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Abstract

Crowdsourcing- a method for companies to utilize the power of the crowd through internet-based platforms- is a relatively new phenomenon. When offered as a mobile service, crowdsourcing transcends the spatial, temporal and contextual barriers of traditional job requirements, offering an ubiquitous service and access, and providing a suite of both utilitarian and hedonic functions. IS literature indicates that users' extrinsic motivation is a stronger determinant to use utilitarian systems, while intrinsic motivation is a stronger determinant for hedonic systems. However, when the crowdsourced service, such as photography, is both hedonic and utilitarian by nature, users' perceptions of the service are unclear. Earlier research reports mixed results: while some studies suggest that tangible rewards can have a negative impact on the intrinsic motivation, other studies suggest the opposite. Hence, our study focuses on how the users perceive mobile crowdsourcing services, what motivates them to participate, and how the financial reward affects their intention to participate. In this paper, we outline an ongoing study of a company in the Finnish publishing industry. After interviews with the company executives, we will next conduct a series of interviews with the users with the aim of gaining rich, in-depth understanding of their motivations. Then, in a later stage, we will conduct a quasi-experiment to test the developed theoretical model.

Keywords: Crowdsourcing, Mobile Services, User Participation, Publishing Photography.

1   Introduction

Crowdsourcing in most cases represents a digital service that would have never existed without recent advances in information and communication technology. While a digital service is *'an activity or benefit that one party can give to another, that is, provided through a digital transaction'* (Williams, Chatterjee, & Rossi, 2008, p. 507), mobility takes the concept of digital service to a whole new level, transcending the spatial, temporal and contextual barriers (Kakihara & Sorensen 2001), where mobile devices are perceived as multipurpose information appliances that have a one-to-one binding with the user, offer ubiquitous services and access, and provide a suite of utilitarian and hedonic functions (Hong & Tam 2006). In this sense, mobility becomes a phenomenon, not just a technology (Jarvenpaa & Hedlund 2011).

For years, the media and entertainment companies have been struggling to adjust to the rapidly changing, technology-enabled industry eco-system, and many companies are yet to find their spot on the new map. Industry studies have shown that media companies are struggling on the transformation from analog to digital, and that user-generated content (UGC) is viewed as one of top challenges the industry faces (Accenture 2007). In our ongoing research, we study a recently founded company that attempts to exploit this opportunity by developing a mobile service that connects publishing houses' needs with the crowd's user generated photographs. In the form of a competition, users receive photography task (i.e. assignments), and the winning photograph gets a financial reward.

The real challenge is that the users' perceptions of the service are unclear: do they use it for its utilitarian offering (e.g. the announced financial reward) or for its hedonic value (e.g. the sheer joy of photographing itself) (van der Heijden 2004). Earlier research offers contradicting results with regard to the direction of the effect (i.e. positive or negative) of financial incentives (i.e. extrinsic motivation) on the intrinsic motivation. Extrinsic motivations have been shown to be the dominant predictor of intention to use a utilitarian system (especially in a work setting), while intrinsic motivations are the dominant predictor of intention to use a hedonic system (especially in a non-work setting) (van der Heijden 2004; Hong & Tam 2006). While some studies (Deci et al. 1999) have shown that tangible extrinsic rewards can have a negative impact on intrinsic motivation, other studies (Lakhani & Wolf 2005) have reported the opposite. Therefore, the aim of this research in progress is to gain an in-depth insight from the service users, and to answer our research questions of how the users perceive the service, what motivates them to participate, and how the financial rewards affect their intention to participate.

2   Crowdsourcing

The term 'Crowdsourcing' was popularized by Jeff Howe (2006) who defined it as *"the act of taking a job traditionally performed by a designated agent (usually an employee) and outsourcing it to an undefined, generally large group of people in the form of an open call"*. Implicit in this definition is the idea that the crowd is generally composed of heterogeneous individuals. Heterogeneity in this context highlights the fact the most crowdsourcing initiatives are open to everyone without any predefined criteria, and that subsequent homogeneity might occur due to similarities in interests, knowledge-base, etc. In this sense, for an activity to be considered crowdsourcing, it should 1) identify a traditional job done by a designated agent; 2) invite a large, undefined group of people; and 3) do this through an open call. Important to note that crowdsourcing is not merely a web 2.0 buzzword, but it can be a strategic model to attract an interested, motivated crowd of individuals capable of providing solutions that are expected to be superior in quality and quantity to the traditional forms of business (Brabham 2008).

Generally speaking, crowdsourcing involves three layers of actors (Schenk & Guittard 2011): 1) a *client* that is companies that directly benefit from the crowd input, sometimes referred to as "seekers"; 2) the *crowd* that is formed of the individuals who are willing and able to perform a specific task as

defined by the client company; and 3) the *platform* that is usually Internet-based, and acts as crowdsourcing enabler by connecting client companies with the crowd. The platform can be either operated directly by the client company, or it can be moderated by a third party.

Schenk and Guittard (2009) distinguish between integration-based and selection-based crowdsourcing. Integrative crowdsourcing is a form of content sourcing where a single contribution has very little value *per se*, instead, the value stems from the large amount of input from the crowd (Schenk & Guittard 2009). Examples of this type include services like Amazon mTurk[1] (Schulze et al. 2011); the recently Google acquired reCaptcha[2] (von Ahn et al. 2008); and different forms of crowd voting (Bonabeau 2009). Selective crowdsourcing, on the other hand, implies that the crowd could be solicited to provide solutions to a particular problem or task, and that the client firm chooses and rewards the single best contribution. Examples include numerous crowdsourcing competitions intended for generating ideas (Ebner et al. 2009; Riedl et al. 2010; Leimeister et al. 2009), designs (CrowdSPRING 2011), and R&D solutions (Innocentive 2011).

In a crowdsourcing service, the traditional relationship between consumers and suppliers is at times inverted, so that firms become the consumers of the crowd-generated supply. At other times, the relationship is vague in the sense that the service users are consumers and producers at the same time (i.e. prosumers).These services defy one of the basics of outsourcing critical success factors, that is, developing a proper contract structure (Gonzalez et al. 2010). However, most earlier examples have assumed a stationary context, that is, the members of the crowd fulfilling the tasks with stationary PCs. Thus, adding mobility to this context takes crowdsourcing to a different level. Mobility is reshaping how ICT is used, evidenced for example by the increasing numbers of users connecting to social networking sites with mobile devices (Jarvenpaa & Hedlund 2011). According to (Kakihara & Sorensen 2001), the contextual dimension, as well as the spatial and temporal ones, are all central to the concept of mobility; aspects such as "how" and "why" of a phenomenon are as important to address as the aspects of "where" and "when". Empirical studies (see e.g. Mallat, Rossi, Tuunainen, & Öörni, 2009) have further highlighted the importance of understanding the contextual needs of the users.

3   Theoretical grounding

Theoretically, our study is grounded on marketing and information systems research on consumer perceptions of digital service value and consumer motivation to use or participate in digital service provisioning.

3.1   Value of Using the Service

In marketing and consumer behavior research*,* the concept of hedonic consumption has been introduced to supplement the utilitarian view that portrays products with which consumers' main objective is to maximize utility (Hirschman & Holbrook 1982). The concept of hedonic consumption describes *"the facets of consumer behavior that relates to the multisensory, fantasy and emotive aspects of one's experience with products"* (Hirschman & Holbrook, 1982, p. 92), p.92], and can be utilized in explaining esthetic and/or non-utilitarian product or service values, especially with art-related products (e.g. photography, painting, films, etc.). A product's hedonic value refers to the

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[1]Amazon's mTurk, or Mechanical Turk is a marketplace for work, bringing together businesses and developers looking for workforce and workers looking for tasks and jobs.

[2]eCAPTCHA is a free CAPTHCHA (Completely Automated Public Turing testto tell Computers and Humans Apart) service that helps to digitize books, newspapers and old time radio shows. Using volunteers to decipher CAPTCHAs,ithey are validated and inserted in a digitized text Schenk, E. and C. Guittard (2009). Crowdsourcing: What Can Be Outsourced to The Crowd, and Why?

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diffuse sense of pleasure or generalized enjoyment that one feels when consuming a product or a service (Holbrook 1980).

Information systems (IS) research the literature distinguishes between utilitarian and hedonic information systems. Utilitarian information systems are productivity-oriented systems aiming at effectiveness, efficiency, and utility (Nysveen et al. 2005), while hedonic information systems are pleasure-oriented systems aiming at self-fulfilling joy and fun, and encourage prolonged rather than productive use. In that manner, a hedonic system aims to provide a self-fulfilling value to the user, and interacting with a hedonic system is designed to be an end in itself (van der Heijden 2004).

Crowdsourcing systems cannot, however, be categorized solely either as hedonic or utilitarian. While a crowdsourcing platform is utilitarian from the service provider perspective, the same is not necessarily true for the users perspective, especially when the required tasks (e.g. photography) can be both hedonic and utilitarian in nature.

3.2   Motivation to Use the Service

Attempts to understand users' motivation to use technologies have attracted considerable amount of attention in the literature for the past decades, and different models have been proposed to get us few steps closer to answering this question. Examples include technology acceptance model (TAM) (Davis et al. 1992), and attempts to improve it (van der Heijden 2004). The Self-Determination Theory (SDT) distinguishes between extrinsic and intrinsic motivations (Ryan & Deci 2000b; Deci et al. 1999). Intrinsic motivation is defined as *'the doing of an activity for its inherent satisfactions rather than some separable consequence'* (Ryan & Deci, 2000b, p. 56). The SDT represents a framework for the study of human motivation, by focusing on environmental factors that facilitate or undermine intrinsic motivation. , and defines intrinsic and varied extrinsic sources of motivation. The theory argues that intrinsic motivation can be facilitated in the presence of two interrelated conditions: feeling of competence and sense of autonomy. In this sense, not only must people must experience perceived competence, they must also experience their behavior to be self-determined (Ryan & Deci 2000a).

Current literature provides varying indicators regarding the impact of extrinsic and intrinsic motivations on users' intention to use an information system. Earlier studies show that motivations to use a service in work settings are not necessarily applicable in non-work settings (Hong & Tam 2006), and that identifying the intrinsic and extrinsic motivations has been a contextual errand. In a work context, both perceived usefulness (as extrinsic motivation) and perceived enjoyment (as intrinsic motivation) have been reported to have a strong positive effect on users' intention to, and usage of, computers (Davis et al. 1992). In a non-work context, perceived enjoyment and perceived ease of use were found to be a stronger predictor of behavioral intention to use than perceived usefulness (van der Heijden 2004). Based on the operant theory (Skinner 1953) – which suggests that all human behaviors can be controlled using extrinsic rewards - extrinsic rewards have been widely adopted as an incentivizing strategy. In contrast, based on SDT - as well as a meta-analysis of 128 studies – showed that extrinsic reward undermines intrinsic motivation (Deci et al. 1999). Matters get more interesting when we see studies that show that offering employees noncash rewards has led to better performance than offering them the equivalent reward in cash even when participants stated a preference for cash (Jeffrey 2009).

In his book, (Pink 2009) provides very interesting findings from different that show that this common belief is not as valid as we may think. Negative and undesired outcomes can arise from mechanisms that are intended to increase motivation, creativity and good deeds. Not only that, but also, rewards promote unintended behaviors such as cheating and addiction. He states that this is one of the most robust findings in social science—and also one of the most ignored. This is such a bold statement to make, so to back it up with evidence he dedicates the whole chapter two to illustrates several studies with very interesting findings. These studies are organized in a way that shows how contingent rewards (i.e. if you do this, you get that) can lead to "less of what we want" and "more of what we do not want" (Pink 2009). One of the most recent studies investigating users' motivation in

crowdsourcing service shows that participants did not value money as much as reputation and recognition (Zheng et al. 2011); while other crowdsourcing studies indicate that the financial incentive is a major motivator (Leimeister et al. 2009; Brabham 2010).

Although the case at hand does not represent a social media business; we still find it beneficial to get informed by earlier literature on social networking sites. Studying the motivation for participation in social networking sites (SNS) has provided a rich source for understanding users' motivations to contributing in different settings. For instance, in newsgroup communities, users have been found to be more likely to participate when they received comments on their posts (Joyce & Kraut 2006); YouTube users' productivity was found strongly related to 'attention' towards their contributions (Huberman et al. 2009); Facebook newcomers' participation was largely influenced by the contributions of their friends (Burke et al. 2009); while on Flickr, commitment to the community was found as a major motivator for users' contribution to the site (Nov et al. 2010). The common theme in all these services is that users' participation is largely explained by the social determinant of these services, with a mix of intrinsic motivations and internalized extrinsic motivation, as proposed by the self-determination theory. In a context of designing incentives for participation in an idea generation context, (Leimeister et al. 2009) argued that it is possible to have influence only on users' external incentives, not on the internal ones.

4 Case SmartCam: Crowdsourcing Photography

SmartCam (anonymized name) is a young Finnish, Helsinki based startup operating in several Nordic countries. The business idea came from the company's CEO, a media expert who has been witnessing a shift in the media industry. This shift is driven by advances in ICT, wide adoption of smartphones, as well as a rise in user-generated content. As explained by the SmartCam CEO, *"for years, the publishing industry has viewed this user-generated content as a threat; we thought of it as an opportunity"*. SmartCam was founded in early 2010 with a plan to transform user-generated "threat" into opportunity, and even profit from it. They developed a smartphone application which connects the media industry players directly with the source of threat, namely the crowd. Currently, SmartCam is exclusively available for iOS- and Android-based smartphones.

SmartCam's business model is based on photo competition[3], *an invitation of an organizer—namely, a firm— to a general public to submit contributions to a certain request within a predefined period of time, at the end of it, the winning photo(s) is selected and rewarded.* At the client firm level, there are media houses (i.e., *publishers*) that are in constant need of fresh photographs. At the platform level, there is the third party moderated platform (*the mobile service*). Finally, at the crowd level, there are the application users (*the photographers*) who have the mobile application installed on their smartphones.

SmartCam's revenue model is commission based on each photo sale. Typically, a user would go to her application store/market and download the application for free. After installing the application, she creates an account and can immediately access the tasks pool. SmartCam's platform allows a user to either respond to a specific pre-defined task, or to upload a photo that she believes is news-worthy. In the first case, the task's reward is pre-set, while in the second case, the user may set the price she sees fair for her picture. In this case, the publisher has to evaluate the cost-benefit ratio of each case. Either way, the service allows the photographer to complement the photo with some text and GPS generated location information. The photo's copyright is transferred to SmartCamfor a 48 hours sale duration[4]. During this period, publishers have access to all submitted photos, and can select the photo they like. Should a publisher decide to use a photo, he pays only for publishing right. In case he wishes to buy

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[3] The definition is adaptation of Leimeister et al.'s (2009) definition for 'ideas competition'.

[4]SmartCam's policy is to trade in fresh photos only. In this sense, photos that are not sold within 48 hours are assumed old and untradeable.

the exclusive rights for a photo, he should pay 10 times the announced price. After the 48 hours duration has passed and the photo is not bought, its copyright is returned back to the photographer, and the photo is removed from SmartCam's server.

Research Methods

The main purpose of this study is to create new knowledge on user motivations related to an emerging phenomenon that cannot be readily explained by existing theories. In order to *"help sharpen existing theory by pointing to gaps and beginning to fill them"* (Siggelkow 2007, p. 21), we chose the case study approach (Yin 2003) as our guiding methodology. Furthermore, our research relies on, and is guided by, existing frames of reference, as presented in the theoretical foundation we laid forward in the previous section. To this end, our research is designed as a multi-phased project:

1) Interviews with the case company representatives. During this phase, we interviewed the company's CEO and president to collect meaningful insights about the company's business model, and to get the top management's perception of the service and the value proposition.

2) Literature review on value and motivation. Next, a systematic literature review was conducted to scan the scholarly work on relevant theories and frameworks. Based on this phase, research questions were reformulated to address three main themes: users' perception of the service value (e.g. hedonic and utilitarian aspects); users' intrinsic and extrinsic motivation for using the service; and reasons for amotivation (i.e. unwillingness to use the service).We also developed an initial research framework for the next stage of the study.

3) Interviews with users. Based on the two previous phases, three user groups were identified for interviews in the next stage: *amotivated* users, who have installed the service application on their devices, but never used it; *trial users*, who have installed the service application on their devices, but used it only once; and *motivated users*, who are considered active, and are the main contributors to the service. These interviews will be semi-structured and open-ended (Silverman 2004). Respondents will be encouraged to produce their own definitions of the mobile service they participate in, and will be encouraged to freely describe their perception of its value.

4) Data analysis. In this phase, the collected data will be transcribed, coded, categorized and analyzed. The case study shall conclude with theoretical model and hypotheses based on the analysis and findings of the case study.

5) Developing a quasi-experiment. The model and the hypotheses will then be tested in a quasi-experiment, a type of field experiment design, in which the researcher does not have a full control over the experiment (Zmud et al. 1989).

5   Anticipated Contributions

We expect the findings of our study to add to the academic discourse on value of digital services and users' motivation to participate in value creation through these services. The developed research model will enhance our understanding of users' motivation in the mobile crowdsourcing context. On a more general level, the case will provide theoretically grounded and empirically validated constructs of user motivation to use digital services that are neither clearly utilitarian nor purely hedonic by nature.

The findings are also expected to contribute to the practice. Firstly, the company will gain a better understanding of their stakeholders' opinions and perceptions, allowing them to reshape their offering to better suit the needs of their users. Practitioners' improved understanding of the mechanisms that control crowdsourcing will allow for better services which would simultaneously fulfill the business requirements and satisfy the crowd's expectations.

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