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Understanding Continued Use of Crowdsourcing Systems: An Interpretive Study

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Abstract

Crowdsourcing as a model for distributed problem solving has been rapidly gaining in popularity. In investigating what drives the solvers to participate in crowdsourcing, the extant research has one-dimensionally only viewed the origins of motivation. While these studies have revealed that crowdsourcing systems' use is driven by both intrinsic and extrinsic motivations, they fall short of explaining how these motivations change over time from initial to continued use. To address this research gap, our study highlights the dynamic nature of human motivation and shows that by including the aims of motivation in the analysis, we can better capture the dynamic nature of motivation across time. With a case study of a photography crowdsourcing platform, we illustrate how the solvers' motivations change from the initial use to sustained participation. While initial use seems to be inspired by selfish motivations, continued use requires both selfish and social motivations to be satisfied. This study contributes to theory by extending our understanding of the motivational factors driving the use of crowdsourcing systems by looking into both the origins and the aims of motivation together with the temporal dimension. It also contributes to practice by providing suggestions in terms of communication strategies for crowdsourcing organizers.

Keywords: Crowdsourcing, Mixed systems, Motivational factors, Adoption, Continued use

1 Introduction

In recent years, crowdsourcing as an online, distributed problem solving and production model [7] has gained increased attention from academics and practitioners, alike. Although the term crowdsourcing was only introduced in 2006 [26], the idea of orchestrating a crowd to produce value has been around for centuries. For example, what we know today as the Oxford English Dictionary was in fact a crowdsourcing project that started in the late nineteenth century: laypersons were invited to submit paper slips, each containing an English word and its definition, and the project was successfully completed 70 years later [33]. However, recent advances in information and communication technologies (ICT), particularly Web 2.0 technologies, have increased the possibilities offered by crowdsourcing to a variety of organizations. Crowdsourcing is most often facilitated by an ICT supported platform, through which an organization extends its reach for ideation or problem solving capabilities by integrating the crowd [1]. Information systems (IS) literature has well established the importance of system use as a major success indicator for any IS [15], [31], and this is very much true also for crowdsourcing platforms (i.e., crowdsourcing systems). Hence, it is imperative to understand what motivates the crowd to use crowdsourcing systems, and subsequently provide them with the right mix of incentives that appeal to them and match their motivations [35].

Recent crowdsourcing literature (e.g., [64]) has pointed out that to better understand this phenomenon, we need to understand the users' motivations. Existing studies investigating crowd motivation have drawn us a preliminary picture of the motivational factors influencing the crowdsourcing systems' use. These studies have found that crowd members are driven by both extrinsic and intrinsic motivational factors [8], [17], [58], [65]. While these findings are valuable in suggesting that most crowdsourcing systems serve as dual-purpose systems (i.e., a mix between utilitarian and hedonic information systems [10], [63]); they leave a research area uncharted regarding the change in crowd motivations across time. That is, whether or not the motivational factors that lead to the initial use of a crowdsourcing system and those leading to subsequent and continued use are the same. This is a particularly important question for crowdsourcing systems seeking to establish a long-term relationship with their crowds.

Earlier IS research has shown that omitting the temporal dimension from system usage studies may limit our understanding of the processes of initial adoption and continued usage (see, e.g., [4], [31], [43]). In line with Karahanna et al.'s [31] conceptualization, we define the temporal dimension as the sequence of activities that lead to the initial use and subsequent continued usage of the crowdsourcing system at the individual user level.

In addressing this research gap, our aim is first to understand, then to explain how the crowd participation motivation unfolds from initial to continued use. To this end, following the interpretive research tradition [61], [62], our endeavor has been to produce a plausible explanation of the phenomenon through an iterative sense-making process. This means that our ultimate goal is not to generate *truth* or *social laws* about the research subject, but rather to provide interpretations of people's interpretations of their worldviews [61]. While the research question was initially designed to investigate the motivational factors influencing the usage of the reported crowdsourcing system, it was at a later stage of the analysis process that it was found important to include the temporal dimension to the theoretical framework. As such, the research question was further developed to provide a deeper understanding of the motivations that drive the initial use of a crowdsourcing system, and whether these motivations remain the same from initial to continued use.

In the next section, we present an overview of previous work related to crowdsourcing initiatives and systems. In section 3, we introduce the theoretical grounding of our study, addressing the motivation theory and the distinction made between initial and continued use. We then describe the empirical context of our study and the research methodology, the data collection and analysis process utilized, in sections 4 and 5 respectively. Discussion of the study's findings is presented in section 6. Finally, in sections 7 and 8 we discuss the limitations of the study, then provide a summary of conclusions, and suggest directions for future research.

2 Related Work

Crowdsourcing has been defined as a type of participative online activity in which an individual, an institution, a non-profit organization or a company proposes via a flexible open call voluntary undertaking of a task to a group of individuals of varying knowledge, heterogeneity, and numbers [18]. Contemporary crowdsourcing is most typically a web-enabled information system [16] with "network platform construction and network connectivity of potential participants" [52]. p. 73. In this sense, crowdsourcing IS - as a platform or a marketplace for *seekers* (the crowdsourcers, buyers of ideas or solutions) and *solvers* (the crowd workers, suppliers of ideas or solutions) - facilitates sharing of demand and supply information and supports various crowdsourcing transactions. When the crowdsourcing platform is managed and operated by a third party connecting seekers and solvers, revenue is usually generated by charging commissions from the seekers [52]. Crowdsourcing has also been conceptualized as a sourcing strategy, by which an organization broadens its solution landscape (e.g., procurement channels) through careful integration of the crowd as suppliers [1], [53].

Previous crowdsourcing literature distinguishes between crowdsourcing systems depending on the nature of crowd contributions [51]. *Integrative crowdsourcing* is complementary by nature in that a single contribution has very little value on its own, but the value stems from the large amount of input from the crowd. Examples of this type include services like text digitization services, such as, DigiTalkoot, reCaptcha [60], crowd-funding [42] and different forms of crowd voting and crowd ranking [6]. Waze is yet another example of integrative crowdsourcing. It is a navigation application that is aimed at improving the driving and routing guidance by integrating real-time crowd generated traffic data. *Selective crowdsourcing*, in turn, implies that the crowd is solicited to provide solutions to a particular problem or a task, and that the seeker may choose and reward the best contribution(s). In this form of crowdsourcing, contributions are competitive in nature, meaning that the seeker expects that someone in the crowd will deliver an optimal solution, and that single solution will be rewarded. A well-known example of this crowdsourcing type is Innocentive with its business model centered on announcing science problems and soliciting solutions to them from the crowd, while charging a fee from the seeker [28]. Crowdsourcing has also been utilized by firms as an approach to user-driven open innovation [17], [35]. For instance, Starbucks launched its *MyStarbucks Idea* as a social media platform where members in the community (i.e., solvers) were encouraged to propose ideas, promote innovations and give feedback on forthcoming products [20]. Similarly, Dell launched its *IdeaStorm* to engage its wide user base in search of ideas to help Dell regain its market position [21]. In the area of open service innovation, Finnish airline Finnair co-created new service ideas with an online community in its *Quality Hunters* campaigns [27].

From the perspective of recurrence of the crowdsourcing task(s), we can distinguish two different models: the recurring and non-recurring (one-off) approach. The *non-recurring task model* is exemplified by the movie *Iron Sky*: the crowd was involved both in the funding and developing of this filming project. Another example of a non-recurring task is *Netflix Prize* (a provider of on-demand Internet streaming media). Netflix sought help from the crowd to solve a single non-recurring challenge related to its recommendation system algorithm. A firm that seeks help from the crowd to fulfill frequently occurring assignments represents, in turn, the *recurring task model*. Content crowdsourcing in the media industry (news media particularly) exemplifies such approach. The CNN-run iReport platform for instance, allows the crowd to submit and publish content online on a continuous basis. Professionals from CNN can then go through all the submitted content and select reports that are suitable (e.g., confirmed breaking news) for airing on the various CNN platforms. Such platforms are changing the role of consumers who are increasingly becoming participants in the content production and value co-creation processes. Table 1 lists a number of crowdsourcing examples categorized according to the recurrence and contribution dimensions.

Table 1: Crowdsourcing examples based on task nature and recurrence

CONTRIBUTION	RECURRENCE	
	Non-Recurring (One-Off)	Recurring
Integrative	<i>Iron Sky</i> : Crowdsourcing & funding of a motion picture (Site 1).	<i>Recaptcha</i> : Crowdsourcing platform for text digitization and human verification (Site 3).
	<i>DigiTalkoot</i> : Crowdsourcing project to digitize the National Library of Finland (Site 2).	<i>Waze</i> : Crowdsourcing platform for community-based navigation information (Site 4).
Selective	<i>Netflix Prize</i> : Crowdsourcing of a recommendation system algorithm (Site 5).	<i>CNN's iReport</i> : Crowdsourcing of news and content (Site 8).
	<i>MyStarbucks Idea</i> : Crowdsourcing of product development ideas (Site 6) [20].	<i>Dell IdeaStorm</i> : Crowdsourcing of product development ideas platform (Site 9)
	<i>Finnair's Quality Hunters</i> : Crowdsourcing of service development ideas (Site 7) [27].	<i>Innocentive</i> : Crowdsourcing of solutions to science problems (Site 10) [28].

The existing research investigating solvers' motivations to participate in various crowdsourcing initiatives and programs provides us with consistent evidence that both intrinsic and extrinsic motivations are important in influencing the use of and participation in crowdsourcing systems. The findings from the studies listed in Table 2 below support such argument. While these studies add to our understanding of solvers' motivation, they largely ignore the dynamic nature of the relationship between the motivational factors and the system use behavior. This is mainly due to the fact that these studies: a) adopt unitary dimension of motivations, by observing the motivation origin only (i.e., intrinsic vs. extrinsic), and b) adopt a static view of the system's use motivations, by making no distinction between initial use and continued use. To fill this research gap, our theoretical and analysis framework extends the motivation origin dimension with: 1) the *motivations' aim* dimension [40] which allows us to distinguish between motivations aiming at the self (i.e., selfish) and motivations aimed at others (i.e., social); and 2) the *temporal dimension* [31] with which we are able to distinguish between the motivational factors that influence the initial and continued usage of the crowdsourcing system. We elaborate on this discussion in the following section.

Table 2: Reported motivations for participating in crowdsourcing initiatives

Study	Empirical Context	Findings	
		Intrinsic Motivations	Extrinsic Motivations
[7]	iStockPhoto	<ul style="list-style-type: none"> • Creativity and fun. 	<ul style="list-style-type: none"> • Desire to make money. • Develop individual skills.
[17]	SAPiensa Idea Competition	<ul style="list-style-type: none"> • Creative challenge of the contest. 	<ul style="list-style-type: none"> • SAP training offerings. • Monetary incentives.
[35]	SAPiensa Idea Competition	<i>(The authors acknowledge the importance of intrinsic motivations; however, they explicitly exclude them from the focus of the study.)</i>	<ul style="list-style-type: none"> • Learning and gaining knowledge. • Direct compensation. • Self-marketing. • Acknowledgement from others.
[3]	1. CrowdSpirit 2. FellowFoce 3. Owela	<ul style="list-style-type: none"> • Entertainment. • Collective creativity. 	<ul style="list-style-type: none"> • Monetary reward. • Learning new ideas.
[8]	Threadless	<ul style="list-style-type: none"> • Love and addiction towards the Threadless community. 	<ul style="list-style-type: none"> • The opportunity to make money. • The opportunity to improve skills. • The opportunity to find work.
[65]	Taskcn	<ul style="list-style-type: none"> • Enjoyment of participating in the contest. 	<ul style="list-style-type: none"> • To gain publicity. <i>(Money was not significant.)</i>
[57], [58]	Sanoma Newspaper	<ul style="list-style-type: none"> • Fun. • Sharing news. 	<ul style="list-style-type: none"> • The opportunity to get monetary reward.

3 Theoretical Grounding

The success of any crowdsourcing initiative or service is first and foremost dependent on attracting and maintaining an actively participating crowd that are willing to use the system. Thus, organizers of such platforms need to provide the right mix of incentives that match the participants' motivations [35]. The study of motivations concerns those processes that give behavior its energy (i.e., strength) and direction (i.e., aim), and at its core it strives to answer how motivation affects behavior's initiation, persistence, change, goal directedness, and eventual termination [46]. With its roots in the field of psychology, Harlow's experimental research in the 1950s [45], and DeCharms' work on motivations' loci of causality in the 1960s [13], the Self-Determination Theory (SDT) represents a broad framework for the study of human motivation and wellbeing [9], [14], [29], [50]. One of the widely accepted assumptions of the theory is that motivations, based on their locus of causality (i.e., the origin) are divided into external (i.e., extrinsic) and internal (i.e., intrinsic) motivations. Extrinsic motivation describes doing something in order to attain some separable outcome, while intrinsic motivation is defined as the doing of an activity for its inherent satisfaction rather than some separable consequence [14], [49], [50].

The *origin dimension* (i.e., extrinsic vs. intrinsic) has been widely applied in IS research, and accordingly, information systems have been classified as utilitarian and hedonic IS [59], [63]. Utilitarian or productivity-oriented systems are intended to provide instrumental value to the user, while hedonic or pleasure-oriented systems are intended to provide self-fulfilling value [36], [55]. The underlying assumption is that the purpose of an IS (i.e. whether utilitarian or hedonic) determines the core set of incentives that are required to motivate the use of this system. For utilitarian IS, the defining drivers or incentives are predominantly extrinsic by nature (e.g. perceived usefulness), and for hedonic IS, the drivers are predominantly intrinsic (e.g. perceived enjoyment) [11], [36], [41]. Mixed systems, or dual-purposed systems [10], [23], [63] are information systems that exhibit both qualities: usefulness and enjoyment, that is, both productivity and hedonism. Accordingly, mixed systems are argued to be driven by both extrinsic and intrinsic motivations, as reported by the studies reviewed in the previous section.

Further developments of the motivation theory suggest that supplementing the motivations' origin dimension with the dimension of aims would provide us with a more profound understanding of human motivations. The motivation aim dimension classifies human motivations as selfish (i.e., aimed at the self) and social (i.e., aimed at others) [40]. Behavior with a selfish aim means that the action is intended to serve one's self, while behavior with a social aim means that the action is directed at, or intended to serve the others. For instance, when a person makes a donation at a charity event to support an underprivileged group because helping others makes him/her feel good, this behavior is said to be intrinsically motivated with a social aim. However, if the behavior is driven by a desire to seek publicity among peers in the community, then this behavior would be said to be extrinsically motivated with a social aim. Similar distinctions can be made with the selfish aim as well. Adding the aim dimension to the already established and widely used origin dimension, affords us a finer perception of the human motivation landscape. The motivational factors framework (as depicted in table 3) serves as the underlying theoretical framework guiding our initial empirical inquiry and preliminary analysis.

Table 3: Motivational factors framework. Adapted from [40]

		O R I G I N	
		Intrinsic	Extrinsic
A I M	Selfish	<i>Intrinsic motivations with selfish aim.</i>	<i>Extrinsic motivations with selfish aim.</i>
	Social	<i>Intrinsic motivations with social aim.</i>	<i>Extrinsic motivations with social aim.</i>

Motivation theory also highlights the dynamic nature of motivations. As depicted in Figure 1, motivations are dynamic in nature: their strengths vary over time [46]. The same mix of motivations does not necessarily lead to same behaviors in different circumstances, at different points of time. While different motivations may co-exist over time, their respective strengths can lead to varying behaviors (i.e. Behaviors X, Y or Z in Figure 1). A certain behavior (e.g., IS continuance) is likely to be observed when the mix of motives inducing such behavior is strong. This also means that if and when these motives grow weaker; it is likely that the behavior will no longer take place (e.g., IS continuance turns into IS discontinuance). Hence, we integrate the temporal dimension in our analysis in order to investigate whether or not, as well as how, the solvers' motivations change between the initial and continued use in the case of recurring crowdsourcing tasks.

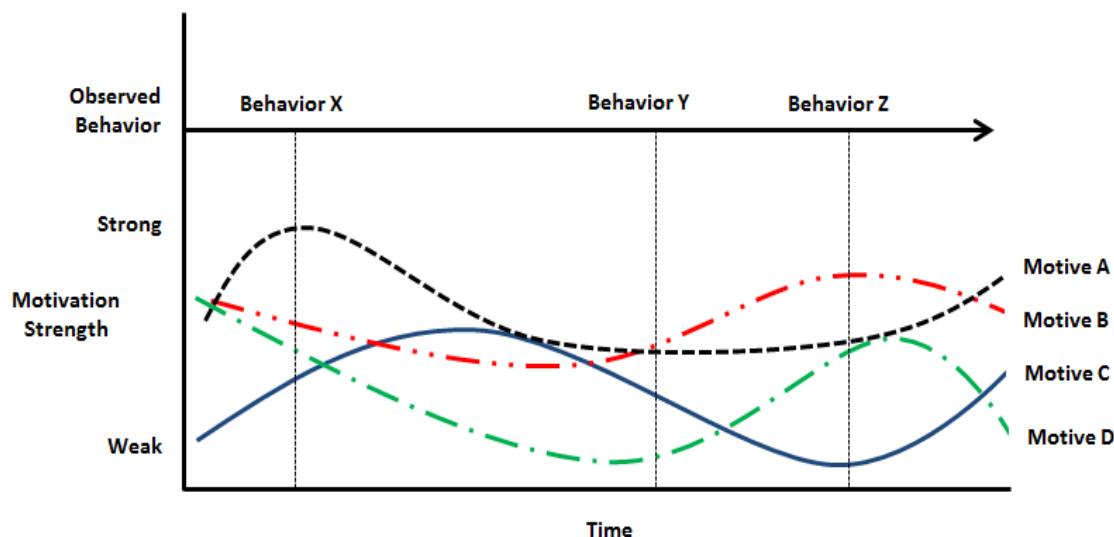


Figure 1: The dynamic nature of motivations. Adapted from [46]

In IS adoption literature, the temporal dimension referring to these different stages has been defined as “the sequence of activities that lead to the initial adoption and subsequent continued usage of an IT innovation at the individual adopter level” [31], p.184. We make two salient observations from the extant literature addressing the temporal dimension of IS usage [4], [30], [31], [43], [44]. The first observation points to a general consensus that the antecedents (e.g., motivational factors, decisions, or behaviors) leading to the initial use of an IS are different from those leading to the subsequent and continued use (i.e., IS continuance) of that system [4], [31], and that the antecedents associated with initial usage may fail to explain subsequent usage [2], [56]. The second observation is that most of these studies have been conducted with a quantitative approach and user surveys as the research instrument. Therefore, we believe that with the qualitative approach that we have chosen for our study of a photography crowdsourcing platform, we can provide a richer picture of the multifaceted user motivations of initial and continued use of crowdsourcing systems.

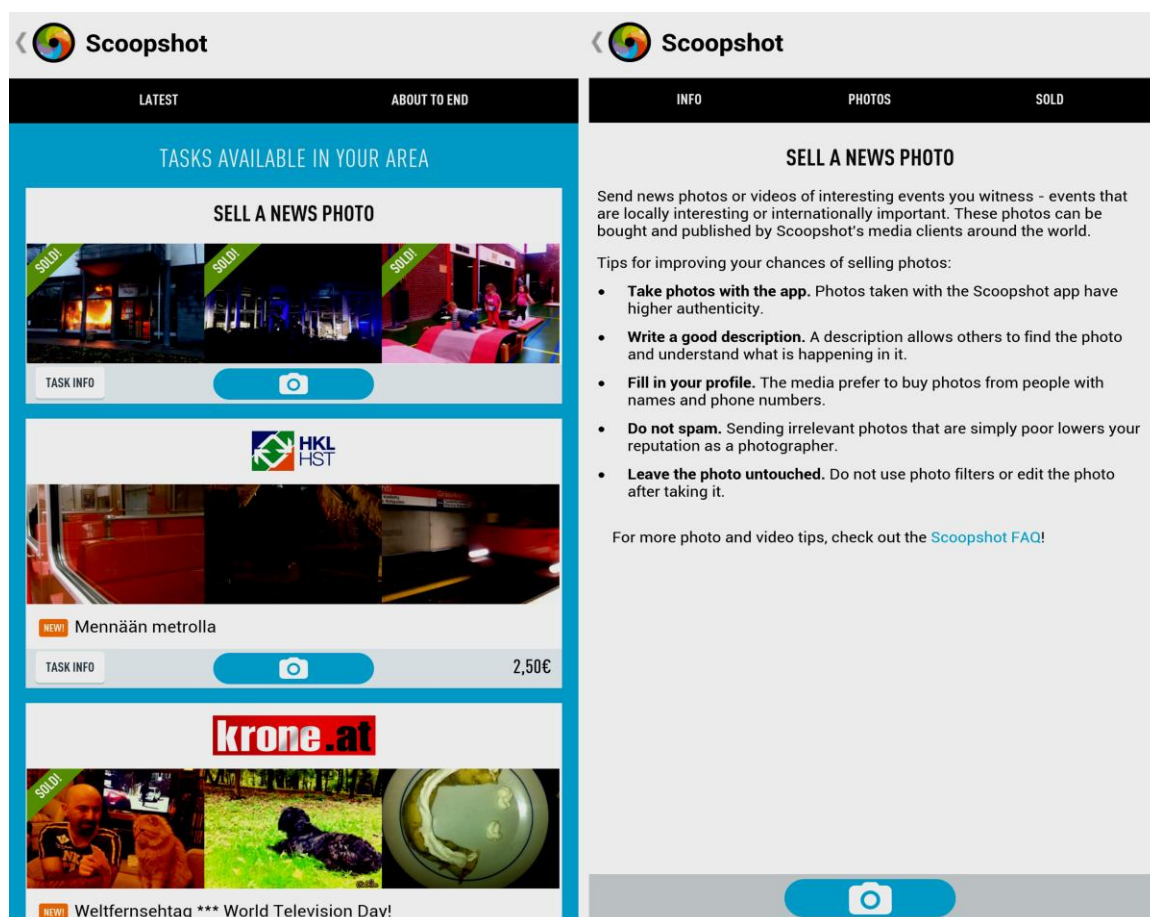
4 Case Context

Scoopshot (Site 11) is an ICT supported platform, a form of intermediation described in crowdsourcing literature as solver brokerages [19]. Scoopshot is dedicated to the trade of crowdsourced mobile user generated content, connecting publishing and media agencies (the seekers) with consumers, and enabling consumers as users (the solvers) of the service to be compensated for the content they provide. Founded in 2010, Scoopshot is a Finnish, Helsinki based company, and the popularity of its service has been growing rapidly since the beginning. In 2012, Scoopshot was declared the WSA mobile (World Summit Award) winner in the category of m-Media & News; and in March 2013 it reached third place of most downloaded free mobile applications (apps) in Germany. At least for the time being, the platform does not offer any social networking capabilities for the users to communicate. As such,

Scoopshot is a prime example of a crowdsourcing platform, where solvers do not necessarily form a networked community, but are using a shared platform to solve a particular task or tasks [16].

Typically, the Scoopshot service works so that a potential solver goes to her app store or market and downloads the smartphone app for free. After installing the app, she creates an account and can immediately access the pool of tasks. Scoopshot's platform allows a solver (also referred to as a *Scoopshooter*) to either respond to a specific pre-defined task, or to upload a photo that she believes is newsworthy. For a pre-defined task, the reward is pre-set, whereas when uploading a photo believed to be of interest to potential buyers, the photographer may set the price she sees fair for her photo. In both cases, the service allows the photographer to complement the photo with some additional descriptive text and location information. To ensure the content authenticity, the Scoopshot app has a built-in verification procedure that flags any edited or altered photographs. In addition, Scoopshooters may provide personal information, such as, a phone number, when submitting the photo for sale. The phone number can be used for additional verification purposes, if and when needed. For instance, a news agency may contact a Scoopshooter directly to ask specific questions about the surroundings of her submitted photo. Figure 2 illustrates how the application's user interface looks on a solver's smartphone.

Currently, Scoopshot has extensive networks of both seekers and solvers. At the seeker side, Scoopshot serves over 60 publishing and media houses in 15 countries across Europe, Americas and Asia. At the solver side, the service has over 350,000 users covering over 170 countries worldwide. The revenue model is based on commission on each photo sale.



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Figure 2: Scoopshot user interface

5 Research Approach

In this study, we followed the qualitative tradition of scientific enquiry, best described as the use of qualitative data, such as interviews and documents, to understand and explain social phenomena [39], which “starts from and returns to words, talk, and texts as meaningful representations of concepts” [22]. p. 455.

Series of interviews were conducted with both Scoopshot management as well as the Scoopshooters. With Scoopshot's top management the interviews were conducted with Founder and President (Mr. Petri Rahja) and CEO

(Mr. Niko Ruokosuo). The management described the rationale of Scoopshot as *trying to make media social; not social media*. In other words, they do not perceive themselves to be competing with other photo-based social media platforms, such as Flickr and Instagram. Instead, they see that Scoopshot offers a unique opportunity for media organizations to utilize the crowd as a constant source of fresh content. This study's main focus however, is on the solvers' side. In total, fifteen interviews were conducted with different Scoopshooters (i.e., content suppliers or solvers). Adhering to the qualitative tradition, purposive (i.e., nonprobabilistic) sampling was utilized in recruiting the interviewees, meaning that the interviewees were selected according to predetermined criteria that was relevant to the research objective [24]. Taking the research purpose into consideration, the selection criteria focused on candidates who have signed up in the Scoopshot platform and who have used the application for at least several months, regardless of whether they have sold a photograph or not. Candidates were then invited to personal interviews by means of emails.

Considering the dispersed geographic locations of the solvers around the world, a computer-mediated communication (CMC) strategy was chosen as a tool for our interviews with those who agreed to participate in the study. The use of synchronous CMC (e.g. instant messaging or chat) enabled the freedom of choice for the interviewees as to the time and place they preferred and felt most comfortable with, as well as the communication channel (e.g. Facebook Chat, Google Talk or Skype) [8], [32]. Such remote interviewing technique has been found to mitigate social desirability bias (the tendency of respondents to provide answers that are more socially acceptable than based on what they truly think), to help in overcoming the possible awkwardness of the interview formality, and to encourage the interviewees to express themselves as openly as possible. Interviews took place between April 2012 and May 2013. The fifteen Scoopshooters included 12 men and 3 women, ages ranging between 17 and 44 years, and with different educational and professional backgrounds. They were geographically located in Austria (1), Chile (1), Finland (3), Hong Kong (1), Mexico (1), Netherlands (6) and Sweden (2). On average, each interview lasted for 120 minutes, varying from 50 minutes to almost 3 hours in one session. Some interviews took place over multiple sessions. A detailed account of interviewees' demographics and duration of each interview is provided in Appendix A. It is worth noting that while the main interview themes remained the same for all interviews, the exact wording and order of some questions differed from one interview to another, depending on the flow of the conversation. An exemplary interview protocol is provided in Appendix B.

The data analysis of our study draws on a reductionist analytic framework [37], [47], which permits the generation of meaningful interpretations and conclusions. Our coding procedures were informed by the grounded theory guidelines [5], [54]. As such, the data went through the three stages of open coding, axial coding and selective coding. A sample of the multi-level coding procedure is provided in Appendix C. In open coding, the aim was to identify general concepts, ideas and perceptions and assigning those to portions of texts. A line-by-line coding process was performed where both theoretical codes as well as *in vivo* codes were used. Here, similar concepts were grouped into higher order categories. For instance, codes like *winning the prize*, *extra income* and *easy money* were all grouped under the category of *financial reward*. In axial coding, relations between categories and sub-categories were created, with a particular emphasis on the nature of these relations (e.g., association, causation, contradiction, etc.). For instance, clear causal relation patterns emerged between *enjoyment* and *continued system use*. Also, one of the most interesting relations that emerged was the contradictory relation between the apparent importance of the financial reward during the initial usage phase, and the interviewees' willingness to participate for free in the subsequent continuous use phase. Finally, in selective coding, core themes explaining the research phenomenon were identified, and trivial themes were eliminated from the final analysis. The importance of selective coding stems from its role in allowing the researcher to saturate the selected categories, while avoiding the inclusion of diverse additional material that has no relevance to the core investigation [25]. It is worth noting that, consistent with the guidelines offered by [24] and qualitative studies similar to ours (e.g., [8]), data saturation was achieved within the first twelve interviews. In practice, information gained from the Scoopshooters after the tenth interview produced little change to the findings.

6 Findings and Discussion

In this section, we present the findings of our study, and discuss both their theoretical and practical implications.

We reflect on the findings as three major stages that emerged during the study's life cycle. The first stage represents an answer to the initial research question regarding motivational factors influencing the solvers' use behavior. Following the traditional one-dimensional view of motivations, the primary aim of this stage is to present a static account of the motivational factors influencing the crowdsourcing system's use behavior, and to compare it with existing research findings.

The second stage of the study represents a reframing of the theoretical lens by utilizing the two-dimensional motivational factors framework. The primary aim here is to present a dynamic account of how the motivational factors leading to the system's initial use are different from those leading to continued participation.

Finally, the *third* stage represents a discussion of a novel finding that emerged from the data: the reinforcing role of feedback on system continuous usage.

6.1 System Use Motivation: Static View

The initial impetus behind our research was to create a plausible understanding of what drives the crowd to participate in the crowdsourcing system. Although the sense-making process with each interviewee drew on an interpretation of their own personal experiences, through the analysis process we could reach a more holistic understanding of the motivational factors that drove the crowd participation and use of the Scoopshot's crowdsourcing system. Following the traditional one-dimensional approach to motivation analysis, our findings show that both intrinsic and extrinsic motivations have had a strong impact on the system's use. We identified six motivational factors that together have shaped the use behavior. In terms of occurrence in the interviews (as illustrated in Table 4), these motivational factors in order are: the opportunity to gain a financial reward, the opportunity of publicity, enjoyment, curiosity, gaining non-financial rewards (e.g., skill development and future employment), and altruism. Appendix D illustrates a breakdown of each interviewee's motivational factors.

Table 4: Static and uni-dimensional view of motivational factors for scoopshot system use

Intrinsic	Extrinsic
Enjoyment (12)	Financial Rewards (15)
Curiosity (7)	Publicity (12)
Altruism (6)	Non-financial rewards (6)

6.1.1 Financial Reward

Since Scoopshot has marketed its service with the slogan of *Take Photos, Make Money*, it was not surprising that the opportunity to receive a financial compensation for one's mobile photography was reported as the most intriguing aspect when they first heard of Scoopshot, whether in a newspaper ad, on TV or through a friend. Actually, all interviewees highlighted the importance of the financial reward for using Scoopshot. Vasco, for instance, recalling what attracted him to use Scoopshot, said: *It [a newspaper] made reference to the application every day, and always focused on the fact that you can make money with photos*. Similarly, Peo explained: *Since I am a very active photographer, I see it as an alternative way to spread my pictures and get additional income*. As such, the possibility to make some easy or extra money, as reported by the interviewed users, clearly exerted a major influence on their decision to use Scoopshot.

6.1.2 Publicity

The possibility to have one's photos published and viewed by peers and the general public also had a major role in forming the system's use behavior. The theme of gaining publicity (i.e., recognition) generated from having one's photos published in a newspaper or a magazine emerged as one of the most influential motivational factors for solvers' participation in the service. To reflect this perception, the interviewees used phrases like [I like to] *get some attention, I want my pictures to be seen in newspapers, and it gives a kick to see your own picture in the papers*, and most of them admitted that the possibility of having their photos published with their names in a newspaper was enough a reason for them to participate. Earvin, for instance, said that he would use Scoopshot even for free, because *now I know how nice it is to see my picture in the papers*. Similarly, Vasco stressed the importance of having his photos displayed in the newspapers. Cesar's response further highlights the importance of gaining publicity, also from one's peers: *My name was on the newspaper when my photo was selected. For me that was more important than the money; that my friends say: wow Cesar did you take that photo?*

6.1.3 Enjoyment

Enjoyment of using the service was also a repeatedly recurring theme in the interviews. The interviewees used phrases like *just for fun, entertainment and it feels like a game* to explain why they use Scoopshot, and with only a few exceptions, all interviewees reported enjoyment as a reason for using Scoopshot. Daan, for instance, said: *It's really fun; it's exciting. Every day I watch to see if there is a new task. And every new task is a surprise*. Also for Jackie, using the application was mainly enjoyment driven, as it made her *feel like a paparazzi*, and she goes on explaining how fun it was to take photos with her son in the forest, and that they *had quite a laugh when sending it*. Similarly, when Björn was asked to discuss the most essential features that kept him using the service, he said: *I really enjoy shooting and sharing photos. I am not hunting missions or so. If I see one, and it's in reach so to speak, I'll go for it*.

6.1.4 Curiosity

Interest towards the system was increased by the curiosity to discover and try out a new technology. Phrases reflecting this driver, such as, *interesting idea, give it a try and try it out*, were commonly used by the interviewees to explain their initial interest, and decision to install the app on their smartphones. Ali, for instance, pointed out that he liked the application idea, and that he was initially trying different types of photography apps on his smartphone.

Earvin explained that seeing how unsophisticated the winning pictures were, it made him curious to try this new app. In addition, as *Jari* pointed out, installing the app was very easy, so he just *thought to give it a try*.

6.1.5 Non-Monetary Personal Gains

Various non-monetary personal gains were found to be important as well. Skill and career-development were evident motivations for some of our interviewees to use the system. For instance, driven by her career ambitions, *Anita* said she wished to improve her photography skills by using the service. She thought that it was important to have her name published with her photos because of her own photography business, and publishing her name would function as *personal branding*. Similarly, *Earvin* expressed his career ambitions in journalism: *I'm studying journalism, and in that way I can always refer to my own work. It can help me getting a job in the future working for a [news] paper. Peo, a part-time photographer, saw Scoopshot as an alternative way to spread [his] pictures.*

6.1.6 Altruism

A final motivational factor that emerged from our analyses reflects the users' willingness to help others. This kind of *altruism* reflects the users' willingness to contribute to the service without expecting anything in return. This was evident when the interviewees were asked to explain if and why they would contribute content for free. They used phrases like *happy to help*, *good mood from helping others* and *it is everybody's responsibility to inform what is happening*. *Jari*, for example, explained: *I think [about] it this way: Why not help if I could help? So it isn't the main thing to me to get the money from helping, though it helps that decision a little... I get good mind of doing that, [even] if I would do it for free. I believe in the phrase that if you are good to other people, they are good to you. This sense of altruism - or obligation towards society - was even more apparent in Cesar's statement: The main reason [is] to inform about a news that not everybody will see ... because everybody has the right to know the truth, any truth even when the governments don't want it ... [it] is everybody's responsibility to inform what's wrong and what is happening.*

The findings as depicted above are consistent with previous research on crowdsourcing systems' use, which on the main has adopted a static, uni-dimensional view of motivations. Our findings support earlier assertions that the motivational factors influencing individual crowd members' decisions to use crowdsourcing systems are an amalgam of both intrinsic and extrinsic motivations (see e.g. [3], [8]). Indeed, while most crowdsourcing systems reflect a utilitarian relationship between an organization and an undefined crowd, with the aim of carrying out specific tasks, user participation is still highly volitional, self-determined and hedonistic values are very likely to be strong influencers. Therefore, we extend this discussion by arguing that crowdsourcing systems, particularly those in the trade of creative tasks, are, by and large, mixed systems that cannot be categorized as hedonic or utilitarian only. The implications of this will be discussed in a later section of this paper.

6.2 System Use Motivations and Temporal Dimension: Dynamic View

While both intrinsic and extrinsic motivational factors were present in both initial and continued use, the interplay between selfish and social motivational factors provides an additional layer of explanation. Our findings indicate that *initial use* is dominated by selfish motivational factors (namely, financial reward and curiosity), while *continued use* is driven by both selfish and social motivational factors. In continued use, neither financial reward nor curiosity played that significant role anymore.

At the beginning of each interview, the interviewees were asked to recall how and when they first heard of Scootshot, and what were the most interesting aspects about this app that made them decide to install it on their smartphones and use it (see Appendix D). The possibility to earn money and curiosity to try a new technology emerged together as the two dominant antecedents to the initial use decision. Then, the interviewees were invited to consider a situation in which Scoopshot would not offer financial rewards anymore, and were asked to reflect on their willingness to continue using the service. The purpose of this question was to provoke the interviewees to re-evaluate the importance of the financial reward amid all other potential motivational factors, particularly since they had all been using the system for a while. It also allowed us to tap into the temporal dimension of the system use by eliciting a response regarding the solver's intention towards continued use. We expected that in the absence of a financial reward, most interviewees would not be willing to continue their participation. However, most interviewees declared without hesitation that they would still participate, even for free. This indicates that the motivational factors that play a strong role for the initial use of a crowdsourcing system do not necessarily remain the same to warrant continued participation.

Combining the dimensions of motivation aim and the origin provided us with a lens through which we were able to capture the changing nature of the motivational factors driving solvers' behavior from initial to continued use (see Figure 3). While selfish motivational factors (particularly the financial reward) played a dominant role in attracting the solvers in making their initial usage decision, social motivational factors (e.g., publicity) distinctly grew in importance during the subsequent decisions. This suggests that before the initial usage stage, when the knowledge about the system is based on information received through different media, an explicit incentive, such as, the possibility to *make easy money* (as described by one of our interviewees) plays a significant role in attracting potential participants. Then, typically fuelled by an additional intrinsic motivation of curiosity, the decision to use the system is made. After gaining familiarity with the system, curiosity is satisfied, and also the importance of the financial reward tapers -

especially when these rewards are not very substantial, as in Scoopshot's case. For continued use of the system, the initial motivations are then gradually displaced or supplemented with new ones, and these motivations are both selfish (e.g., enjoyment and non-financial gains) and social (e.g., publicity and altruism).

		O R I G I N	
		INTRINSIC	EXTRINSIC
A I M	S E L F I S H	<u>Initial Use</u> Curiosity	Monetary rewards
	S O C I A L	<u>Continued Use</u> Enjoyment	Non-monetary rewards
		Altruism	Publicity

Figure 3: Motivational factors and the temporal dimension

This finding is consistent with earlier IS research in arguing that the antecedents leading to the initial use of an IS are different from those leading to the subsequent and continued use of that system, and that the antecedents associated with initial usage may fail to explain subsequent usage [2], [4], [31], [56]. Indeed, our findings suggest that the motivational factors that influence the initial usage decision would fail to account for and explain continued participation. In fact, overemphasis on the initial use drivers may even hinder the continued use behavior, especially when only a selected few (i.e., winners) actually receive a financial reward.

Earlier research has shown that for utilitarian IS in work context, extrinsic normative pressures from management, supervisors, and/or peers signify the user's initial usage decision [31]. Subsequent continued usage is chiefly determined by the system's instrumental value, which is typically captured in terms of perceived usefulness [12] on one's job and/or career. We call this an *outside-in* adoption process. Our study suggests that for a crowdsourcing system - a mixed IS with both utilitarian and hedonic components - the adoption process operates in a reverse fashion that can be described as an *inside-out* process. In other words, initial usage of the crowdsourcing system emanates from selfish motivations, while subsequent continued use requires the reinforcement of additional social motivations.

6.3 The Reinforcing Role of Feedback

At the end of each interview, the users were asked how they generally felt about Scoopshot and whether they had any recommendations on how to improve the service. Some requested posting more tasks, while others recommended using smarter task customization options. A recurring theme, however, was *the lack of feedback* on one's submitted photos. Anita, who runs her own photography venture, explained that *because of the lack of response ... the fun could be gone very fast*. To her, a response could be any sort of feedback; something like *at the end of the quest, some kind of response with we're sorry to let you know that you didn't sell anything. This is the picture that did sell*. She explained further: *I would like any response from Scoopshot of the winning pictures so I can learn of the picture type they like. I don't want to have the feeling that I'm doing it for nothing at all*. Similarly, Ali, who said he genuinely enjoys photography as a hobby, explained how his interest in the service was fading away: *I don't know why I stopped using Scoopshot. I sent them many good photos and didn't receive any response at the end ... my photos don't look bad ... As a result I got a bit tired of the service. I don't send them photos very often nowadays. But I do send them if I'm at the location with a good photo, then I'm almost sure that it will be sold*. Interestingly, he considered the financial reward as a form of feedback. In other words, he compensated the absence of feedback on his photos with the positive reinforcement he gained from the financial reward.

Research in psychology has found feedback on an individual's performance to have a major impact on several outcomes, like work performance, learning and development, as well as motivation [48]. Furthermore, earlier

motivation studies have demonstrated that positive feedback enhances intrinsic motivation, whereas negative feedback weakens it [49]. In organizational context, feedback has been seen as a type of information in the work environment that indicates how well an employee is performing his or her goals. In this sense, feedback operates as a mechanism by which the organization evaluates the quality of relevant work behaviors [48]. Feedback represents a component of the interpersonal events and structures that conduce towards feelings of self-efficacy, and these feelings are important for motivating human actions, because they satisfy our *basic need for competence* [49] p. 58. While the importance of receiving feedback *per se* and its impact on future behavior has been acknowledged in organizational settings and studies of human behavior, to our best knowledge this has been largely ignored by IS researchers studying mixed systems, such as crowdsourcing.

7 Limitations of the Study

Finally, as with all research, the current study was faced with a number of trade-offs and limitations. Firstly, the empirical evidence is from a single case study and a limited number of participants, which might limit the findings' generalizability to domains beyond the studied context. Therefore, we do not claim that our findings are applicable and readily generalizable to all types of crowdsourcing systems, in the sense of statistical generalizability. However, as Lee and Baskerville [34] have extensively explained, there are different types of generalizability that fit different types of research, and that qualitative research like ours can make analytical generalizability claims, that is, generalizability from empirical statements to theory. Secondly, although we made an effort to balance between active and inactive users to gain as much insight as possible about the relationship between motivation and behavior termination as well [46], those who agreed to be interviewed belonged to the former group. Thirdly, our choice of the computer mediated communication (CMC) strategy with the interviewees might have moderated the richness of the interview context. For instance, observing visual representations like body gestures, facial expressions and the surrounding visual and spatial organization of the social life [38] would have added to the richness of our analysis. While acknowledging these limitations, we decided to utilize the CMC strategy after weighing its merits as well.

8 Summary and Conclusions

The main objective of this study was to investigate the motivations that drive the initial use of a crowdsourcing system, and whether these motivations remain the same from initial to continued use. In the empirical context of the Scoopshot platform connecting seekers and solvers of photography tasks, the main drivers were found to be a mix of both extrinsic and intrinsic motivational factors. Intrinsically, the crowd members were driven by curiosity, enjoyment, and altruism, while the main extrinsic drivers were monetary reward, developing one's skill and career, and publicity. We have shown that understanding the motivations to use a crowdsourcing system requires inquiry into both the origins (i.e., extrinsic or intrinsic) as well as the aims (i.e., selfish or social) of these motivations. Furthermore, we have shown how the motivational factors that attract the solvers in the beginning differ particularly in terms of the aim from those leading to continued use. While the initial use seems to be predominantly driven by selfish motivations, continued participation seems to require the interplay of both selfish (aimed at the self) and social (aimed at others) motivational factors.

Our findings have implications both to theory and practice. To theory, the implications are threefold. Firstly, the study extends the crowdsourcing literature by suggesting that such systems are mixed or dual-purpose systems. Secondly, the study extends our understanding of the motivational factors essential to drive the use of a crowdsourcing system by adding the temporal dimension into the analysis. To our best knowledge, this is the first study to highlight the changes that occur in the nature of the motivations from initial to continuous use in the context of mixed systems. Thirdly, the study draws attention to the importance of feedback loops on crowdsourcing systems' usage.

The findings have important practical implications for crowdsourcing organizers or service designers of other services of similar nature, particularly in terms of their communication strategies. Firstly, in terms of the crowdsourcing organizers' communication and marketing strategies, our study emphasizes that system usage is induced by a mix of at least four types of motivational factors, of which the financial compensation plays only a partial role, and particularly for the first time users. The financial incentive alone does not seem to be enough to retain a community of repetitive solvers. As such, adopting the same marketing campaign for attracting new users might not be as effective for retaining them. While highlighting the financial reward aspect might seem effective in attracting curious users to try the service, demonstrating also other values that the system might provide (e.g., personal and societal values) can have a profound effect on retaining and building community of repetitive participants.

Secondly, the possibility to gain publicity or even fame seems to be particularly influential on forming the solvers' decision to continue to use the service. To accommodate this, Scoopshot could integrate an additional motivational component to its services that would satisfy the users' desire to exhibit (i.e., present or display) their work. For instance, the solution to this could be as simple as adding a webpage (i.e., public wall) where unsold photos can be viewed and shared in public.

Finally, feedback seems to have a major impact on solvers' attitude towards the service, and consequently on sustained participation. Another motivational component that appeals to this could be an addition to the previously

discussed public wall, in which users are allowed to vote (e.g., give the *thumbs-up*) and comment on each other's sold or unsold content. This feedback mechanism could satisfy the basic need of competence within the individual solver, and as a result, this could induce a positive attitude towards the service, and eventually reinforce the behavior of continuous participation.

To fully understand the dynamics and the changing nature of the users' motivations to use crowdsourcing or other mixed systems requires both more theorizing as well as further empirical research. Future studies should investigate the validity of our findings with a wider set of empirical data, and in different IS contexts. Future research should also explore the interplay between intrinsic and extrinsic motivations, and their influence on user participation. In the particular setting of crowdsourcing, deeper understanding of the motivations and changes in them over time with different types of initiatives (integrative and selective, as well as one-off and recurrent) could provide valuable new knowledge on users' motivation formation and sustenance processes.

Websites List

Site 1: Iron Sky

<http://www.ironsky.net/>

Site 2: DigiTalkoot

<http://www.digitalkoot.com>

Site 3: Recaptcha

<http://www.google.com/recaptcha>

Site 4: Waze

<http://www.waze.com>

Site 5: Netflix Prize

<http://www.netflixprize.com>

Site 6: My Starbucks Idea

<http://www.starbucks.com/coffeehouse/learn-more/my-starbucks-idea>

Site 7: Finnair's Quality Hunters

<http://www.qualityhunters.com>

Site 8: CNN's iReport

<http://www.ireport.cnn.com>

Site 9: Dell IdeaStorm

<http://www.ideastorm.com>

Site 10: Innocentive

<http://www.innocentive.com>

Site 11: Scoopshot

<http://www.scoopshot.com>

References

- [1] A. Afuah and C. L. Tucci, Crowdsourcing as a solution to distant search, *Academy of Management Review*, vol. 37, no. 3, pp. 355-375, 2012.
- [2] R. Agrifoglio, S. Black, C. Metallo, and M. Ferrara, Extrinsic versus intrinsic motivation in continued twitter usage, *The Journal of Computer Information Systems*, vol. 53, no. 1, pp. 33-41, 2012.
- [3] M. Antikainen, M. Mäkipää, and M. Ahonen, Motivating and supporting collaboration in open innovation, *European Journal of Innovation Management*, vol. 13, no. 1, pp. 100-119, 2010.
- [4] A. Bhattacharjee, Understanding information systems continuance: An expectation-confirmation model, *MIS Quarterly*, vol. 25, no. 3, pp. 351-370, 2001.
- [5] A. Bhattacharjee, *Social Science Research: Principles, Methods, and Practices*, Second Ed. A free textbook published under the Creative Commons Attribution 3.0 License, 2012.
- [6] E. Bonabeau, Decision 2.0: The power of collective intelligence, *MIT Sloan Management Review*, vol. 50, no. 2, pp. 45-52, 2009.
- [7] D. C. Brabham. (2008, June) Moving the crowd at iStockphoto: The composition of the crowd and motivations for participation in a crowdsourcing application, *First Monday*. [Online]. Available: <http://firstmonday.org/article/view/2159/1969>.

- [8] D. C. Brabham, Moving the crowd at Threadless, *Information, Communication & Society*, vol. 13, no. 8, pp. 1122-1145, 2010.
- [9] A. Brief and R. Aldag, The intrinsic-extrinsic dichotomy: Toward conceptual clarity, *Academy of Management Review*, vol. 2, no. 3, pp. 496-500, 1977.
- [10] T. Chesney, An acceptance model for useful and fun information systems, *Human Technology*, vol. 2, no. 2, pp. 225-235, 2006.
- [11] F. Davis R. Bagozzi and P. Warshaw, Extrinsic and intrinsic motivation to use computers in the workplace, *Journal of Applied Social Psychology*, vol. 22, no. 15, pp. 1111-1132, 1992.
- [12] F. Davis, Perceived usefulness, perceived ease of use, and user acceptance of information technology, *MIS Quarterly*, vol. 13, no. 3, pp. 319-340, 1989.
- [13] R. DeCharms, *Personal causation: The internal affective determinants of behavior*, New York: Academic Press, 1968.
- [14] E. Deci, R. Koestner, and R. Ryan, A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation, *Psychological Bulletin*, vol. 125, no. 6, pp. 627-668, 1999.
- [15] W. H. DeLone, and E. R. McLean, Information systems success: The quest for the dependent variable, *Information Systems Research*, vol. 3, no. 1, pp. 60-95, 1992.
- [16] A. Doan, R. Ramakrishnan and A. Y. Halevy, Crowdsourcing systems on the World-Wide-Web, *Communications of the ACM*, vol. 54, no. 4, pp. 86-96, 2011.
- [17] W. Ebner, J. M. Leimeister, and H. Krcmar, Community engineering for innovations: The ideas competition as a method to nurture a virtual community for innovations, *R&D Management*, vol. 39, no. 4, pp. 342-356, 2009.
- [18] E. Estellés-Arolas and F. González-Ladrón-de-Guevara, Towards an integrated crowdsourcing definition, *Journal of Information Science*, vol. 38, no. 2, pp. 189-200, 2012.
- [19] J. Feller, P. Finnegan, J. Hayes, and P. O'Reilly, Orchestrating sustainable crowdsourcing: A characterisation of solver brokerages, *The Journal of Strategic Information Systems*, vol. 21, no. 3, pp. 216-232, 2012.
- [20] J. Gallagher and S. Ransbotham, Social media and customer dialog management at Starbucks, *MIS Quarterly Executive*, vol. 9, no. 4, pp. 1389-1404, 2010.
- [21] P. M. Di Gangi, M. M. Wasko, and R. E. Hooker, Getting customers' ideas to work for you: Learning from Dell how to succeed with online user innovation communities, *MIS Quarterly Executive*, vol. 9, no. 4, pp. 213-228, 2010.
- [22] R. Gephardt, What is qualitative research and why is it important?, *Academy of Management Journal*, vol. 47, no. 4, pp. 454-462, 2004.
- [23] J. E. Gerow, R. Ayyagari, J. B. Thatcher, and P. L. Roth, Can we have fun @ work? The role of intrinsic motivation for utilitarian systems, *European Journal of Information Systems*, vol. 22, no.3, pp. 360-380, 2013.
- [24] G. Guest, A. Bunce and L. Johnson, How many interviews are enough?: An experiment with data saturation and variability, *Field Methods*, vol. 18, no. 1, pp. 59-82, 2006.
- [25] J. Holton, The coding process and its challenges, in *The SAGE Handbook of Grounded Theory* (A. Bryant and K. Charmaz, Eds.), London: Sage Publications, 2007, pp. 237-261.
- [26] J. Howe. (2006, June) The rise of crowdsourcing. *Wired Magazine*. [Online]. Available: <http://www.wired.com/wired/archive/14.06/crowds.html>
- [27] S. L. Jarvenpaa and V. K. Tuunainen, How Finnair socialized customers for service co-creation with social media, *MIS Quarterly Executive*, vol. 12, no. 3, pp. 125-36, 2013.
- [28] L. B. Jeppesen and K. R. Lakhani, Marginality and problem-solving effectiveness in broadcast search, *Organization Science*, vol. 21, no. 5, pp. 1016-1033, 2010.
- [29] D. Jones and T. Mawhinney, The interaction of extrinsic rewards and intrinsic motivation: A review and suggestions for future research, *Academy of Management Proceedings*, vol. 1, no. 1, pp. 62-66, 1977.
- [30] E. Joyce and R. Kraut, Predicting continued participation in newsgroups, *Journal of Computer-Mediated Communication*, vol. 11, no. 3, pp. 723-747, 2006.
- [31] E. Karahanna, D. Straub and N. Chervany, Information technology adoption across time: A cross-sectional comparison of pre-adoption and post-adoption beliefs, *MIS Quarterly*, vol. 23, no. 2, pp. 183-213, 1999.
- [32] M. M. Kazmer and B. Xie, Qualitative interviewing in internet studies: Playing with the media, playing with the method, *Information, Communication & Society*, vol. 11, no. 2, pp. 257-278, 2008.
- [33] N. Lanxon. (2011, January) How the Oxford english dictionary started out like Wikipedia. *Wired.Co.UK*. [Online]. Available: <http://www.wired.co.uk/news/archive/2011-01/13/the-oxford-english-wiktionary>
- [34] A. S. Lee and R. L. Baskerville, Generalizing generalizability in information systems research, *Information Systems Research*, vol. 14, no. 3, pp. 221-243, 2003.
- [35] J. M. Leimeister, M. Huber and H. Krcmar, Leveraging crowdsourcing: Activation-supporting components for IT-based ideas competition, *Journal of Management Information Systems*, vol. 26, no. 1, pp. 197-224, 2009.
- [36] C. P. Lin, A. Bhattacharjee, Extending technology usage models to interactive hedonic technologies: A theoretical model and empirical test, *Information Systems Journal*, vol. 20, no. 2, pp. 16381, 2010.
- [37] M. Miles and M. Huberman, *Qualitative Data Analysis: An Expanded Sourcebook*, 2nd ed., California: Sage Publications, 1994.
- [38] J. Moisander and A. Valtonen, *Qualitative Marketing Research Methods*, London: Sage Publications, 2006.
- [39] M. D. Myers, Qualitative research in information systems, *MIS Quarterly*, vol. 21, no 2, pp. 241-242, 1997.
- [40] O. Nov, M. Naaman and C. Ye, Analysis of participation in an online photo-sharing community: A multidimensional perspective, *Journal of the American Society for Information Science and Technology*, vol. 61, no. 3, pp. 555-566, 2010.

- [41] H. Nysveen, P. E. Pedersen and H. Thorbjørnsen, Intentions to use mobile services: Antecedents and cross-service comparisons, *Journal of the Academy of Marketing Science*, vol. 33, no. 3, pp. 330-346, 2005.
- [42] A. Ordanini, L. Miceli, M. Pizzetti, and A. Parasuraman, Crowd-funding: transforming customers into investors through innovative service platforms, *Journal of Service Management*, vol. 22, no. 4, pp. 443-470, 2011.
- [43] A. Ortiz de Guinea and M. L. Markus, Why break the habit of a lifetime? Rethinking the roles of intention, habit, and emotion in continuing information technology use, *MIS Quarterly*, vol. 33, no. 3, pp. 433-444, 2009.
- [44] J. Park and W. Snell, Consumers' post-adoption of m-services: Interest in future m-services based on consumer evaluation of current m-services, *Journal of Electronic Commerce Research*, vol. 12, no. 3, pp. 165-176, 2011.
- [45] D. H. Pink, *Drive. The Surprising Truth About What Motivates Us*, New York: Penguin Group (USA), 2009.
- [46] J. Reeve, *Understanding Motivation and Emotion*, 5th ed. New York: Wiley, 2008.
- [47] N. Romano Jr., C. Donovan, H. Chen, and J. Nunamaker Jr., A methodology for analyzing web-based qualitative data, *Journal of Management Information Systems*, vol. 19, no. 4, pp. 213-246, 2003.
- [48] C. C. Rosen, P. E. Levy and R. J. Hall, Placing perceptions of politics in the context of the feedback environment, employee attitudes, and job performance, *The Journal of Applied Psychology*, vol. 91, no. 1, pp. 211-220, 2006.
- [49] R. Ryan and E. Deci, Intrinsic and extrinsic motivations: Classic definitions and new directions, *Contemporary Educational Psychology*, vol. 25, no. 1, pp. 54-67, 2000.
- [50] R. Ryan and E. Deci, Self-determination theory and the facilitation of intrinsic motivation, social Development, and well-being, *American Psychologist*, vol. 55, no. 1, pp. 68-78, 2000.
- [51] E. Schenk and C. Guittard. (2009, December) Crowdsourcing: What can be outsourced to the crowd, and why?. Halsh Archives. [Online]. Available: http://halshs.archives-ouvertes.fr/docs/00/43/92/56/PDF/Crowdsourcing_eng.pdf
- [52] B. Shao, L. Shi, B. Xu, and L. Liu, Factors affecting participation of solvers in crowdsourcing: An empirical study from China, *Electronic Markets*, vol. 22, no. 2, pp. 73-82, 2012.
- [53] W. Soliman, Crowdsourcing as a sourcing strategy for the ambidextrous organization, in *Proceedings of 24th International Society of Professional Innovation Management Conference*, Helsinki, Finland, 2013, pp. 1-13.
- [54] A. Strauss and J. Corbin, *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, Thousand Oaks, CA: Sage, 1998.
- [55] H. Sun, and P. Zhang, Causal relationships between perceived enjoyment and perceived ease of use: An alternative approach, *Journal of the Association for Information Systems*, vol. 7, no. 9, pp. 618-645, 2006.
- [56] Y. Sun, Y. Fang and K. H. Lim, Understanding sustained participation in transactional virtual communities, *Decision Support Systems*, vol. 53, no. 1, pp. 2-22, 2012.
- [57] H. Väättäjä, E. Sirkkunen and M. Ahvenainen, A field trial on mobile crowdsourcing of news content - Factors influencing participation, *Human-Computer Interactions - INTERACT*, Lecture Notes in Computer Science, vol. 8119, pp. 54-73, 2013.
- [58] H. Väättäjä, Readers' motivations to participate in hyperlocal news content creation, in *Proceedings of GROUP 2012*, ACM, Florida, USA, 2012, pp.309-311.
- [59] H. van der Heijden, User acceptance of hedonic information systems, *MIS Quarterly*, vol. 28, no. 4, pp. 695-704, 2004.
- [60] L. von Ahn, B. Maurer, C. McMillen, D. Abraham, and M. Blum, reCAPTCHA: Human-based character recognition via web security measures, *Science*, vol. 321, no. 5895, pp. 1465-1468, 2008.
- [61] G. Walsham, Interpretive case studies in IS research: Nature and method, *European Journal of Information Systems*, vol. 4, no. 2, pp. 74-81, 1995.
- [62] G. Walsham, Doing interpretive research, *European Journal of Information Systems*, vol. 15, no. 3, pp. 320-330, 2006.
- [63] L. Wu, and X. Lu, Effects of extrinsic and intrinsic motivators on using utilitarian, hedonic, and dual-purposed information systems: A meta-analysis, *Journal of the Association for Information Systems*, vol. 14, no. 3, pp. 153-191, 2013.
- [64] Y. Zhao and Q. Zhu, Evaluation on crowdsourcing research: Current status and future direction, *Information Systems Frontiers*, pp. 1-18, 2012.
- [65] H. Zheng, D. Li and W. Hou, Task design, motivation, and participation in crowdsourcing contests, *International Journal of Electronic Commerce*, vol. 15, no. 4, pp. 57-88, 2011.

Appendix A: Interviewees' Demographics and Interviews' Durations

With one exception, all interviewees have approved to be identified with their first names.

Name	Location	Age	Sex	Occupation	Interview	
					Date	Duration
Ali	Finland	35	Male	Marketer and entrepreneur	18.04.2012	130 min
Anita	Netherlands	25	Female	Part-time photographer, waitress and intern at an advertising company	10.05.2012	180 min
Anonymus	Hong Kong	27	Male	News reporter	17.04.2013	140 min
Björn	Sweden	40	Male	Professional chef	09.10.2012	80 min
Cesar	Chile	24	Male	Part-time worker at a retail store	13.05.2012	150 min
Daan	Netherlands	17	Male	Part-time bartender	29.09.2012	90 min
Earvin	Netherlands	19	Male	Part-time electronics marketer	24.09.2012	150 min
Jackie	Netherlands	44	Female	Waitress at a <i>lunchroom</i>	16.04.2012	180 min
					18.04.2012	120 min
Jari	Finland	36	Male	After-sales manager	17.05.2012	120 min
Joost	Netherlands	29	Male	School teacher	11.04.2013	110 min
Kaisa	Finland	27	Female	Engineer in the food industry	17.05.2012	100 min
Marco	Mexico	27	Male	Solution engineer at a communication company	07.05.2013	80 min
Max	Austria	21	Male	Shop assistant	07.05.2013	70 min
Peo	Sweden	43	Male	Operations manager in a petroleum company and part-time photographer	08.05.2012	120 min
Vasco	Netherlands	31	Male	Worker at a benzene factory	09.05.2012	120 min

Appendix B: Exemplary Interview Protocol

Session Introduction + Basic Information:

- I am doing my research on Scoopshot and I would like to hear from you about your experience.
- So, first of all, give me some basic info about yourself (age/sex/country/occupation)?
- What phone do you have?
- So how many photos in total have you sent?
- And how many were sold?
- So do you use your phone camera or a standalone camera?

Initial Adoption:

- How did you hear about Scoopshot?
- When did you hear about Scoopshot?
- What was the most interesting aspect in the advertisement about Scoopshot?
- I mean, as first impression, what was the most interesting thing about this app?
- How was it introduced in this article?
- Ok, so why did you decide to install it on your phone?
- How about the tasks: do you only take task photos; or do you also submit photos without requests?

Post Adoption:

- Now that you have been using Scoopshot for a while, could you think of all possible reasons that made you keep on sending photos?
- Clarification if needed
 - o I am trying to get all possible reasons why you find Scoopshot interesting.
 - o Try to list all reasons that together made you decide to use the App.
 - o So, if you think of all possible reasons that together made you decide to go and take that photo; can you describe them?
- Imagine that Scoopshot does not offer money for photos. Would you still participate?
- If the answer is yes:
 - o Why would you bother? Could you elaborate?
 - o How does having a photo published impact you personally (if it was for free)?
 - o What if the task is not related to your work? Would you take it?
- So, how many newspapers have you submitted photos to? Which ones are they?
- Now that these newspapers are using normal people photos (amateurs) in their papers, how do you think this impacts the paper's image? positively, negatively, or not at all?
- If the response is positive:
 - o I had an earlier interview with a professional photographer who had a different opinion. He thinks that photography must remain professional and newspapers should not use low quality phone camera photos.
 - o What do you think about that? How would you respond to that? as an amateur photographer then as a reader?
- What was your favorite task? And what exactly did you do?

Ending the Interview Session:

- How do you think Scoopshot could be improved?
- How about feedback on your photos? Do you think it is important to get some feedback on the photos you submit? or you don't care?
- By the way, may I use your real first name in my research, which could be published in an academic journal?

Thank you very much for your time and patience. May I contact you again if I have more questions?

Appendix C: Sample of Quotes and Multi-Level Coding

Quote	Codes	Level-I Category	Level-II Category
Cesar: <i>I like the idea of making some money taking photos.</i>	Making Money, Financial Reward	Financial Reward	Extrinsic-Selfish
Peo: <i>Since I am a very active photographer, I see it as an alternative way to spread my pictures and get additional income.</i>	Additional Income, Making Money, Financial Reward		
Earvin: <i>I'm studying journalism, and in that way I can always refer to my own work. It can help me getting a job in the future working for a [news]paper.</i>	Help getting a Job, Work, Future Employmen	Non-Financial Reward	
Anita: <i>For me, because of my profession [as a photographer]; to do something with personal branding.</i>	My profession, Personal Branding		
Jackie: <i>I recently uploaded 2 pictures for the first time; just to see how it is working ... it was just fun to experience it.</i>	See how it works, Experimenting	Curiosity	Intrinsic-Selfish
Ali: <i>I like the idea. I was also trying new apps to use on my iPhone.</i>	Trying new apps, Experimenting		
Vasco: <i>If you see my [Facebook] page; you will see how much I like photography.</i>	Like photography	Enjoyment	
Daan: <i>It is really fun, it's exciting; every day I watch to see if there is a new task. And every new task is a surprise.</i>	Fun, Excitement, Surprise		
Earvin: <i>My name was published in the papers as proof for my work ... Now [that] I know how nice it is to see my picture in the papers; I will [use Scoopshot even if it was for free].</i>	My Name Published, See my picture in papers, Fame	Publicity	Extrinsic-Social
Joost: <i>It is really hot to share things with others ... it gives a kick to see your own picture in the papers or magazines.</i>	Hot to Share, See my picture in papers, Fame		
Cesar: <i>Everybody has the right to know the truth ... As a citizen of the mother earth; it is everybody's responsibility to inform what's wrong and what is happening.</i>	Citizen of Mother Earth, Everyone's Right to Know, Obligation Towards Society	Altruism	Intrinsic-Social
Jari: <i>I think in this way: Why not help if I could? ... I get good mind of doing that, even if I would do it for free ... I believe in the phrase that if you are good to other people, they are good to you.</i>	Happy to Help, Good to Others, Reciprocity		

Appendix D: Identified Motivational Factors and Willingness to Participate for Free

Interviewee	Identified Motivational Factors						Intention to participate in Free Tasks?	
	Intrinsic			Extrinsic				
	Selfish		Social	Selfish		Social	Yes	No
	Curiosity	Enjoyment	Altruism	Financial Reward	Non-Financial	Publicity		
Ali	x	x		x		x	x	
Anita	x	x		x	x	x	x	
Anonymous			x	x			x	
Björn		x		x		x	x	
Cesar		x	x	x	x	x	x	
Daan	x	x		x		x	x	
Earvin	x	x		x	x	x	x	
Jackie	x	x	x	x		x	x	
Jari	x		x	x		x	x	
Joost	x	x	x	x	x	x	x	
Kaisa		x		x				x
Marco		x		x	x	x	x	
Max		x	x	x		x	x	
Peo				x	x			x
Vasco		x		x		x	x	