve self-determination values and to fulfil their life goals. In the context of achieving success in crowdsourcing practices, it is observed that there are different effects of extrinsic and intrinsic motivations [36]. In the perspective of achieving success in crowdsourcing initiatives, motivational factors play a crucial role, which especially help the crowdsourcing contributors to be motivated to perform their

TABLE I
SUMMARY OF LITERATURE

Author(s) and Year	Study area/Theme	Literature gap	Contribution of present study
[7]	How firms develop capabilities for crowdsourcing to increase open innovation performance: The interplay between organizational roles and knowledge processes.	This study deals with the development of crowdsourcing to improve open innovation performance. However, this study does not deal with any moderating impacts of TLS.	The present study has contributed to the moderating effects of TLS on SCPs, especially in the wake of the COVID 19 pandemic period.
[14]	How crowdsourcing improves prediction of market-oriented outcomes.	This study explains how crowdsourcing activities can help in predicting market-oriented outcomes that can help businesses. Although this study describes prediction of market-oriented outcomes, it does not explain issues, such as lucidity, gamification, and so on, for crowdsourcing activities.	The present study contributes to SCPs in the wake of the COVID-19 pandemic period, along with factors, such as lucidity, gamification, exposure, and so on. This is a unique contribution of the present study.
[15]	A new model for crowdsourcing innovation.	This study presents a new model for crowdsourcing innovation. But this study does not discuss financial rewards, any crisis, and other scenarios, which is a limitation.	The present study deals with CSA along with financial rewards in the wake of the COVID-19 pandemic period.
[22]	From the crowd to the market: The role of reward-based crowdfunding performance in attracting professional investors.	This study shows how reward can help crowdsourcing activities. This study especially deals with attracting professional investors in crowdsourcing activities through incentives. But the study does not investigate the role of leadership support in using modern technology in post COVID-19 pandemic.	The present study Investigates the moderating role of TLS for crowdsourcing activities in the post COVID-19 scenario. The present study also examines the necessity of an attractive reward system to attract professionals in crowdsourcing activities.
[24]	Creativity on Paid Crowdsourcing Platforms.	This study has shown how creativity can help in paid crowdsourcing platforms. But this study is silent on matters, such as turbulent situation, gamification, lucidity, and other factors, which are considered a limitation of this study.	The present study contributes toward crowdsourcing activity from different factors, such as gamification, exposure, lucidity, and so on, along with the moderating role of TLS. Thus, the present study bridges the concerned research gap.
[10]	Ideator expertise and cocreator inputs in crowdsourcing-based new product development.	This study shows the importance of cocreator inputs for launching and developing crowdsourcing-based new product development process. But this study does not clarify the role of financial rewards as well as the role of TLS. Thus, there is a clear research gap.	The present study deals with intermediate factors, such as CSA as well as financial rewards. The present study also deals with the role of TLS in the wake of the COVID-19 pandemic period. Thus, the present study tries to address some of these gaps, which is also a unique contribution of the present study.

allocated tasks. This concept is in consonance with motivation theory. Again, contributors' trust in the crowdsourcing organizers plays a crucial role to improve crowdsourcing initiatives [26]. Trust can be defined as "the extent to which one is willing to ascribe good intentions to and have confidence in the words and actions of other people." [43, p.709]. Also, Mayer et al. [43] identified three salient dimensions of trust that are integrity, ability, as well as benevolence. In virtual settings, trust plays a critical role in relationship setting [44]. This concept is in consonance with trust theory [28]. In the context of crowdsourcing activities, crowdsourcing contributors give their efforts to provide suitable solutions, but whether they will get their rewards largely depends on the task requesters. In the perspective of such bilateral relationship between the crowdsourcing organizers and the contributors, trust plays a vital role. The trust theory posits the essence of development of internal relationships between the parties involved in any activities [28]. In this study, we argue that the trustworthiness of the crowdsourcing organizers is determined by their lucidity, exposure, capability to attract (through gamification and playful tasks), and coordinating capabilities. These are likely to attract contributors. Thus, trustworthiness of the crowdsourcing organizers is perceived as a driving factor to help improve crowdsourcing practices, especially in the wake of the COVID-19 pandemic.

B. Hypotheses Development

Based on the literature and theories reviewed, we have been able to identify the factors that drive SCPs in the wake of the COVID-19 pandemic. We have considered TLS as a moderator that could moderate the relationships between SCPs in the wake of the COVID-19 pandemic period with its two predictors. We will explain all these factors in the ensuing sections and will formulate the hypotheses that will then be encapsulated in our conceptual model.

1) Lucidity (LUC): Lucidity is related to the quality of being rational, clear, and clearly understanding the reality. Accordingly, lucidity can be conceptualized with the characteristics of seeing things closely and rationally. The concept of lucidity is associated with clearness, clarity, and limpidity. In the perspective of crowdsourcing, lucidity is conceptualized as the extent to which an organization or a person reveals her/his identity by disclosing information regarding her/his real identity: this implies not operating anonymously [20]. Studies have demonstrated that lucidity helps to develop trust in the crowdsourcing organizers by the contributors and helps reducing perceived risks [45], [46]. The idea supplements trust theory. Lucidity of the crowdsourcing organizers helps to increase participation of the contributors to undertake the tasks. Although identity disclosure and task popularity are known to have opposite relation in some outsourcing cases [7], it appears that proper identity disclosure helps to promote trust between the organizers and the contributors [47]. Since the lucidity of the organizers helps to grow trust in the mind of the contributors, this quality of the organizer is perceived to have an impact on contributors, leading them to admire the organizers. This way the contributors will be persuaded that they will be appropriately rewarded for the performance of their allocated tasks [46]. In the context of this study, performance is conceptualized as the outcome of an action. All these inputs help to formulate the following hypotheses.

H1a: Lucidity (LUC) of the crowdsourcing organizer will positively impact the crowdsourcing admiration (CSA) of the contributors.

H1b: Lucidity (LUC) of the crowdsourcing organizer will positively impact on the opportunity of gaining financial rewards (FIR) of the contributors.

2) Gamification (GAM): Gamification describes the incorporation of game-style incentives into nongame activities. It is concerned with the use of game elements in nongame activities. Through gamification, it is deemed possible to enhance the engagement of seekers and contributors. Indeed, gamification can enhance crowdsourcing activities and reduce costs. Game-like services and system design are normally conceptualized as gamification [48]. Gamification-related indicators are the outcomes of the game-like design displayed regarding the organizers' identity. By assessing the identity of the crowdsourcing organizers, the contributors can estimate the organizers' trustworthiness [49]. Again, competitive gamification-based indicators, such as levels and badges, disclose the skills and competencies of the organizers responsible to develop crowdsourcing initiatives successfully [50]. The information of different types of gamifications helps improve contributors' trust levels in the organizers. It can further help to increase the willingness of the contributors to participate in the crowdsourcing activities [51]. Contributors feel assured of being rewarded appropriately by the organizers and such a feeling of assurance leads contributors to admire crowdsourcing organizers. These ideas, that are in consonance with trust theory, lead us to hypothesize that the following.

H2a: The gamification (GAM) factor will positively influence the CSA of the contributors.

H2b: The gamification (GAM) factor will positively influence the financial rewards (FIR) opportunity of the contributors.

3) Exposure (EXP): Exposure is associated with the concept of being affected by something or experiencing something. In the context of crowdsourcing and in the context of this study, the organizers seeking crowdsourcing must explicitly elaborate the terms and conditions toward the crowdsourcing activities so that, by realizing those conditions, the contributors may or may not be motivated to participate in the crowdsourcing activities. The exposure factor is conceptualized as the maturity of the skills and knowledge of the organizers involved in crowdsourcing initiatives [52]. Understanding the features and activities of past tasks provides the organizers with the value of exposure. When the organizers gather more experience, they are said to have acquired more ability [53] and by that acquisition of competence, the organizers are trusted by the contributors. Exposure of the organizers helps to develop knowledge and skills of the crowdsourcing activities and their know-how helps to attract the crowdsourcing contributors [26]. This helps make the organizers more trustworthy. As a result, the contributors will feel assured of being appropriately rewarded and the contributors will get motivation for admiring the crowdsourcing organizers, which

is in consonance with motivation theory [29]. Based on the discussion, the following hypotheses are developed.

H3a: The past exposure (EXP) of a crowdsourcing organizer will positively influence the CSA of the contributors.

H3b: The past exposure (EXP) of a crowdsourcing organizer on financial aspects will positively influence the financial rewards (FIR) opportunity of the contributors.

4) Coordination (CDN): There are many studies concerning the topic of coordination [54], but there is no specific definition of coordination between the organizers and contributors concerning outsourcing practices. Coordination is considered an important factor as it can deliver benefits to the business activities, thus improving the management of inter-related businesses [55]. Key aspects of coordination contemplate that all the stakeholders jointly work on the same activities by sharing their views and with an understanding of their specific responsibilities to achieve a common goal [48], [56]. In the context of crowdsourcing activities, unless there exists proper coordination between the organizers and the contributors, crowdsourcing initiatives will not be successful [57]. A robust coordination between the organizers and the contributors could help to enhance the level of trust of the contributors toward the organizers that could eventually lead the contributors to believe that they will get a financial reward; in such a case, the contributors would admire the crowdsourcing organizers. Such confidence in the contributors will improve the trustworthiness of the organizers that corroborates with the concept of trust theory [28]. Accordingly, it is hypothesized the following.

H4a: Better coordination (CDN) activities between crowdsourcing organizers and contributors will positively influence the CSA of the crowdsourcing contributors.

H4b: Better coordination (CDN) activities between crowdsourcing organizers and contributors will improve the financial rewards (FIR) opportunity of the crowdsourcing contributors.

5) Financial Rewards (FIR): Apart from the fact that trustworthiness of the organizers in crowdsourcing is an important predictor of SCPs, financial rewards to the contributors are also considered as a vital factor for motivating the contributors to participate in the crowdsourcing activities [15]. A study has demonstrated that financial rewards influence the job satisfaction of the crowdsourcing contributors, and it also influences the trustworthiness of the organizers [18]. By getting proper financial rewards, the contributors' trust toward the organizer is enhanced that also helps to improve the crowdsourcing activities as well as helps to motivate the contributors to exhibit admiration toward the crowdsourcing organizers [58]. When the contributors find that the organizers are rewarding them financially as per the assurance, the contributors do not suffer from the uncertainty and acquire a sense of respect and admiration toward the crowdsourcing organizers. In such a case, the motivation of the contributors is enhanced in line with motivation theory [29]. Consequently, crowdsourcing activities could become successful under any challenging situation. In terms of the above discussion, the following hypotheses are put forward.

H5: Appropriate financial rewards (FIR) to the crowdsourcing contributors positively influence their CSA toward crowdsourcing organizers.

H6: Appropriate financial rewards (FIR) to the crowdsourcing contributors positively influence the achievement of SCPs.

6) CSA and SCPs in the Wake of the COVID-19 Pandemic: In the perspective of crowdsourcing activities, when the organizers reveal their identity, history, and mode of works—factors that help to attract the contributors—many individuals contribute by taking a part in the crowdsourcing activities [59]. This will help to enhance the popularity of the organizers [51], [60]. The contributors then admire the crowdsourcing activities initiated by the organizers. Being admired by the contributors, the organizers are also positively motivated and take more initiatives toward attracting and motivating the contributors that could eventually influence the success of crowdsourcing practices, especially in the wake of the COVID-19 pandemic [61]. Thus, admiration by the contributors for the crowdsourcing organizers is enhanced when the contributors get assurance that they will get the promised reward [15]. Such assurance of rewards to the contributors by the crowdsourcing seekers is likely to motivate the contributors to be involved in crowdsourcing activities by providing their valuable inputs to the crowdsourcing seeker organizations. Consequently, crowdsourcing activities become more successful. Hence, from the above discussion, the following hypothesis is developed.

H7: CSA of the contributors positively influences achieving SCPs in the wake of the COVID-19 pandemic.

7) Moderating Role of TLS: Crowdsourcing is considered as a kind of business model whose adoption has accelerated because of the COVID-19 pandemic [3]. The main responsibilities in crowdsourcing are with the organizers seeking crowdsourcing. For this reason, the organizers must take a leadership role to help the contributors motivationally and technologically so that crowdsourcing activities can unfold smoothly [62], [63], [64]. For this, it is the duty of the organizers involved in such crowdsourcing activities to apprise the contributors how to be involved in the crowdsourcing process with the help of appropriate technology [65], [66], [67]. The organizer should take a leadership role to explain to the contributors the process and practices and should ensure rewards to them after successful completion of the tasks. It helps motivating the contributors to contribute for completion of the tasks promptly and accurately [15], [27], [68], [69]. Thus, technology plays a vital role toward attracting contributors for participating in the crowdsourcing activities and technology also helps propagate effective and timely communication between the organizers and contributors as they could be physically located far from each other [70]. Therefore, appropriate use of technology can help to achieve SCPs, especially in the wake of the COVID-19 pandemic. Accordingly, the following hypotheses are formulated.

H8a: TLS moderates the relationship between CSA and SCPs in the wake of the COVID-19 pandemic.

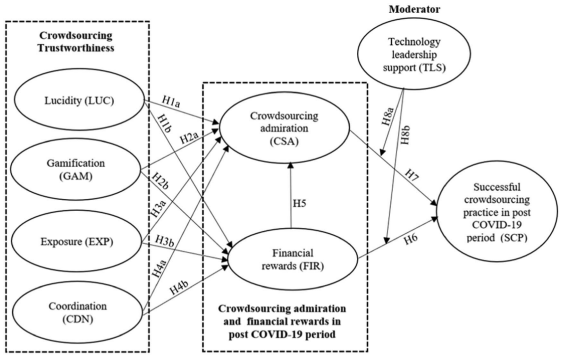

Fig. 1. Conceptual model (adopted from motivation and trust theories).

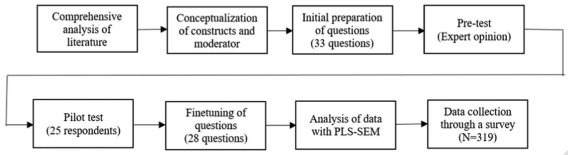

Fig. 2. Research flow diagram.

H8b: TLS moderates the relationship between appropriate financial rewards (FIR) and SCPs in the wake of the COVID-19 pandemic.

Based on the hypotheses formulated, we have developed a conceptual model that is represented in Fig. 1.

IV. Research Methodology

The hypotheses developed in this study need to be tested statistically. To achieve this aim, we have deployed a quantitative approach, conducted a survey, and then analyzed the data. The research flow diagram is illustrated in Fig. 2.

A. Preparation of Instruments

Building on the extant literature, we have developed the instruments. Initially, we prepared 33 instruments in the form of statements. The instruments were pretested by obtaining the opinion of six experts from industry having practical knowledge in this study domain. We also sought opinion from the four academicians who are engaged in research works in different aspects of crowdsourcing. With their opinion, the languages of the instruments were made simpler so that the respondents can respond without any difficulty understanding the instruments. After completion of pretest, pilot test has been undertaken with a small sample of 25 gathered through purposive sampling process [71], [72]. These 25 respondents were not included in the main survey. The inputs of these 25 respondents helped us to rectify the recitals of the instruments to increase their readability and understandability. The outcomes of the pilot test helped to rectify the questionnaire and helped to drop five instruments that could not support to enhance the constructs' reliability. In this way, eventually 28 instruments were fine-tuned. The survey instrument, along with the sources, is provided in Table VI of the Appendix.

B. Strategy for Data Collection

We have deployed social media platforms for reaching the targeted respondents who are associated with crowdsourcing activities in different ways, such as crowdsourcing organizers, crowdsourcing contributors, and so on. Hence, to select the respondents, convenience sampling and purposive sampling have been used. We used Google docs for sending the survey instruments to the targeted respondents. The survey process was conducted over the period January 2022–May 2022. We sent the response sheet containing 28 instruments to the intended participants. Since the responses were quantified in a five-point Likert scale anchoring strongly disagree (SD) marking as 1 to strongly agree (SA) marking as 5, each instrument was provided with these five options. Each respondent is to put one tick mark in one option out of five options in the response sheet. On scrutiny of the responses, it was found that most of the respondents were from Asian or European countries. We selected these respondents as our targeted respondents. With each response sheet, a guideline was provided describing how to fill up the response sheet. Also, with the response sheet, we appraised the respondents that their anonymity and confidentiality will be strictly preserved, and the aim of this study is purely academic. We also requested the respondents to respond within two months (April and May 2022). By this way, we could collect responses of 330 respondents within the stipulated time. These responses were thoroughly scrutinized. After verification of these responses, it was observed that 11 responses were incomplete. We did not consider them. These 11 responses were not considered because the 11 respondents concerned put tick marks in more than one option against each question. We analyzed the responses of 319 respondents against 28 instruments. Table II provides the demographic statistics of 319 respondents.

V. Data Analysis and Results

To analyze the results of the survey, we have used partial least square (PLS)-SEM approach [73] with the help of SmartPLS3.2.3 software [74]. The PLS-SEM technique does not require the data to be normally distributed, which is supposed to be the essential criterion for analyzing data with the help of CB-SEM technique. We have used nonparametric bootstrapping procedure considering 5000 resamples to assess the path coefficients of different linkages, p-values, and R^2 values with the help of SEM.

A. Measurement Properties Along With Test of Discriminant Validity

For verifying the convergent validity, we have estimated the loading factor (LF) of each instrument. To examine the validity, reliability, and internal consistency of each construct, we have estimated average variance extracted (AVE), composite reliability (CR), and α (Cronbach's alpha). The results

TABLE II
DEMOGRAPHIC STATISTICS ($N = 319$)

Particulars	Category	Frequency (N)	Percentage (%)
Gender	Male	224	70.2
	Female	95	29.8
Age	Teenagers (below 19 years)	101	31.7
	Young adult (19–45 years)	143	44.8
	Older adult (more than 45 years)	75	23.5
Educational qualification	Graduate	230	72.1
	Postgraduate	56	17.5
	Doctorate	33	10.4
Geographical location	Asia	202	63.3
	Europe	117	36.7

TABLE III
MEASUREMENT PROPERTIES

Constructs/Items	LF	AVE	CR	α	t-values
LUC		0.600	0.822	0.876	
LUC1	0.841				22.18
LUC2	0.717				26.17
LUC3	0.760				34.11
GAM		0.575	0.811	0.829	
GAM1	0.797				27.29
GAM2	0.0771				21.41
GAM3	0.734				26.38
GAM4	0.724				33.07
EXP		0.681	0.824	0.859	
EXP1	0.793				34.17
EXP2	0.778				36.12
EXP3	0.843				26.37
EXP4	0.866				23.08
CDN		0.683	0.856	0.891	
CDN1	0.871				37.19
CDN2	0.820				24.12
CDN3	0.786				32.21
CSA		0.617	0.822	0.889	
CSA1	0.827				26.38
CSA2	0.755				27.29
CSA3	0.626				36.33
CSA4	0.731				24.17
FIR		0.741	0.851	0.894	
FIR1	0.887				38.21
FIR2	0.897				34.27
FIR3	0.795				32.11
SCP		0.566	0.808	0.843	
SCP1	0.730				24.29
SCP2	0.722				26.55
SCP3	0.740				33.11
SCP4	0.774				30.31
SCP5	0.789				25.27
SCP6	0.727				29.89
SCP7	0.782				38.27

highlight that all the estimated values are within the specified range [75], [76]. The lowest allowable values of LF and AVE are 0.7 and 0.5, respectively. Table III provides the results.

To test the discriminant validity, we have used Fornell and Larcker criteria [77]. We have estimated the square roots of all the AVEs and found that they all are greater than the respective bifactor correlation coefficients. This satisfies the Fornell and Larcker criteria. It confirms discriminant validity of the constructs. Table IV provides the results.

B. *Moderator Analysis [Multigroup Analysis (MGA)]*

For assessing the effects of the moderator, TLS on the linkages H7 and H6, we have adopted MGA approach [78]. We have adopted bootstrapping procedure considering 5000 resamples.

TABLE IV
DISCRIMINANT VALIDITY TEST (FORNELL AND LARCKER CRITERIA)

Constructs	LUC	GAM	EXP	CDN	CSA	FIR	SCP	AVE
LUC	0.245							0.600
GAM	0.117	0.240						0.575
EXP	0.112	0.137	0.260					0.681
CDN	0.201	0.121	0.210	0.261				0.683
CSA	0.191	0.192	0.116	0.195	0.248			0.617
FIR	0.210	0.189	0.196	0.112	0.189	0.272		0.741
SCP	0.126	0.106	0.122	0.162	0.175	0.182	0.238	0.566

TABLE V
STRUCTURAL EQUATION MODELING

Linkages	Hypotheses	Path coefficients	p-values	Remarks
LUC→CSA	H1a	0.21	p<0.01(**)	Supported
LUC→FIR	H1b	0.24	p<0.05(*)	Supported
GAM→CSA	H2a	0.17	p<0.001(***)	Supported
GAM→FIR	H2b	0.19	p<0.05(*)	Supported
EXP→CSA	H3a	0.02	p>0.05(ns)	Not Supported
EXP→FIR	H3b	0.25	p<0.01(**)	Supported
CDN→CSA	H4a	0.18	p<0.05(*)	Supported
CDN→FIR	H4b	0.01	p>0.05(ns)	Not Supported
FIR→CSA	H5	0.29	p<0.001(***)	Supported
FIR→SCP	H6	0.31	p<0.01(**)	Supported
CSA→SCP	H7	0.32	p<0.001(***)	Supported
(FIR→SCP)×TLS	H8a	0.26	p<0.01(**)	Supported
(CSA→SCP)×TLS	H8b	0.22	p<0.001(***)	Supported

In this study, we have analyzed the moderating effect of TLS by categorizing it into two groups, strong TLS and weak TLS. It appears that the *p*-value differences for the effects of the two categories of the moderator TLS on H7 and H6 are 0.03 and 0.01, respectively, both being less than 0.05. It confirms that moderating effects of TLS on H7 and H6 are significant [73], [78].

C. Common Method Bias (CMB)

In the survey-based data, there is a chance of having CMB. To mitigate the biased replies, we have taken some procedural remedies as a pre-emptive measure. We have fine-tuned the questionnaire through pretest and pilot test as well as we assured the respondents during the survey that their anonymity and confidentiality will be strictly preserved. Also, we have tested the severity of CMB by performing two statistical tests. We have conducted post hoc Harman's first factor test (FFT) where the first factor value came out as 21.48, which is within the permissible limit [79]. To supplement Harman's FFT, we also conducted a marker correlation test [80]. The results of both the tests confirmed that CMB could not pose a major challenge in this study.

D. Hypotheses Testing (SEM)

For hypotheses testing, we have adopted bootstrapping procedure by considering 5000 resamples. With the consideration of omission–separation 7, we have assessed Q^2 value to verify cross-validated redundancy. The positive value of Q^2 confirmed that the model has predictive relevance [78]. For ascertaining the model fit, we have considered standardized root-mean-square residual as a standard index and found that its values are 0.062 for PLS and 0.033 for PLSc. Both these values are less than the allowable highest value of 0.08 [81]. The result confirms that the model is in order [80]. This process helped to estimate the path coefficients of different linkages, *p*-values, and R^2 values. Table V provides the results.

With all these inputs, the validated model is shown in Fig. 3.

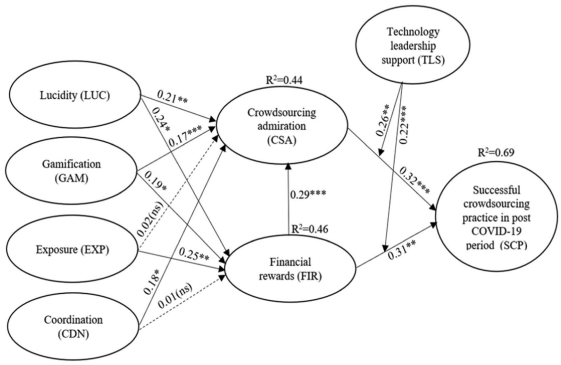

Fig. 3. Validated model (SEM).

VI. FINDINGS AND DISCUSSION

As several scholars and observers have noted, the COVID-19 pandemic has generated multiple challenges threatening not only

human lives but also generating social and economic challenges that many organizations were not prepared to face. Those challenges also characterize the present time that for some scholars has been described as the post COVID-19 period. In this article, we had suggested that the challenges related to the COVID-19 pandemic were not over and had generated a shift toward new business models and patterns [82], such as crowdsourcing. This work had highlighted that extreme events, such as pandemics, could be faced by undertaking crowdsourcing initiatives as a coordinating mechanism to successfully harness the potential of the crowd to overcome social and economic challenges. By analyzing the extant literature on crowdsourcing, we found that there is paucity of extensive empirical studies concerning the practices underpinning the execution of crowdsourcing activities in the wake of the COVID-19 pandemic [83]. Accordingly, we had holistically tried to fill up this research gap by investigating how different characteristics of the trustworthiness of the crowdsourcing organizers can influence success in crowdsourcing initiatives. Accordingly, this study had developed a conceptual model consisting of 13 hypotheses, including two hypotheses, also covering the moderating effects of TLS on crowdsourcing success. After a statistical analysis of the data, it appears that 11 out of the 13 hypotheses were supported. Two hypotheses—namely H3a (EXP→CSA) and H4b (CDN→FIR)—were not significant as the concerned path coefficients are too low (0.02 and 0.01, respectively) with levels of nonsignificance in each case as $p > 0.05$(ns). The reasons of the rejection of H3a are that the respondents in the survey believe that the exposure of crowdsourcing organizers is not an essential quality for the prediction of admiration of crowdsourcing contributors (H3a). In relation to the lack of support for H4b, the respondents subscribed to the fact that coordination between organizers and contributors does not have a strong correlation with financial rewards provided to the crowdsourcing contributors.

This study had also used motivation theory to demonstrate that by enhancing extrinsic and intrinsic motivation of the contributors by the organizers through developing different trustworthiness factors, such as gamification, lucidity, and other trust factors along with financial rewards, it is possible to motivate the crowdsourcing contributors to get involved in crowdsourcing activities. This idea has been supported by another study of Xu et al. [26]. The study also demonstrated that LUC, GAM, EXP, CDN, and FIR could predict CSA to the tune of 44% ($R^2 = 0.44$). Also, it appears from the results that LUC, GAM, EXP, and CDN could predict FIR to the tune of 46% ($R^2 = 0.46$). The results also highlighted that CSA and FIR could simultaneously predict SCP to the extent of 69% ($R^2 = 0.69$), which is the explanatory power of the proposed theoretical model.

Now, we shall discuss graphically how strong and weak TLS could influence the relationships covered by the linkages H6 and H7. Figs. 4 and 5 graphically represent the effects of moderator on the linkage CSA→SCP and FIR→SCP, respectively.

In both the graphs, the continuous and the dotted line represent the effects of strong TLS and the effects of weak TLS, respectively. From the graphs, it is observed that with increase of CSA (see Fig. 3) and with the increase of FIR (see Fig. 4), the rates of increase of SCP are more for the effects of strong TLS compared with the effects of weak TLS in both the cases. It is because, in both the graphs, the gradients of the continuous lines are more than the gradients of the dotted lines. A possible interpretation is that with the increase of CSA (see Fig. 4) and FIR (see Fig. 5), the rates of increase of SCP for both the figures are more for the impacts of strong TLS compared with the impacts of weak TLS because, in both the graphs, the inclinations of the continuous lines with the horizontal axes are more comparable with the dotted lines.

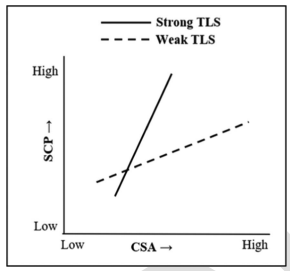

Fig. 4. Effects of moderator TLS on CSA→SCP.

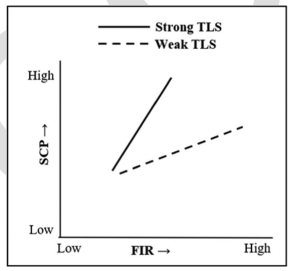

Fig. 5. Effects of moderator TLS on FIR→SCP.

A. *Theoretical Contribution*

This work makes several theoretical contributions. First, while there is a research stream investigating the advantages of outsourcing practices, there is a scarcity of empirical studies examining the factors driving crowdsourcing initiatives, especially in the wake of the COVID-19 pandemic. While most of the existing studies have focused only on specific crowdsourcing initiatives [84], this work has examined the factors that drive successful crowdsourcing initiatives in the wake of the COVID-19 pandemic. Second, we have extended extant knowledge by investigating the moderating role of TLS on two relationships—CSA and SCP on one hand and FIR and SCP on the other hand. So far, no other studies have investigated the influence of such type of moderator on drivers of SCPs. Thus, the empirical findings of the present study have been able to substantiate the relevance of investigating and analyzing the crowdsourcing effects in the wake of the COVID-19 pandemic. In such context, this study has demonstrated how crowdsourcing initiatives have been able to highlight that crowdsourcing practices, fostered by different digital tools, are able to convey effective and useful solutions in the wake of the COVID-19 pandemic. Third, this study is claimed to be one of the first studies that explained extensively

the impact of trustworthiness of the crowdsourcing organizers to achieve success in crowdsourcing activities. Most of the extant studies only analyzed the factors influencing successful crowdsourcing activities either from the perspectives of the internal and external aspects of the crowdsourcing contributors or from the perspectives of the development of system software [35], [85]. Such studies did not extensively examine and analyze the key role of crowdsourcing organizers. Fourth, this work has discussed as well as investigated the role of organizers also for achieving success in crowdsourcing practices even in the wake of the COVID-19 pandemic by highlighting that distrust toward the organizers is one of the most important factors reducing the contributors' participation in crowdsourcing activities.

Fifth, this study is claimed to have successfully leveraged trust theory and motivation theory to show that crowdsourcing practices under a pandemic constraint can be enhanced by driving higher levels of trustworthiness (which could help to motivate the crowdsourcing contributors) and motivation (both intrinsic and extrinsic motivation play a key role in crowdsourcing activities). Sixth, this study has enhanced the existing literature on the job characteristics model [86] by suggesting that the model can hardly be able to capture different dimensions of crowdsourcing practices. Instead through our analysis, we have been able to extend the job characteristics model in terms of crowdsourcing market by considering new crowdsourcing drivers. Indeed, as suggested by Alcover and Topa [87], the job characteristic model does not consider social and situational characteristics of works. Seventh, the present study has contributed to the literature of crowdsourcing by exploring the intimate nexus between the situational factors of crowdsourcing (one of which is the trust factor) and perceived work efforts by the contributors (one of which is the motivational factor). This is essential because the high uncertainty in the crowdsourcing market has made trust in the organizers a critical driver. Finally, we also extend the work by Xu et al. [26], as we have considered a wider range of drivers (including lucidity, gamification, exposure, and coordination) between the crowdsourcing organizers and contributors for achieving SCPs by paying attention to contextual factors, such as financial rewards and CSA.

B. Implication to Practice

This study has demonstrated that by enhancing the trustworthiness of the crowdsourcing organizers, it is possible to motivate the crowdsourcing contributors to participate in the crowdsourcing activities. Hence, this study has facilitated the consideration of the incentive design along two perspectives: the crowdsourcing organizers' perspective and the crowdsourcing contributors' perspective. This implies that crowdsourcing organizers are also needed to improve their positive image of being trusted in addition to their (organizers) role to motivate the contributors for participating in the crowdsourcing activities/practices. The crowdsourcing organizers should try to solve problems of information asymmetry that causes distrust in the minds of the crowdsourcing contributors resulting in low participation rates. The organizers must coordinate with the contributors by addressing all the doubts of the contributors. This will help enhance the confidence of the contributors as they will think that they will be properly rewarded for the performance of their tasks based on the assurance of the crowdsourcing organizers. By continuously interacting with the contributors to understand their constraints, it will be possible for the organizers to enhance their exposure to the audience helpful to achieve better trust toward them (organizers) that eventually will help to ensure success in crowdsourcing practices.

This study has provided effective insights to explore relationship management in the context of three stakeholders. They are the crowdsourcing organizers, the crowdsourcing contributors, and the crowdsourcing platform managers. The crowdsourcing organizers should use gamification-related initiatives (e.g., better design) as well as nongamification-related factors (transparency, financial rewards, identity) to improve their image to be trusted by the contributors, which will help to enhance the motivation of the contributors toward participating in the crowdsourcing activities. The organizers should provide proper feedback in real time to the contributors and should also appreciate the contribution of the crowdsourcing contributors for their effective performance, which will help to attract more contributors toward crowdsourcing activities. In brief, crowdsourcing organizers should maintain a cordial and intimate relationship with the crowdsourcing contributors as well as the crowdsourcing platform managers. This should ensure success toward the crowdsourcing initiatives and such a close relationship will enhance the motivation of the contributors toward participating in crowdsourcing activities even in unfavorable circumstances.

C. Limitations and Future Research Direction

Although this study has made several theoretical contributions to extant research and knowledge, as well as developed managerial implications, it displays some limitations. First, the findings depend on the cross-sectional data, which have been collected at a single point of time by using self-reported measures. Hence, we cannot claim causality in the relationships identified. Second, cross-sectional studies are often prone to endogeneity bias. It is recommended that researchers conduct longitudinal field research to control this limitation. Second, the findings rely on respondents based in Asia and Europe. Hence, there is an external validity issue that should be addressed by collecting data from respondents located in other geographical areas. Third, the explanatory power of the proposed theoretical model is 69%. Future researchers may consider other characteristics of the organizers in addition to trustworthiness (e.g., justice [88]) and examine if adding a driver may improve the percentage of variance explained. Fourth, despite we have both European and Asian respondents, we could have analyzed and compared the responses regionwise. Future researchers might conduct a similar study but also distinguish countries and regions. Fifth, in this work, we have only included one typical system design feature, such as gamification, on the crowdsourcing platform, although crowdsourcing applications contain multifarious attributes (such as aesthetics and stories) that drive use. In future research, scholars might consider system motivational features to assess how they could influence contributor participation. Sixth and last, this study did not consider a rival model. Future research might address this limitation.

APPENDIX

TABLE VI
SUMMARY OF QUESTIONNAIRE

Items	Source	Statements	Response [SD], [D], [N], [A], [SA]
LUC1	[17]	I believe that lucidity helps to develop trust between both crowdsourcing organizers and contributors.	[1], [2], [3], [4], [5]
LUC2	[8], [45], [46]	I think that the lucidity of the crowdsourcing organizers helps to increase participation of the contributors to do the tasks in post COVID-19 period.	[1], [2], [3], [4], [5]
LUC3	[46], [47]	Lucidity helps in impacting the crowdsourcing contributors to admire the crowdsourcing organizers.	[1], [2], [3], [4], [5]
GAM1	[18], [49]	I believe that gamification-related indicators can estimate organizers' trustworthiness, especially in the post COVID-19 period.	[1], [2], [3], [4], [5]
GAM2	[50]	Competitive gamification-based indicators disclose the skills and competencies of the crowdsourcing organizers.	[1], [2], [3], [4], [5]
GAM3	[51]	I think that different types of gamifications help to improve the trust levels of the crowdsourcing contributors.	[1], [2], [3], [4], [5]
GAM4	[48], [49]	Through gamification process, contributors feel assured of being rewarded appropriately by the organizers.	[1], [2], [3], [4], [5]
EXP1	[5], [52]	I think that maturity of the skills and knowledge of the crowdsourcing organizers is important, especially in the post COVID-19 period.	[1], [2], [3], [4], [5]
EXP2	[53]	I believe that as the crowdsourcing organizers gather more experience, the organizers gain more superiority in crowdsourcing activities.	[1], [2], [3], [4], [5]
EXP3	[25]	Acquiring more crowdsourcing competence can help to improve trust level of the crowdsourcing contributors.	[1], [2], [3], [4], [5]
EXP4	[27], [52]	Contributors will feel more assured of being appropriately rewarded from the mature crowdsourcing organizers.	[1], [2], [3], [4], [5]
CDN1	[2], [54], [85]	Coordination between crowdsourcing organizers and contributors is an important factor during and after COVID-19 pandemic when social distancing is important.	[1], [2], [3], [4], [5]
CDN2	[55]	I believe that stakeholders in crowdsourcing activities should jointly work together to achieve a common goal.	[1], [2], [3], [4], [5]
CDN3	[57], [84]	Improper coordination among the crowdsourcing stakeholders can jeopardize the project especially during and after COVID-19 when mobility is restricted.	[1], [2], [3], [4], [5]
CSA1	[51], [60]	Admiration of contributors to participate in a crowdsourcing project is an important aspect.	[1], [2], [3], [4], [5]
CSA2	[59]	Crowdsourcing contributors are more motivated to participate in a crowdsourcing project if appropriate reward is assured.	[1], [2], [3], [4], [5]
CSA3	[51]	I believe that organizations that have more experience in crowdsourcing projects are more attractive for the crowdsourcing contributors to participate.	[1], [2], [3], [4], [5]
CSA4	[60]	I believe that if the crowdsourcing organizers disclose their identity, then the contributors admire more to participate in the crowdsourcing projects.	[1], [2], [3], [4], [5]
FIR1	[61]	I believe that financial rewards are the most important aspect to attract the contributors to take part in a crowdsourcing project.	[1], [2], [3], [4], [5]
FIR2	[11], [59]	I think that an attractive reward can ensure the success of a crowdsourcing project.	[1], [2], [3], [4], [5]
FIR3	[21], [57]	Financial reward can motivate the crowdsourcing contributor to choose one project than another.	[1], [2], [3], [4], [5]
SCP1	[51], [60]	I believe that revealing identity, history, and mode of work can help crowdsourcing organizations to become more popular.	[1], [2], [3], [4], [5]
SCP2	[1], [5]	Attracting skillful and knowledgeable contributors in a crowdsourcing project is an important aspect for project success.	[1], [2], [3], [4], [5]
SCP3	[2], [3]	Financial incentive to the crowdsourcing contributors can enhance the success rate of a crowdsourcing project.	[1], [2], [3], [4], [5]
SCP4	[2], [3]	I believe that crowdsourcing practices can minimize the overall project cost.	[1], [2], [3], [4], [5]
SCP5	[8], [18]	I think that in the post COVID-19 scenario, crowdsourcing practices by the organizations have accelerated.	[1], [2], [3], [4], [5]
SCP6	[61], [84]	I believe that during and post COVID-19 period, crowdsourcing practices have become more popular.	[1], [2], [3], [4], [5]
SCP7	[28], [29]	I think in the post COVID-19 scenario, it is easier to find skillful resources to contribute for crowdsourcing projects.	[1], [2], [3], [4], [5]

SD = Strongly Disagree; D = Disagree; N = Neither agree nor disagree; A = Agree; SA = Strongly Agree.

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Examining the Influence of Trustworthiness, Financial Rewards, and Admiration for Crowdsourcing in the Post COVID-19 Period

Marcello Mariani and Sheshadri Chatterjee

***Abstract*—Over the past two decades, crowdsourcing activities have expanded considerably. More recently, the COVID-19 pandemic has radically changed the way people live and work, and the way organizations do business. So far, not many studies have analyzed if and to what extent trustworthiness can influence the admiration to practice crowdsourcing and could reward financial benefits in the COVID-19 period. Against this background, in this article, the aim is to investigate the influence of crowdfunding trustworthiness and financial rewards on the success of crowdsourcing activities. The analysis is made more complete by including technology leadership support as a moderator. With the help of the existing literature and theories, a research model has been developed conceptually, which was later validated using the partial least square-structural equation modeling technique on a sample of 319 responses from participants based in Europe and Asia. The study found that lucidity, gamification, exposure, and coordination along with financial rewards positively influence admiration for crowdsourcing, which, in turn, positively impacts successful crowdsourcing practices in the COVID-19 period. The study also shows that there is a significant moderating impact of technological leadership support on successful crowdsourcing practices in the COVID-19 period.**

***Index Terms*—Admiration, coordination, COVID-19, crowdsourcing, entrepreneurship, financial rewards, gamification, lucidity, technology leadership support (TLS), trustworthiness.**

I. Introduction

FROM a societal and economic perspective, the COVID-19 pandemic can be considered as a disruptive event [1]. This health crisis has led to unforeseen consequences in most of the sectors and society [2], [3]. More specifically, the COVID-19 pandemic has acted as a catalyst to bring a change to business activities and patterns [4]. During and after the worst moments of the COVID-19 outbreak, resilience, coordination, and synergy have been critical elements for crisis management also in relation to business [5]. The challenging scenario brought about by the COVID-19 pandemic highlights that the existing traditional processes of doing business are often not adequate. More efforts are needed to appropriately coordinate resources. More specifically, digital technologies and innovative digitally informed processes are increasingly deployed to coordinate and organize resources useful to address the global pandemic. Organizations that can rely on platform business models and that are digital oriented can reach out to a global audience by using crowdsourcing to counteract societal and medical issues. By leveraging the enormous power of the crowd, crowdsourcing is considered a substantial and effective mechanism for facilitating the coordination of large groups of individuals that can help solving various business-related problems. More specifically, crowdsourcing is particularly effective in generating new information relevant to the business context along with the creation of innovative ideas [6]. This process has been widely recognized as an additional coordinative technique for businesses that need to access quickly and conveniently essential resources and outside knowledge [7]. Examples are not rare in medical contexts, where through crowdsourcing, it has been possible to collect large volumes of valuable data to develop the accurate research responses to address the outbreak of diseases brought about by the COVID-19 pandemic [8], [9]. Crowdsourcing activities help establishing working relationships with outside providers possessing specific know-how that helps crowdsourcing-seeking organizations to improve their processes in the areas of product development and supply chain reconfiguration [10]. Apart from generating quick responses to urgent business and societal needs, crowdsourcing can provide access to solutions from remote knowledge domains. Recently, crowdsourcing is effectively helping governments coordinating appropriate resources to solve multifarious societal issues and is supporting nongovernmental organizations to be able to identify novel solutions to address different societal challenges [11]. Several initiatives demonstrate that organizations have already started to harness crowdsourcing activities to address issues, such as the COVID-19 pandemic. For instance, a recent report [12] shows that the World Health Organization had developed an important database leveraging data collected from different hospitals globally. These data consist of anonymous records regarding patients who had contracted the COVID-19 viruses

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that provide details about treatment procedures and prescribed medicines. This database, which is the byproduct of crowdsourcing, is tangible global evidence of how crowdsourcing can help address societal issues and unforeseen detrimental crises situations in the present but also in the future. Crowdsourcing refers to the practice of an organization or an agent of outsourcing tasks to the wider public/society who are usually recruited using the internet [13]. To develop innovative works, many organizations are using the crowdsourcing approach in different fields [14], [15]. Many global organizations, such as Google, Dell, P&G, SAP, and others, have become successful by building their own crowdsourcing platforms to handle such tasks that need human contribution [16], [17]. These tasks include knowledge sharing and intelligence assimilation [7], operational cost saving [18], and improving organizational innovative system [19]. However, despite all these advantages, it has been observed that all the crowdsourcing initiatives have not yielded successful results in the guise of innovative outcomes, operational cost savings, and so on [15], [18], [20]. Organizations are experiencing such challenges to fetch successful outcomes using crowdsourcing due to paucity of knowledge of the salient factors that could accurately predict the success of crowdsourcing in the wake of the COVID-19 crisis [15], [21].

Apart from financial rewards, proper exposure and lucidity of the organizations seeking crowdsourcing along with trustworthiness have been considered as a decisive factor for successful crowdsourcing initiatives especially during and in the wake of the COVID-19 pandemic [6], [22], [23], [24]. Crowdsourcing may help organizations to successfully coordinate with external players for establishing working relationships to reconfigure their efficiency in supply chains, improve their processes for product development, along with enhancing specific features and functionalities of the products [10], [25]. Based on the critical role played by crowdsourcing to address the challenges brought about by the COVID-19 pandemic, this study addresses opportunities and challenges linked to crowdsourcing from a managerial and societal perspective. This can lead to develop readiness and resilience in the wake of the lingering COVID-19 pandemic and in view of similar extreme events and crises. However, unless the factors that could impact crowdsourcing practices in the wake of the COVID-19 pandemic period are properly identified to improve organizational innovation [19], it would not be possible to harness the potential stemming from crowdsourcing initiatives [26]. It is argued that technology leadership support (TLS) can influence the crowdsourcing process. Indeed, TLS encompasses how a leader uses technology during her daily tasks while leading others to successfully complete their assigned tasks [15], [27]. This can eventually influence the success of crowdsourcing activities. The process of crowdsourcing is mostly impeded because crowdsourcing seekers neither do clearly expose the rewards to be given to the crowdsourcing contributors nor do the seekers explicitly communicate to potential contributors the specific conditions for providing contributions. As a result, most of the contributors cannot trust the crowdsourcing seekers. Thus, trustworthiness and support of the crowdsourcing seekers are perceived to be highly important since they will help address information asymmetry issues, enhance effective communication and coordination with the contributors of crowdsourcing initiatives, and reduce uncertainty in the minds of the external participants as to whether the organizations will keep their promises and deliver rewards after project completion [26].

Existing studies have highlighted that despite the multiple advantages of crowdsourcing, such as intelligence assimilation, cost savings, as well as the improvement of organizational innovation capabilities [7], [18], [19], organizations have been experiencing entangled challenges to harness the potential of crowdsourcing [20]. To address such challenges, trustworthiness of the organizations involved in crowdsourcing activities is one of the main critical factors [6], [22]. In such context, although the success of crowdsourcing is increasing rapidly [17], the factors that could impact trustworthiness, financial rewards to the contributors, as well as admiration to the seekers for improving the overall crowdsourcing activities are severely underexplored [26]. Researchers have emphasized the importance of studying the success and outcomes of crowdsourcing activities [17]. However, most of these research studies have been conceptual in nature. Those studies tried to identify the factors predicting trustworthiness in the context of crowdsourcing [26]. However, those few empirical studies neither explicitly investigate the impact of trustworthiness on successful crowdsourcing activities nor did these studies analyze the moderating role that TLS can play in successful crowdsourcing activities. To bridge this research gap, the aim of this study is to address the following research questions (RQs).

RQ1: How does crowdsourcing trustworthiness impact successful crowdsourcing practices (SCPs) in the wake of the COVID-19 pandemic?

RQ2: Does TLS moderate successful crowdsourcing activities?

Our findings contributed to enhancing both theoretical and managerial knowledge by investigating the success of crowdsourcing from the organizers' trustworthiness perspective. This study, therefore, provided a granular investigation on determining how different salient factors of crowdsourcing trustworthiness are effective especially in the wake of the COVID-19 pandemic to achieve successful crowdsourcing with the help of effective technological support. To address the RQs, we have developed a theoretical model and validated it by deploying a partial least square (PLS) structural equation modeling (SEM) technique through the analysis of 319 responses from European and Asian respondents. To empirically substantiate the research findings, this study successfully integrated trust theory [28] and motivational theory [29] to explain how different factors could help improve crowdsourcing practices in the wake of the COVID-19 pandemic, considering, as a moderator, TLS.

The rest of this article is organized as follows. Section II illustrates the literature review, and it is followed by the theoretical foundations and hypotheses development in Section III. Thereafter, Section IV describes the research methodology that is followed by data analysis and results presented in Section V. Finally, Section VI develops the discussion, illustrates the theoretical contributions, the practical implications, identifies the limitations, and develops a research agenda.

II. Literature Review

The COVID-19 pandemic not only posed multiple challenges to individuals' health but it also affected several businesses and kept on affecting both individuals and organizations in the wake of the COVID-19 pandemic [30]. The challenging scenario set by COVID-19 has suggested that the prevailing business practices are not adequate, and that the world requires searching for innovative and digital means to adequately respond to such apocalyptic challenges [5], [31]. With its platform structure as well as digital nature capable of reaching global audience, crowdsourcing is perceived to be one of the most promising remedies to critical pandemic crises [9], [32]. Several studies have highlighted that crowdsourcing may be conceptualized as the activity for advertising a task to an unknown crowd rather than to a team or a designated organization [33]. Not many studies dealings with crowdsourcing have analyzed factors, such as the trust of the organizers, and no analysis has been conducted on the incentive toward participating in crowdsourcing activities. Crowdsourcing could help business organizers to address issues in the wake of COVID-19. It might also help different governments coordinate resources to solve various societal problems [11]. Some research has demonstrated that nonspecific public volunteers help the organizers of crowdsourcing, and these nonspecific volunteers are mostly recruited through virtual platforms [13], [17]. However, none of these studies have investigated the issue of incentivization of crowdsourcing and its popularity. Crowdsourcing is gaining momentum in the business domain [20], and as such, it has become an important topic for researchers to analyze how to be successful in crowdsourcing initiatives [34]. Extant studies have illustrated that the success of crowdsourcing principally depends on, and is related to, three specific factors, which include the following:

1) optimization of crowdsourcing management task design;
2) stimulation of participation toward crowdsourcing;
3) improvement of technologies for being more involved in crowdsourcing activities [19], [35].

Thus, not many studies are found in the extant literature on how trustworthiness of the organizers of crowdsourcing activities may act as an essential predictor for achieving success in crowdsourcing practice [7], [18]. Several studies have shown that the main actors and beneficiaries of crowdsourcing are the organizers who are the crowdsourcing seekers, and whose characteristics are critical to achieve success in crowdsourcing practices [22], [36]. Several studies have identified factors, such as the admiration of the crowdsourcing organizers [26], their lucidity in actions, and ability for better coordination with the crowdsourcing contributors [26] that are critical in SCPs. A study has observed that since crowdsourcing contributors are supposed to enjoy more freedom in choosing their tasks, motivating these contributors to participate in the crowdsourcing activities is also considered as a key issue for successful crowdsourcing activities [37]. To motivate the contributors, it is essential for the crowdsourcing organizers to enhance the way they present the crowdsourcing activity through game-like system designs, appropriate exposure, and ability to reward financially the contributors: this could lead the contributors to admire the organizers [38]. If these qualities of the crowdsourcing organizers are cultivated, it is argued that crowdsourcing activities will be successful even after the COVID-19 pandemic period. However, in such context, the crowdsourcing organizers need to act as champions to ensure success in crowdsourcing activities by using advanced (digital) technologies [38]. Thus, it is argued that trust in the crowdsourcing organizers and the motivation of the crowdsourcing contributors play critical role to achieve success in crowdsourcing activities even after any crisis. This corroborates motivation and trust theories [28], [29], [39]. Extant literature has emphasized that due to the abrupt outbreak of COVID-19 pandemic, the existing business practices are not adequate to address the apocalyptic situation [31] and several scholars have suggested that to reach out to a global audience in such a crisis, crowdsourcing is one of the best available solutions [9], [32]. Other studies have also demonstrated that trust of the organizations in the matter of crowdsourcing for attracting the contributors is deemed to be important [6], [22]. However, extant literature has not explicitly explained how factors, such as trustworthiness, rewarding, and innovativeness, could impact SCPs in the wake of the COVID-19 period. Consequently, there is an important gap in the literature that this study tries to bridge. To visualize the literature and the contributions, a summary has been included in Table I.

III. Theoretical Foundations and Hypotheses Development

A. Theoretical Foundations

The crowdsourcing organizers need to motivate the contributors to perform their tasks. This can be accomplished by modifying the attributes and qualities of the organizers that can ultimately drive crowdsourcing contributors. Based on the motivation theory [29], motivation is concerned with intrinsic as well as extrinsic factors that could drive human actions [40]. Intrinsic motivation is associated with developing satisfaction as well as pleasure concerning the activities, whereas extrinsic motivation is associated with desire of the actors for some specific outcomes, such as financial rewards. Again, motivations toward participating in crowdsourcing practices include enhancing skills, earning income, seeking entertainment, finding job opportunities, as well as passing time [41]. In the context of crowdsourcing, there are different types of extrinsic motivations, which are feedback-based rewards, recognition-related rewards, monetary rewards, and reputation-oriented rewards, whereas intrinsic motivation includes eudemonic rewards as well as hedonic rewards [42]. Hedonic rewards refer to the needs of crowdsourcing workers for seeking relaxation and enjoyment, whereas eudemonic rewards pertain to the needs of the crowdsourcing contributors to achieve self-determination values and to fulfil their life goals. In the context of achieving success in crowdsourcing practices, it is observed that there are different effects of extrinsic and intrinsic motivations [36]. In the perspective of achieving success in crowdsourcing initiatives, motivational factors play a crucial role, which especially help the crowdsourcing contributors to be motivated to perform their

TABLE I
SUMMARY OF LITERATURE

Author(s) and Year	Study area/Theme	Literature gap	Contribution of present study
[7]	How firms develop capabilities for crowdsourcing to increase open innovation performance: The interplay between organizational roles and knowledge processes.	This study deals with the development of crowdsourcing to improve open innovation performance. However, this study does not deal with any moderating impacts of TLS.	The present study has contributed to the moderating effects of TLS on SCPs, especially in the wake of the COVID 19 pandemic period.
[14]	How crowdsourcing improves prediction of market-oriented outcomes.	This study explains how crowdsourcing activities can help in predicting market-oriented outcomes that can help businesses. Although this study describes prediction of market-oriented outcomes, it does not explain issues, such as lucidity, gamification, and so on, for crowdsourcing activities.	The present study contributes to SCPs in the wake of the COVID-19 pandemic period, along with factors, such as lucidity, gamification, exposure, and so on. This is a unique contribution of the present study.
[15]	A new model for crowdsourcing innovation.	This study presents a new model for crowdsourcing innovation. But this study does not discuss financial rewards, any crisis, and other scenarios, which is a limitation.	The present study deals with CSA along with financial rewards in the wake of the COVID-19 pandemic period.
[22]	From the crowd to the market: The role of reward-based crowdfunding performance in attracting professional investors.	This study shows how reward can help crowdsourcing activities. This study especially deals with attracting professional investors in crowdsourcing activities through incentives. But the study does not investigate the role of leadership support in using modern technology in post COVID-19 pandemic.	The present study Investigates the moderating role of TLS for crowdsourcing activities in the post COVID-19 scenario. The present study also examines the necessity of an attractive reward system to attract professionals in crowdsourcing activities.
[24]	Creativity on Paid Crowdsourcing Platforms.	This study has shown how creativity can help in paid crowdsourcing platforms. But this study is silent on matters, such as turbulent situation, gamification, lucidity, and other factors, which are considered a limitation of this study.	The present study contributes toward crowdsourcing activity from different factors, such as gamification, exposure, lucidity, and so on, along with the moderating role of TLS. Thus, the present study bridges the concerned research gap.
[10]	Ideator expertise and cocreator inputs in crowdsourcing-based new product development.	This study shows the importance of cocreator inputs for launching and developing crowdsourcing-based new product development process. But this study does not clarify the role of financial rewards as well as the role of TLS. Thus, there is a clear research gap.	The present study deals with intermediate factors, such as CSA as well as financial rewards. The present study also deals with the role of TLS in the wake of the COVID-19 pandemic period. Thus, the present study tries to address some of these gaps, which is also a unique contribution of the present study.

allocated tasks. This concept is in consonance with motivation theory. Again, contributors' trust in the crowdsourcing organizers plays a crucial role to improve crowdsourcing initiatives [26]. Trust can be defined as "the extent to which one is willing to ascribe good intentions to and have confidence in the words and actions of other people." [43, p.709]. Also, Mayer et al. [43] identified three salient dimensions of trust that are integrity, ability, as well as benevolence. In virtual settings, trust plays a critical role in relationship setting [44]. This concept is in consonance with trust theory [28]. In the context of crowdsourcing activities, crowdsourcing contributors give their efforts to provide suitable solutions, but whether they will get their rewards largely depends on the task requesters. In the perspective of such bilateral relationship between the crowdsourcing organizers and the contributors, trust plays a vital role. The trust theory posits the essence of development of internal relationships between the parties involved in any activities [28]. In this study, we argue that the trustworthiness of the crowdsourcing organizers is determined by their lucidity, exposure, capability to attract (through gamification and playful tasks), and coordinating capabilities. These are likely to attract contributors. Thus, trustworthiness of the crowdsourcing organizers is perceived as a driving factor to help improve crowdsourcing practices, especially in the wake of the COVID-19 pandemic.

B. Hypotheses Development

Based on the literature and theories reviewed, we have been able to identify the factors that drive SCPs in the wake of the COVID-19 pandemic. We have considered TLS as a moderator that could moderate the relationships between SCPs in the wake of the COVID-19 pandemic period with its two predictors. We will explain all these factors in the ensuing sections and will formulate the hypotheses that will then be encapsulated in our conceptual model.

1) Lucidity (LUC): Lucidity is related to the quality of being rational, clear, and clearly understanding the reality. Accordingly, lucidity can be conceptualized with the characteristics of seeing things closely and rationally. The concept of lucidity is associated with clearness, clarity, and limpidity. In the perspective of crowdsourcing, lucidity is conceptualized as the extent to which an organization or a person reveals her/his identity by disclosing information regarding her/his real identity: this implies not operating anonymously [20]. Studies have demonstrated that lucidity helps to develop trust in the crowdsourcing organizers by the contributors and helps reducing perceived risks [45], [46]. The idea supplements trust theory. Lucidity of the crowdsourcing organizers helps to increase participation of the contributors to undertake the tasks. Although identity disclosure and task popularity are known to have opposite relation in some outsourcing cases [7], it appears that proper identity disclosure helps to promote trust between the organizers and the contributors [47]. Since the lucidity of the organizers helps to grow trust in the mind of the contributors, this quality of the organizer is perceived to have an impact on contributors, leading them to admire the organizers. This way the contributors will be persuaded that they will be appropriately rewarded for the performance of their allocated tasks [46]. In the context of this study, performance is conceptualized as the outcome of an action. All these inputs help to formulate the following hypotheses.

H1a: Lucidity (LUC) of the crowdsourcing organizer will positively impact the crowdsourcing admiration (CSA) of the contributors.

H1b: Lucidity (LUC) of the crowdsourcing organizer will positively impact on the opportunity of gaining financial rewards (FIR) of the contributors.

2) Gamification (GAM): Gamification describes the incorporation of game-style incentives into nongame activities. It is concerned with the use of game elements in nongame activities. Through gamification, it is deemed possible to enhance the engagement of seekers and contributors. Indeed, gamification can enhance crowdsourcing activities and reduce costs. Game-like services and system design are normally conceptualized as gamification [48]. Gamification-related indicators are the outcomes of the game-like design displayed regarding the organizers' identity. By assessing the identity of the crowdsourcing organizers, the contributors can estimate the organizers' trustworthiness [49]. Again, competitive gamification-based indicators, such as levels and badges, disclose the skills and competencies of the organizers responsible to develop crowdsourcing initiatives successfully [50]. The information of different types of gamifications helps improve contributors' trust levels in the organizers. It can further help to increase the willingness of the contributors to participate in the crowdsourcing activities [51]. Contributors feel assured of being rewarded appropriately by the organizers and such a feeling of assurance leads contributors to admire crowdsourcing organizers. These ideas, that are in consonance with trust theory, lead us to hypothesize that the following.

H2a: The gamification (GAM) factor will positively influence the CSA of the contributors.

H2b: The gamification (GAM) factor will positively influence the financial rewards (FIR) opportunity of the contributors.

3) Exposure (EXP): Exposure is associated with the concept of being affected by something or experiencing something. In the context of crowdsourcing and in the context of this study, the organizers seeking crowdsourcing must explicitly elaborate the terms and conditions toward the crowdsourcing activities so that, by realizing those conditions, the contributors may or may not be motivated to participate in the crowdsourcing activities. The exposure factor is conceptualized as the maturity of the skills and knowledge of the organizers involved in crowdsourcing initiatives [52]. Understanding the features and activities of past tasks provides the organizers with the value of exposure. When the organizers gather more experience, they are said to have acquired more ability [53] and by that acquisition of competence, the organizers are trusted by the contributors. Exposure of the organizers helps to develop knowledge and skills of the crowdsourcing activities and their know-how helps to attract the crowdsourcing contributors [26]. This helps make the organizers more trustworthy. As a result, the contributors will feel assured of being appropriately rewarded and the contributors will get motivation for admiring the crowdsourcing organizers, which

is in consonance with motivation theory [29]. Based on the discussion, the following hypotheses are developed.

H3a: The past exposure (EXP) of a crowdsourcing organizer will positively influence the CSA of the contributors.

H3b: The past exposure (EXP) of a crowdsourcing organizer on financial aspects will positively influence the financial rewards (FIR) opportunity of the contributors.

4) Coordination (CDN): There are many studies concerning the topic of coordination [54], but there is no specific definition of coordination between the organizers and contributors concerning outsourcing practices. Coordination is considered an important factor as it can deliver benefits to the business activities, thus improving the management of inter-related businesses [55]. Key aspects of coordination contemplate that all the stakeholders jointly work on the same activities by sharing their views and with an understanding of their specific responsibilities to achieve a common goal [48], [56]. In the context of crowdsourcing activities, unless there exists proper coordination between the organizers and the contributors, crowdsourcing initiatives will not be successful [57]. A robust coordination between the organizers and the contributors could help to enhance the level of trust of the contributors toward the organizers that could eventually lead the contributors to believe that they will get a financial reward; in such a case, the contributors would admire the crowdsourcing organizers. Such confidence in the contributors will improve the trustworthiness of the organizers that corroborates with the concept of trust theory [28]. Accordingly, it is hypothesized the following.

H4a: Better coordination (CDN) activities between crowdsourcing organizers and contributors will positively influence the CSA of the crowdsourcing contributors.

H4b: Better coordination (CDN) activities between crowdsourcing organizers and contributors will improve the financial rewards (FIR) opportunity of the crowdsourcing contributors.

5) Financial Rewards (FIR): Apart from the fact that trustworthiness of the organizers in crowdsourcing is an important predictor of SCPs, financial rewards to the contributors are also considered as a vital factor for motivating the contributors to participate in the crowdsourcing activities [15]. A study has demonstrated that financial rewards influence the job satisfaction of the crowdsourcing contributors, and it also influences the trustworthiness of the organizers [18]. By getting proper financial rewards, the contributors' trust toward the organizer is enhanced that also helps to improve the crowdsourcing activities as well as helps to motivate the contributors to exhibit admiration toward the crowdsourcing organizers [58]. When the contributors find that the organizers are rewarding them financially as per the assurance, the contributors do not suffer from the uncertainty and acquire a sense of respect and admiration toward the crowdsourcing organizers. In such a case, the motivation of the contributors is enhanced in line with motivation theory [29]. Consequently, crowdsourcing activities could become successful under any challenging situation. In terms of the above discussion, the following hypotheses are put forward.

H5: Appropriate financial rewards (FIR) to the crowdsourcing contributors positively influence their CSA toward crowdsourcing organizers.

H6: Appropriate financial rewards (FIR) to the crowdsourcing contributors positively influence the achievement of SCPs.

6) CSA and SCPs in the Wake of the COVID-19 Pandemic: In the perspective of crowdsourcing activities, when the organizers reveal their identity, history, and mode of works—factors that help to attract the contributors—many individuals contribute by taking a part in the crowdsourcing activities [59]. This will help to enhance the popularity of the organizers [51], [60]. The contributors then admire the crowdsourcing activities initiated by the organizers. Being admired by the contributors, the organizers are also positively motivated and take more initiatives toward attracting and motivating the contributors that could eventually influence the success of crowdsourcing practices, especially in the wake of the COVID-19 pandemic [61]. Thus, admiration by the contributors for the crowdsourcing organizers is enhanced when the contributors get assurance that they will get the promised reward [15]. Such assurance of rewards to the contributors by the crowdsourcing seekers is likely to motivate the contributors to be involved in crowdsourcing activities by providing their valuable inputs to the crowdsourcing seeker organizations. Consequently, crowdsourcing activities become more successful. Hence, from the above discussion, the following hypothesis is developed.

H7: CSA of the contributors positively influences achieving SCPs in the wake of the COVID-19 pandemic.

7) Moderating Role of TLS: Crowdsourcing is considered as a kind of business model whose adoption has accelerated because of the COVID-19 pandemic [3]. The main responsibilities in crowdsourcing are with the organizers seeking crowdsourcing. For this reason, the organizers must take a leadership role to help the contributors motivationally and technologically so that crowdsourcing activities can unfold smoothly [62], [63], [64]. For this, it is the duty of the organizers involved in such crowdsourcing activities to apprise the contributors how to be involved in the crowdsourcing process with the help of appropriate technology [65], [66], [67]. The organizer should take a leadership role to explain to the contributors the process and practices and should ensure rewards to them after successful completion of the tasks. It helps motivating the contributors to contribute for completion of the tasks promptly and accurately [15], [27], [68], [69]. Thus, technology plays a vital role toward attracting contributors for participating in the crowdsourcing activities and technology also helps propagate effective and timely communication between the organizers and contributors as they could be physically located far from each other [70]. Therefore, appropriate use of technology can help to achieve SCPs, especially in the wake of the COVID-19 pandemic. Accordingly, the following hypotheses are formulated.

H8a: TLS moderates the relationship between CSA and SCPs in the wake of the COVID-19 pandemic.

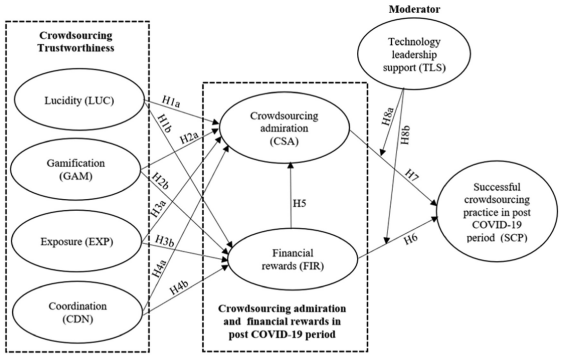

Fig. 1. Conceptual model (adopted from motivation and trust theories).

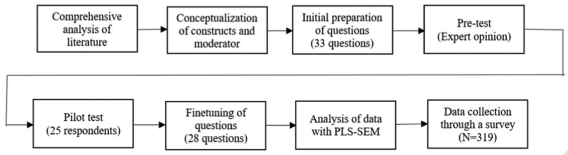

Fig. 2. Research flow diagram.

H8b: TLS moderates the relationship between appropriate financial rewards (FIR) and SCPs in the wake of the COVID-19 pandemic.

Based on the hypotheses formulated, we have developed a conceptual model that is represented in Fig. 1.

IV. Research Methodology

The hypotheses developed in this study need to be tested statistically. To achieve this aim, we have deployed a quantitative approach, conducted a survey, and then analyzed the data. The research flow diagram is illustrated in Fig. 2.

A. Preparation of Instruments

Building on the extant literature, we have developed the instruments. Initially, we prepared 33 instruments in the form of statements. The instruments were pretested by obtaining the opinion of six experts from industry having practical knowledge in this study domain. We also sought opinion from the four academicians who are engaged in research works in different aspects of crowdsourcing. With their opinion, the languages of the instruments were made simpler so that the respondents can respond without any difficulty understanding the instruments. After completion of pretest, pilot test has been undertaken with a small sample of 25 gathered through purposive sampling process [71], [72]. These 25 respondents were not included in the main survey. The inputs of these 25 respondents helped us to rectify the recitals of the instruments to increase their readability and understandability. The outcomes of the pilot test helped to rectify the questionnaire and helped to drop five instruments that could not support to enhance the constructs' reliability. In this way, eventually 28 instruments were fine-tuned. The survey instrument, along with the sources, is provided in Table VI of the Appendix.

B. Strategy for Data Collection

We have deployed social media platforms for reaching the targeted respondents who are associated with crowdsourcing activities in different ways, such as crowdsourcing organizers, crowdsourcing contributors, and so on. Hence, to select the respondents, convenience sampling and purposive sampling have been used. We used Google docs for sending the survey instruments to the targeted respondents. The survey process was conducted over the period January 2022–May 2022. We sent the response sheet containing 28 instruments to the intended participants. Since the responses were quantified in a five-point Likert scale anchoring strongly disagree (SD) marking as 1 to strongly agree (SA) marking as 5, each instrument was provided with these five options. Each respondent is to put one tick mark in one option out of five options in the response sheet. On scrutiny of the responses, it was found that most of the respondents were from Asian or European countries. We selected these respondents as our targeted respondents. With each response sheet, a guideline was provided describing how to fill up the response sheet. Also, with the response sheet, we appraised the respondents that their anonymity and confidentiality will be strictly preserved, and the aim of this study is purely academic. We also requested the respondents to respond within two months (April and May 2022). By this way, we could collect responses of 330 respondents within the stipulated time. These responses were thoroughly scrutinized. After verification of these responses, it was observed that 11 responses were incomplete. We did not consider them. These 11 responses were not considered because the 11 respondents concerned put tick marks in more than one option against each question. We analyzed the responses of 319 respondents against 28 instruments. Table II provides the demographic statistics of 319 respondents.

V. Data Analysis and Results

To analyze the results of the survey, we have used partial least square (PLS)-SEM approach [73] with the help of SmartPLS3.2.3 software [74]. The PLS-SEM technique does not require the data to be normally distributed, which is supposed to be the essential criterion for analyzing data with the help of CB-SEM technique. We have used nonparametric bootstrapping procedure considering 5000 resamples to assess the path coefficients of different linkages, p-values, and R^2 values with the help of SEM.

A. Measurement Properties Along With Test of Discriminant Validity

For verifying the convergent validity, we have estimated the loading factor (LF) of each instrument. To examine the validity, reliability, and internal consistency of each construct, we have estimated average variance extracted (AVE), composite reliability (CR), and α (Cronbach's alpha). The results

TABLE II
DEMOGRAPHIC STATISTICS ($N = 319$)

Particulars	Category	Frequency (N)	Percentage (%)
Gender	Male	224	70.2
	Female	95	29.8
Age	Teenagers (below 19 years)	101	31.7
	Young adult (19–45 years)	143	44.8
	Older adult (more than 45 years)	75	23.5
Educational qualification	Graduate	230	72.1
	Postgraduate	56	17.5
	Doctorate	33	10.4
Geographical location	Asia	202	63.3
	Europe	117	36.7

TABLE III
MEASUREMENT PROPERTIES

Constructs/Items	LF	AVE	CR	α	t-values
LUC		0.600	0.822	0.876	
LUC1	0.841				22.18
LUC2	0.717				26.17
LUC3	0.760				34.11
GAM		0.575	0.811	0.829	
GAM1	0.797				27.29
GAM2	0.0771				21.41
GAM3	0.734				26.38
GAM4	0.724				33.07
EXP		0.681	0.824	0.859	
EXP1	0.793				34.17
EXP2	0.778				36.12
EXP3	0.843				26.37
EXP4	0.866				23.08
CDN		0.683	0.856	0.891	
CDN1	0.871				37.19
CDN2	0.820				24.12
CDN3	0.786				32.21
CSA		0.617	0.822	0.889	
CSA1	0.827				26.38
CSA2	0.755				27.29
CSA3	0.626				36.33
CSA4	0.731				24.17
FIR		0.741	0.851	0.894	
FIR1	0.887				38.21
FIR2	0.897				34.27
FIR3	0.795				32.11
SCP		0.566	0.808	0.843	
SCP1	0.730				24.29
SCP2	0.722				26.55
SCP3	0.740				33.11
SCP4	0.774				30.31
SCP5	0.789				25.27
SCP6	0.727				29.89
SCP7	0.782				38.27

highlight that all the estimated values are within the specified range [75], [76]. The lowest allowable values of LF and AVE are 0.7 and 0.5, respectively. Table III provides the results.

To test the discriminant validity, we have used Fornell and Larcker criteria [77]. We have estimated the square roots of all the AVEs and found that they all are greater than the respective bifactor correlation coefficients. This satisfies the Fornell and Larcker criteria. It confirms discriminant validity of the constructs. Table IV provides the results.

B. Moderator Analysis [Multigroup Analysis (MGA)]

For assessing the effects of the moderator, TLS on the linkages H7 and H6, we have adopted MGA approach [78]. We have adopted bootstrapping procedure considering 5000 resamples.

TABLE IV
DISCRIMINANT VALIDITY TEST (FORNELL AND LARCKER CRITERIA)

Constructs	LUC	GAM	EXP	CDN	CSA	FIR	SCP	AVE
LUC	0.245							0.600
GAM	0.117	0.240						0.575
EXP	0.112	0.137	0.260					0.681
CDN	0.201	0.121	0.210	0.261				0.683
CSA	0.191	0.192	0.116	0.195	0.248			0.617
FIR	0.210	0.189	0.196	0.112	0.189	0.272		0.741
SCP	0.126	0.106	0.122	0.162	0.175	0.182	0.238	0.566

TABLE V
STRUCTURAL EQUATION MODELING

Linkages	Hypotheses	Path coefficients	p-values	Remarks
LUC→CSA	H1a	0.21	p<0.01(**)	Supported
LUC→FIR	H1b	0.24	p<0.05(*)	Supported
GAM→CSA	H2a	0.17	p<0.001(***)	Supported
GAM→FIR	H2b	0.19	p<0.05(*)	Supported
EXP→CSA	H3a	0.02	p>0.05(ns)	Not Supported
EXP→FIR	H3b	0.25	p<0.01(**)	Supported
CDN→CSA	H4a	0.18	p<0.05(*)	Supported
CDN→FIR	H4b	0.01	p>0.05(ns)	Not Supported
FIR→CSA	H5	0.29	p<0.001(***)	Supported
FIR→SCP	H6	0.31	p<0.01(**)	Supported
CSA→SCP	H7	0.32	p<0.001(***)	Supported
(FIR→SCP)×TLS	H8a	0.26	p<0.01(**)	Supported
(CSA→SCP)×TLS	H8b	0.22	p<0.001(***)	Supported

In this study, we have analyzed the moderating effect of TLS by categorizing it into two groups, strong TLS and weak TLS. It appears that the *p*-value differences for the effects of the two categories of the moderator TLS on H7 and H6 are 0.03 and 0.01, respectively, both being less than 0.05. It confirms that moderating effects of TLS on H7 and H6 are significant [73], [78].

C. Common Method Bias (CMB)

In the survey-based data, there is a chance of having CMB. To mitigate the biased replies, we have taken some procedural remedies as a pre-emptive measure. We have fine-tuned the questionnaire through pretest and pilot test as well as we assured the respondents during the survey that their anonymity and confidentiality will be strictly preserved. Also, we have tested the severity of CMB by performing two statistical tests. We have conducted post hoc Harman's first factor test (FFT) where the first factor value came out as 21.48, which is within the permissible limit [79]. To supplement Harman's FFT, we also conducted a marker correlation test [80]. The results of both the tests confirmed that CMB could not pose a major challenge in this study.

D. Hypotheses Testing (SEM)

For hypotheses testing, we have adopted bootstrapping procedure by considering 5000 resamples. With the consideration of omission–separation 7, we have assessed Q^2 value to verify cross-validated redundancy. The positive value of Q^2 confirmed that the model has predictive relevance [78]. For ascertaining the model fit, we have considered standardized root-mean-square residual as a standard index and found that its values are 0.062 for PLS and 0.033 for PLSc. Both these values are less than the allowable highest value of 0.08 [81]. The result confirms that the model is in order [80]. This process helped to estimate the path coefficients of different linkages, *p*-values, and R^2 values. Table V provides the results.

With all these inputs, the validated model is shown in Fig. 3.

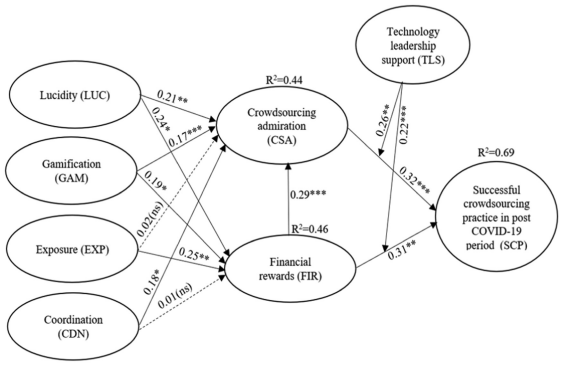

Fig. 3. Validated model (SEM).

VI. FINDINGS AND DISCUSSION

As several scholars and observers have noted, the COVID-19 pandemic has generated multiple challenges threatening not only

human lives but also generating social and economic challenges that many organizations were not prepared to face. Those challenges also characterize the present time that for some scholars has been described as the post COVID-19 period. In this article, we had suggested that the challenges related to the COVID-19 pandemic were not over and had generated a shift toward new business models and patterns [82], such as crowdsourcing. This work had highlighted that extreme events, such as pandemics, could be faced by undertaking crowdsourcing initiatives as a coordinating mechanism to successfully harness the potential of the crowd to overcome social and economic challenges. By analyzing the extant literature on crowdsourcing, we found that there is paucity of extensive empirical studies concerning the practices underpinning the execution of crowdsourcing activities in the wake of the COVID-19 pandemic [83]. Accordingly, we had holistically tried to fill up this research gap by investigating how different characteristics of the trustworthiness of the crowdsourcing organizers can influence success in crowdsourcing initiatives. Accordingly, this study had developed a conceptual model consisting of 13 hypotheses, including two hypotheses, also covering the moderating effects of TLS on crowdsourcing success. After a statistical analysis of the data, it appears that 11 out of the 13 hypotheses were supported. Two hypotheses—namely H3a (EXP→CSA) and H4b (CDN→FIR)—were not significant as the concerned path coefficients are too low (0.02 and 0.01, respectively) with levels of nonsignificance in each case as $p > 0.05$(ns). The reasons of the rejection of H3a are that the respondents in the survey believe that the exposure of crowdsourcing organizers is not an essential quality for the prediction of admiration of crowdsourcing contributors (H3a). In relation to the lack of support for H4b, the respondents subscribed to the fact that coordination between organizers and contributors does not have a strong correlation with financial rewards provided to the crowdsourcing contributors.

This study had also used motivation theory to demonstrate that by enhancing extrinsic and intrinsic motivation of the contributors by the organizers through developing different trustworthiness factors, such as gamification, lucidity, and other trust factors along with financial rewards, it is possible to motivate the crowdsourcing contributors to get involved in crowdsourcing activities. This idea has been supported by another study of Xu et al. [26]. The study also demonstrated that LUC, GAM, EXP, CDN, and FIR could predict CSA to the tune of 44% ($R^2 = 0.44$). Also, it appears from the results that LUC, GAM, EXP, and CDN could predict FIR to the tune of 46% ($R^2 = 0.46$). The results also highlighted that CSA and FIR could simultaneously predict SCP to the extent of 69% ($R^2 = 0.69$), which is the explanatory power of the proposed theoretical model.

Now, we shall discuss graphically how strong and weak TLS could influence the relationships covered by the linkages H6 and H7. Figs. 4 and 5 graphically represent the effects of moderator on the linkage CSA→SCP and FIR→SCP, respectively.

In both the graphs, the continuous and the dotted line represent the effects of strong TLS and the effects of weak TLS, respectively. From the graphs, it is observed that with increase of CSA (see Fig. 3) and with the increase of FIR (see Fig. 4), the rates of increase of SCP are more for the effects of strong TLS compared with the effects of weak TLS in both the cases. It is because, in both the graphs, the gradients of the continuous lines are more than the gradients of the dotted lines. A possible interpretation is that with the increase of CSA (see Fig. 4) and FIR (see Fig. 5), the rates of increase of SCP for both the figures are more for the impacts of strong TLS compared with the impacts of weak TLS because, in both the graphs, the inclinations of the continuous lines with the horizontal axes are more comparable with the dotted lines.

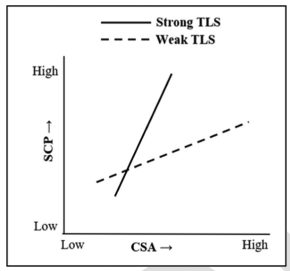

Fig. 4. Effects of moderator TLS on CSA→SCP.

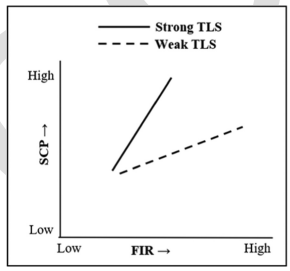

Fig. 5. Effects of moderator TLS on FIR→SCP.

A. Theoretical Contribution

This work makes several theoretical contributions. First, while there is a research stream investigating the advantages of outsourcing practices, there is a scarcity of empirical studies examining the factors driving crowdsourcing initiatives, especially in the wake of the COVID-19 pandemic. While most of the existing studies have focused only on specific crowdsourcing initiatives [84], this work has examined the factors that drive successful crowdsourcing initiatives in the wake of the COVID-19 pandemic. Second, we have extended extant knowledge by investigating the moderating role of TLS on two relationships—CSA and SCP on one hand and FIR and SCP on the other hand. So far, no other studies have investigated the influence of such type of moderator on drivers of SCPs. Thus, the empirical findings of the present study have been able to substantiate the relevance of investigating and analyzing the crowdsourcing effects in the wake of the COVID-19 pandemic. In such context, this study has demonstrated how crowdsourcing initiatives have been able to highlight that crowdsourcing practices, fostered by different digital tools, are able to convey effective and useful solutions in the wake of the COVID-19 pandemic. Third, this study is claimed to be one of the first studies that explained extensively

the impact of trustworthiness of the crowdsourcing organizers to achieve success in crowdsourcing activities. Most of the extant studies only analyzed the factors influencing successful crowdsourcing activities either from the perspectives of the internal and external aspects of the crowdsourcing contributors or from the perspectives of the development of system software [35], [85]. Such studies did not extensively examine and analyze the key role of crowdsourcing organizers. Fourth, this work has discussed as well as investigated the role of organizers also for achieving success in crowdsourcing practices even in the wake of the COVID-19 pandemic by highlighting that distrust toward the organizers is one of the most important factors reducing the contributors' participation in crowdsourcing activities.

Fifth, this study is claimed to have successfully leveraged trust theory and motivation theory to show that crowdsourcing practices under a pandemic constraint can be enhanced by driving higher levels of trustworthiness (which could help to motivate the crowdsourcing contributors) and motivation (both intrinsic and extrinsic motivation play a key role in crowdsourcing activities). Sixth, this study has enhanced the existing literature on the job characteristics model [86] by suggesting that the model can hardly be able to capture different dimensions of crowdsourcing practices. Instead through our analysis, we have been able to extend the job characteristics model in terms of crowdsourcing market by considering new crowdsourcing drivers. Indeed, as suggested by Alcover and Topa [87], the job characteristic model does not consider social and situational characteristics of works. Seventh, the present study has contributed to the literature of crowdsourcing by exploring the intimate nexus between the situational factors of crowdsourcing (one of which is the trust factor) and perceived work efforts by the contributors (one of which is the motivational factor). This is essential because the high uncertainty in the crowdsourcing market has made trust in the organizers a critical driver. Finally, we also extend the work by Xu et al. [26], as we have considered a wider range of drivers (including lucidity, gamification, exposure, and coordination) between the crowdsourcing organizers and contributors for achieving SCPs by paying attention to contextual factors, such as financial rewards and CSA.

B. Implication to Practice

This study has demonstrated that by enhancing the trustworthiness of the crowdsourcing organizers, it is possible to motivate the crowdsourcing contributors to participate in the crowdsourcing activities. Hence, this study has facilitated the consideration of the incentive design along two perspectives: the crowdsourcing organizers' perspective and the crowdsourcing contributors' perspective. This implies that crowdsourcing organizers are also needed to improve their positive image of being trusted in addition to their (organizers) role to motivate the contributors for participating in the crowdsourcing activities/practices. The crowdsourcing organizers should try to solve problems of information asymmetry that causes distrust in the minds of the crowdsourcing contributors resulting in low participation rates. The organizers must coordinate with the contributors by addressing all the doubts of the contributors. This will help enhance the confidence of the contributors as they will think that they will be properly rewarded for the performance of their tasks based on the assurance of the crowdsourcing organizers. By continuously interacting with the contributors to understand their constraints, it will be possible for the organizers to enhance their exposure to the audience helpful to achieve better trust toward them (organizers) that eventually will help to ensure success in crowdsourcing practices.

This study has provided effective insights to explore relationship management in the context of three stakeholders. They are the crowdsourcing organizers, the crowdsourcing contributors, and the crowdsourcing platform managers. The crowdsourcing organizers should use gamification-related initiatives (e.g., better design) as well as nongamification-related factors (transparency, financial rewards, identity) to improve their image to be trusted by the contributors, which will help to enhance the motivation of the contributors toward participating in the crowdsourcing activities. The organizers should provide proper feedback in real time to the contributors and should also appreciate the contribution of the crowdsourcing contributors for their effective performance, which will help to attract more contributors toward crowdsourcing activities. In brief, crowdsourcing organizers should maintain a cordial and intimate relationship with the crowdsourcing contributors as well as the crowdsourcing platform managers. This should ensure success toward the crowdsourcing initiatives and such a close relationship will enhance the motivation of the contributors toward participating in crowdsourcing activities even in unfavorable circumstances.

C. Limitations and Future Research Direction

Although this study has made several theoretical contributions to extant research and knowledge, as well as developed managerial implications, it displays some limitations. First, the findings depend on the cross-sectional data, which have been collected at a single point of time by using self-reported measures. Hence, we cannot claim causality in the relationships identified. Second, cross-sectional studies are often prone to endogeneity bias. It is recommended that researchers conduct longitudinal field research to control this limitation. Second, the findings rely on respondents based in Asia and Europe. Hence, there is an external validity issue that should be addressed by collecting data from respondents located in other geographical areas. Third, the explanatory power of the proposed theoretical model is 69%. Future researchers may consider other characteristics of the organizers in addition to trustworthiness (e.g., justice [88]) and examine if adding a driver may improve the percentage of variance explained. Fourth, despite we have both European and Asian respondents, we could have analyzed and compared the responses regionwise. Future researchers might conduct a similar study but also distinguish countries and regions. Fifth, in this work, we have only included one typical system design feature, such as gamification, on the crowdsourcing platform, although crowdsourcing applications contain multifarious attributes (such as aesthetics and stories) that drive use. In future research, scholars might consider system motivational features to assess how they could influence contributor participation. Sixth and last, this study did not consider a rival model. Future research might address this limitation.

APPENDIX

TABLE VI
SUMMARY OF QUESTIONNAIRE

Items	Source	Statements	Response [SD], [D], [N], [A], [SA]
LUC1	[17]	I believe that lucidity helps to develop trust between both crowdsourcing organizers and contributors.	[1], [2], [3], [4], [5]
LUC2	[8], [45], [46]	I think that the lucidity of the crowdsourcing organizers helps to increase participation of the contributors to do the tasks in post COVID-19 period.	[1], [2], [3], [4], [5]
LUC3	[46], [47]	Lucidity helps in impacting the crowdsourcing contributors to admire the crowdsourcing organizers.	[1], [2], [3], [4], [5]
GAM1	[18], [49]	I believe that gamification-related indicators can estimate organizers' trustworthiness, especially in the post COVID-19 period.	[1], [2], [3], [4], [5]
GAM2	[50]	Competitive gamification-based indicators disclose the skills and competencies of the crowdsourcing organizers.	[1], [2], [3], [4], [5]
GAM3	[51]	I think that different types of gamifications help to improve the trust levels of the crowdsourcing contributors.	[1], [2], [3], [4], [5]
GAM4	[48], [49]	Through gamification process, contributors feel assured of being rewarded appropriately by the organizers.	[1], [2], [3], [4], [5]
EXP1	[5], [52]	I think that maturity of the skills and knowledge of the crowdsourcing organizers is important, especially in the post COVID-19 period.	[1], [2], [3], [4], [5]
EXP2	[53]	I believe that as the crowdsourcing organizers gather more experience, the organizers gain more superiority in crowdsourcing activities.	[1], [2], [3], [4], [5]
EXP3	[25]	Acquiring more crowdsourcing competence can help to improve trust level of the crowdsourcing contributors.	[1], [2], [3], [4], [5]
EXP4	[27], [52]	Contributors will feel more assured of being appropriately rewarded from the mature crowdsourcing organizers.	[1], [2], [3], [4], [5]
CDN1	[2], [54], [85]	Coordination between crowdsourcing organizers and contributors is an important factor during and after COVID-19 pandemic when social distancing is important.	[1], [2], [3], [4], [5]
CDN2	[55]	I believe that stakeholders in crowdsourcing activities should jointly work together to achieve a common goal.	[1], [2], [3], [4], [5]
CDN3	[57], [84]	Improper coordination among the crowdsourcing stakeholders can jeopardize the project especially during and after COVID-19 when mobility is restricted.	[1], [2], [3], [4], [5]
CSA1	[51], [60]	Admiration of contributors to participate in a crowdsourcing project is an important aspect.	[1], [2], [3], [4], [5]
CSA2	[59]	Crowdsourcing contributors are more motivated to participate in a crowdsourcing project if appropriate reward is assured.	[1], [2], [3], [4], [5]
CSA3	[51]	I believe that organizations that have more experience in crowdsourcing projects are more attractive for the crowdsourcing contributors to participate.	[1], [2], [3], [4], [5]
CSA4	[60]	I believe that if the crowdsourcing organizers disclose their identity, then the contributors admire more to participate in the crowdsourcing projects.	[1], [2], [3], [4], [5]
FIR1	[61]	I believe that financial rewards are the most important aspect to attract the contributors to take part in a crowdsourcing project.	[1], [2], [3], [4], [5]
FIR2	[11], [59]	I think that an attractive reward can ensure the success of a crowdsourcing project.	[1], [2], [3], [4], [5]
FIR3	[21], [57]	Financial reward can motivate the crowdsourcing contributor to choose one project than another.	[1], [2], [3], [4], [5]
SCP1	[51], [60]	I believe that revealing identity, history, and mode of work can help crowdsourcing organizations to become more popular.	[1], [2], [3], [4], [5]
SCP2	[1], [5]	Attracting skillful and knowledgeable contributors in a crowdsourcing project is an important aspect for project success.	[1], [2], [3], [4], [5]
SCP3	[2], [3]	Financial incentive to the crowdsourcing contributors can enhance the success rate of a crowdsourcing project.	[1], [2], [3], [4], [5]
SCP4	[2], [3]	I believe that crowdsourcing practices can minimize the overall project cost.	[1], [2], [3], [4], [5]
SCP5	[8], [18]	I think that in the post COVID-19 scenario, crowdsourcing practices by the organizations have accelerated.	[1], [2], [3], [4], [5]
SCP6	[61], [84]	I believe that during and post COVID-19 period, crowdsourcing practices have become more popular.	[1], [2], [3], [4], [5]
SCP7	[28], [29]	I think in the post COVID-19 scenario, it is easier to find skillful resources to contribute for crowdsourcing projects.	[1], [2], [3], [4], [5]

SD = Strongly Disagree; D = Disagree; N = Neither agree nor disagree; A = Agree; SA = Strongly Agree.

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