



Conceptual Model for a Sustainable Crowdsourcing Ecosystem

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ABSTRACT

Crowdsourcing has changed the way people conduct business. It provides access to work, and employers can source for the best talent, at the best price, with the shortest turnaround time. Research so far has focussed on crowdsourcing implementation. Hence, there is a need to conduct research that can contribute towards crowdsourcing sustainability. Thus, the objectives of this paper are to identify current practices of crowdsourcing in Malaysia and the challenges that face it. A conceptual model for crowdsourcing sustainability ecosystem is then proposed. This study adopted the case-study approach. Two crowdsourcing platforms were examined in the case study. Two techniques were used to obtain the data: observation and interview. Observation was carried out to observe how the crowdsourcing platforms worked. The interviews helped to uncover current practices, challenges in using crowdsourcing and identification of sustainability factors. It is hoped that the proposed conceptual model will facilitate better planning of the ecosystem supporting crowdsourcing and ensure sustainable growth for crowdsourcing. Future research into crowdsourcing can test the proposed conceptual model to validate its components.

Keywords: Crowdworkers, ecosystem, job provider, platform, sustainable model

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INTRODUCTION

Jeff Howe is among the first authors who described crowdsourcing. Howe (2006) described crowdsourcing as the art 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. Brabham (2008) defined crowdsourcing as the collective intelligence of the public to develop skill sets or a larger workforce to achieve a specific goal. It offers several benefits to its key

players such as low cost (Schenk & Guittard, 2011), bridge income gap, enhanced quality of life, and improved the quality of human capital (MDeC, 2012).

Research into crowdsourcing so far has concentrated on practices (Aris, Janom, Arshad, Salleh, & Mastuki, 2013). Due to its benefits, it is important to ensure that the ecosystem supporting crowdsourcing is sustained. Therefore, it was felt that a study on the sustainability of the ecosystem that supports crowdsourcing was needed. The first section of this paper introduces crowdsourcing. It is followed by a look at the background of crowdsourcing and the concepts surrounding it as well as the issues and challenges facing its sustainability. Methodology is then discussed, followed by a presentation and discussion of the results. In this part, a conceptual model for a sustainable crowdsourcing ecosystem will be introduced and discussed.

Crowdsourcing

Crowdsourcing is defined as the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined and generally large network of people in the form of an open call (Howe, 2006). Freitas, Calado, Braga, Silva and Dias (2010) refer to crowdsourcing to illustrate the power of huge numbers of people to reach a specific goal in collaborative method over the Internet. Meanwhile, Hobfeld, Hirth and Tran-Gia (2011) defined crowdsourcing as the activity of outsourcing a job to a large, anonymous crowd of workers, the so-called human cloud, in the form of an open call.

Crowdsourcing consists of three key players (Arshad, Salleh, Janom, Aris & Mastuki, 2012). As shown in Figure 1, the three key players are job providers, platforms and crowdworkers. Job providers provide jobs on crowdsourcing platforms. The platforms facilitate the work process such as hiring, collaboration or bringing together of jobs. Crowdsourcing platform owners in Malaysia include Human Capital Connection Sdn, Bhd, PERNEC Corporation Bhd., Ikrar Potensi Sdn. Bhd. and Multimedia Synergy Corporation Sdn. Bhd. Crowdworkers are groups or pools of individuals who are qualified to complete certain tasks in a specific employment situation (Hirschheim, 2012).

Figure 1 shows the business process of crowdsourcing. Job providers submit tasks or jobs to crowdsourcing platforms. The platforms then advertise the jobs via their marketplace, email or SMS notification. Crowdworkers respond to, or “pull” jobs that suit their skills and capabilities from the crowdsourcing platforms. Once the jobs are completed, job providers check the quality of the work. Once approved, the crowdworkers will be paid.

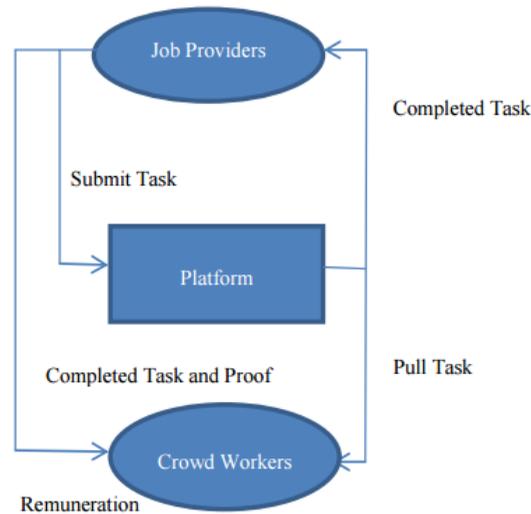


Figure 1. Crowdsourcing business model

Source: Arshad, Salleh, Janom, Aris, & Mastuki (2012)

Issues and Challenges for Crowdsourcing Sustainability

Crowdsourcing faces several issues that need to be addressed. Security, privacy, quality and trust are among the issues highlighted in crowdsourcing implementation (Obal, 2009). The key players in the crowdsourcing ecosystem are concerned about security and privacy, that is, how are they to provide enough information to crowdworkers, but at the same time ensure their privacy is not breached. Meanwhile, lack of experience and skill may lead to low-quality work submitted by crowdworkers. This will affect the product or output requirements set by the job provider (Arshad, Salleh, Aris, Janom, & Mastuki, 2013).

Another challenge in crowdsourcing implementation is a weak payment mechanism (Arshad, Salleh, Janom, Aris, & Mastuki, 2012). Where the job provider directly pays crowdworkers, the concern among crowdworkers is that they will not be paid after the jobs are completed; this touches on trusting the crowdsourcing ecosystem and its credibility.

International crowdsourcing platforms also seem to be dominating the crowdsourcing industry. This leads to competition between local platforms and international platforms. Since international platforms may not be able to provide the supply for the local market, the capability of local platforms to serve the local market needs to be highlighted. An attractive and competitive platform is needed for the sustainability of crowdsourcing (Arshad, Salleh, Janom, Aris, & Mastuki, 2012). It is important for local crowdsourcing platforms to be attractive and competitive.

Malaysia has the resources to stimulate the crowdsourcing ecosystem. Malaysia has a huge latent workforce able to become crowdworkers. About 92% of Malaysian adults are able to speak English, Malay, Chinese, Tamil and Arabic language abilities (MDeC, 2012). Last but not least, Malaysia has good infrastructure for Internet connectivity and most Malaysians own a mobile phone (MDeC, 2012). It is hoped that the key players in the crowdsourcing ecosystem can fully utilise these resources so that the crowdsourcing ecosystem can be sustained.

METHOD

This research was carried out using the case-study approach. Two organisations participated in the case study. They were selected because they are among the credible crowdsourcing platform owners in Malaysia. Two techniques were used for data gathering i.e. observation and interview. Observation is a useful method because it allows researchers to determine who interacts with whom and to grasp how participants communicate with one another (Schmuck, 1997). The purpose of observation in this research was to observe the working environment and to obtain data on current crowdsourcing practices. Observation was conducted at the premise of the crowdsourcing platform owner.

The interview technique was used to study the challenges facing crowdsourcing implementation and the factors that contribute to a sustainable crowdsourcing ecosystem. Organisation A was represented by its Chief Executive Officer (CEO). This platform focusses on data entry and developing skills and talent of crowdworkers. Meanwhile, Organisation B was represented by their IT Personal Consultancy. The platform focusses on training and supplies jobs for crowdworkers. The interviews were conducted face-to-face in two separate sessions. Each session took up almost one and a half hours. The interviews were conducted at the platform owners' premise. Each session was recorded and then transcribed for analysis.

The data from the interview sessions were then analysed using the content analysis technique to yield the factors that lead to a sustainable crowdsourcing ecosystem. A conceptual model for a sustainable crowdsourcing ecosystem was then proposed.

RESULTS AND DISCUSSIONS

This section first presents the current practices of crowdsourcing platforms, the challenges faced in crowdsourcing implementation and the factors necessary for a sustainable crowdsourcing ecosystem. Following that is a discussion of a conceptual model for a sustainable crowdsourcing ecosystem.

Current Practices of Crowdsourcing Platforms

Organisation A offers digital and non-digital work for their crowdworkers, while Organisation B offers only non-digital work for their crowdworkers. In terms of advertisement, Organisation A has a system that is used to advertise jobs. Crowdworkers need to create an account and log in to view available jobs. Besides that, the organisation also advertises jobs using email. Organisation B, on the other hand, advertises jobs only via email. Both organisations do not require crowdworkers to have academic qualification to perform the jobs. Anyone can pull jobs as long as he or she has the skills required to complete them. Some of the jobs offered require specific skills. In this case, these platforms help the crowdworkers by providing relevant training in order to complete the jobs.

In order to ensure the jobs submitted by crowdworkers conform to acceptable quality and standard, job validation is done by the job providers. In addition, Organisation A also requests that job providers be clear about their requirements and the standard expected from

responding crowdworkers. Apart from that, Organisation A also provides a star rating for their crowdworkers as one way to profile their experience and performance.

Challenges in Crowdsourcing Implementation

The results of the interviews revealed several challenges in crowdsourcing implementation:

- i. Limited number of jobs available: This is due to the limited number of organisations (job providers) who are willing to participate in crowdsourcing. Their concerns are confidentiality of data if jobs are completed by an unknown crowd.
- ii. Limited number of crowdworkers: It can be difficult attracting participation in crowdsourcing due to several reasons such as trust, security, privacy and payment. A small number of crowdworkers pose challenges for the platform in continuing their operation.
- iii. Lack of relevant skills among crowdworkers: Most of the jobs in crowdsourcing do not require academic qualification. Instead, they require crowdworkers to possess certain skills relevant to the jobs. Some crowdworkers do not have the avenue to upgrade their skills, thus they may not be able to accept the jobs offered.
- iv. Perception of crowdworkers towards job providers and platforms: Lack of trust in job providers and crowdsourcing platforms makes it difficult to sustain the crowdsourcing ecosystem. Crowdworkers are afraid they are dealing with bogus job providers and that offers are part of a scam.
- v. Security of payment mechanism: The crowdsourcing platforms should establish a mechanism to ensure they can protect both parties, the job providers and the crowdworkers. Job providers are afraid they are paying for non-quality work, while crowdworkers are worried about not getting paid.

All the challenges identified can thwart the growth of crowdsourcing. Thus, it is important to resolve these issues to ensure that crowdsourcing can be sustained.

Factors for a Sustainable Crowdsourcing Ecosystem. Based on the case study, several factors were identified as sustainable factors for crowdsourcing implementation, as discussed below.

- i. Continuous quality improvement: Quality is a very important issue in the crowdsourcing ecosystem. Both organisations take the issue of quality seriously. Organisation A allows job providers to rate the job performance of crowdworkers. The higher the star rating, the more reliable the crowdworkers are. It shows that they have been continuously providing jobs with good quality. Meanwhile, Organisation B protects quality by filtering the crowdworkers and ensuring only suitable candidates perform the job. The way the organisations manage the issue of quality ensures the sustainability of a crowdsourcing ecosystem.
- ii. Trust: Crowdworkers are concerned that the information provided to the crowdsourcing platforms will be misused. Therefore, both organisations provide assurance in their terms and conditions that specify the information given by the crowdworkers will be protected.

Another concern is that the job providers may be criminally minded, involved in scams and are offering bogus jobs. To prevent such issues, Organisation A fully scrutinises each job provider to make sure it is reliable.

- iii. Regulating job providers: In order to sustain the crowdsourcing ecosystem, it is important to regulate job providers. Organisation B emphasises this practice by offering partnerships to job providers.
- iv. Jobs availability: It is important to ensure that jobs in a crowdsourcing ecosystem are always available. Job availability will attract more crowdworkers to participate in crowdsourcing.
- v. Continuous platform improvement: Organisation A started as a platform without any system to help it; everything was done manually. Currently, it has a system that can help it to advertise jobs, profiling the crowdworkers' database and online payment. They also use a star-rating system. They admitted that continuous platform improvement is an important element for sustaining the crowdsourcing ecosystem.
- vi. Effective business procedure. Organisation A admitted that they started their business without any standard business process. Over time, a standard business procedure was introduced, leading to a better working environment. Thus, the introduction of an effective business procedure can lead to a sustainable crowdsourcing ecosystem.
- vii. Collaborative platform: Organisation A mentioned that sometimes, some of the jobs could not be completed by their crowdworkers. Therefore, they needed to collaborate with other platforms to ensure they can continuously provide jobs to crowdworkers and at the same time ensure that jobs from the job providers are completed.
- viii. Reliable payment mechanism: There should be mechanism to protect both job providers and crowdworkers from any loss. Both organisations use the escrow fund. Through this mechanism, crowdsourcing platforms can guarantee protection for both job providers and crowdworkers. This factor can contribute to maintaining a sustainable crowdsourcing ecosystem.
- ix. Crowdworker availability: In ability to establish a sustainable ecosystem for crowdsourcing, the availability of crowdworkers is a must. Therefore, both organisations work hard to attract more crowdworkers.
- x. Continuous crowdworker improvement: From time to time, both organisations train their crowdworkers to prepare them for upcoming jobs. Crowdworkers should continuously upgrade their skills and competency level. Upgrading skills and competency level allows crowdworkers to continue receiving jobs from job providers, thus leading to a sustainable crowdsourcing ecosystem.

Conceptual Model for a Sustainable Crowdsourcing Ecosystem. As shown in Figure 2, the Conceptual Model for a Sustainable Crowdsourcing Ecosystem can be divided into two sections: the foundation and the pillars. The foundation layer consists of the elements of trust and continuous quality improvement. The three pillars for a sustainable crowdsourcing ecosystem are the key players in the crowdsourcing ecosystem: job providers, platforms and crowdworkers.

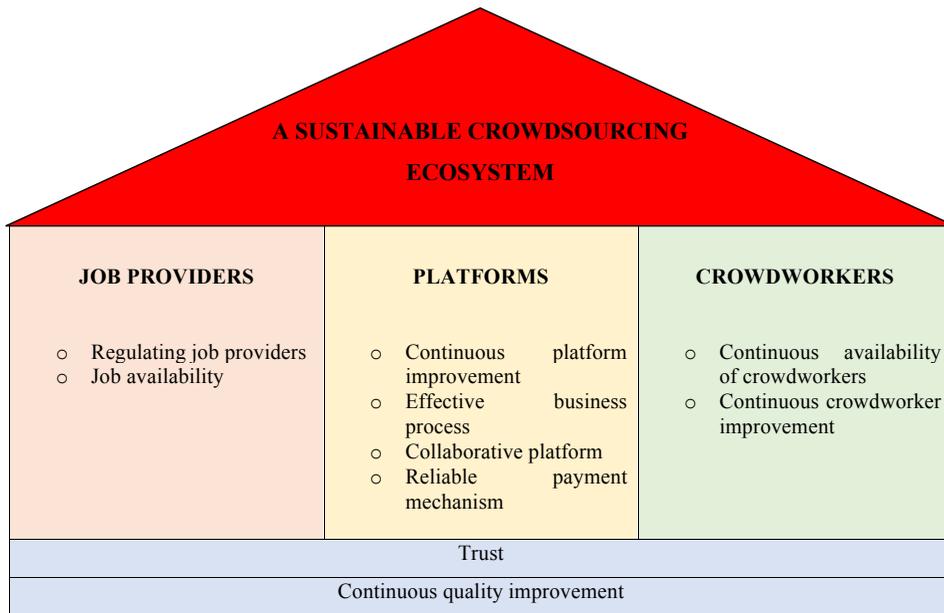


Figure 2. Conceptual model for a sustainable crowdsourcing ecosystem

Continuous Quality Improvement. Continuous quality improvement is considered a foundation for a sustainable crowdsourcing ecosystem because it requires cooperation and involvement from all the key players. Job providers must be responsible to provide sufficient information to crowdworkers so that the jobs can be completed according to the requested quality and standard. Crowdworkers need to execute the jobs accordingly. Crowdsourcing platforms need to oversee the aspects of quality required by job providers and seen in work submitted by crowdworkers, and at the same time, ensure that they are providing the best service to both job providers and crowdworkers. A continuous quality improvement model should be introduced to drive continuous improvement of the ecosystem. Through continuous improvement, all the key players are involved in an ongoing effort to improve the quality of service and processes in a crowdsourcing ecosystem.

Trust. Trust is also a foundation in this model. Crowdworkers are concerned about the security of their personal data and payment. They are afraid that the platforms will misuse and abuse the information that has been provided. Meanwhile, job providers are worry about the confidentiality of their data. Therefore, all key players should take actions to inculcate trust in the ecosystem. Increasing the security and reliability of the crowdsourcing ecosystem will build the trust of the crowdworkers in the system. In terms of security, the platforms should make sure that the payment mechanism is safe. They should also ensure that the personal data provided by the crowdworkers and confidential data provided by job providers are handled properly. In terms of reliability, job providers should be regulated to make sure they are not bogus entities or involved in scams. Reliability of the platform, payment mechanism and job

providers will increase trust and attract more crowdworkers to the ecosystem, thus guaranteeing its sustainability.

Regulating job providers. Job providers could be from any organisation regardless of size. They can also be individuals. Thus, there is a need to regulate job providers. Regulating job providers can solve issues such as bogus and scam jobs. Regulating can also increase the credibility of the crowdsourcing ecosystem in Malaysia.

Job availability. Job availability will help to sustain the crowdsourcing ecosystem as it ensures sufficient amount of work. There is a need to promote crowdsourcing among job providers to ensure sustainable jobs. One of the challenges identified is data confidentiality. Therefore, it is imperative to convince job providers that their data will be treated with confidentiality.

Continuous platform improvement. Crowdsourcing platform owners should continuously upgrade their service to accommodate latest technology in providing services to crowdworkers. In the digital era, platforms should embrace the latest technology to reach potential crowdworkers. To create a sustainable ecosystem, platforms should provide a mechanism where job providers and crowdworkers are able to offer feedback for continuous improvement. This can be done via a star-rating system, for example. A star-rating system allows job providers to provide a rating for crowdworkers' job performance. Other job providers can use the rating to gauge the crowdworkers' performance. It also allows them an idea of the crowdworkers' experience. This mechanism allows job providers to assess the crowdworkers' background before they hand them any task.

Effective business process. The establishment of a business process is crucial in operating crowdsourcing. It ensures that the quality of the service provided to job providers and crowdworkers is continuously maintained; the platforms can continuously receive jobs from job providers and crowdworkers can continuously pull jobs.

Collaborative platform. A collaborative platform can ensure that platforms work together to provide reliable service to job providers. Crowdworkers can also look for jobs available on other platforms if the platforms they had registered in do not provide any relevant jobs.

Reliable payment mechanism. A major concern of crowdworkers is that payment might not be made after a job is completed, while job providers are concerned that the quality of the job may not be worth payment. To protect both parties from any loss, a reliable payment mechanism is required. This factor will certainly contribute to a sustainable crowdsourcing ecosystem.

Availability of crowdworkers. For sustainable crowdsourcing, the availability of crowdworkers is a must. Platform owners should make an effort to attract more crowdworkers. From time to time, crowdworkers should also be trained to upgrade their skills to equip them for upcoming jobs.

Continuous crowdworker improvement. Other than continuously upgrading the platform, platform owners should help crowdworkers to continuously upgrade their skills and competency level. Since some platforms are specialised, owners of these platforms can provide training to their crowdworkers. Upgrading skills and competency levels allows crowdworkers to continuously receive jobs from job providers, thus the crowdsourcing ecosystem is sustained.

CONCLUSION

Crowdsourcing is accepted as a business model that can help crowdworkers to generate income. Since its conception, issues and challenges faced by the key players in the crowdsourcing ecosystem have been noted. Nevertheless, crowdsourcing is here to stay. Thus, it is important to identify the factors that can lead to its sustainability.

This study adopted the case-study approach. Two established crowdsourcing platforms were involved in the case study. Two techniques were used to gather data: observation and interview. The results presented current practices of crowdsourcing implementation in Malaysia and the challenges faced by this new field as well as the factors for establishing a sustainable crowdsourcing ecosystem. A model for a sustainable crowdsourcing ecosystem was proposed consisting of a foundation for crowdsourcing sustainability encompassing continuous quality improvement and trust. The model rests on three pillars, the three key players in a crowdsourcing ecosystem i.e. job providers, platforms and crowdworkers. Factors leading to sustainability of a crowdsourcing ecosystem that are related to job providers are regulating job providers and job availability. Those related to platforms are continuous platform improvement, effective business procedure, collaborative platforms and reliable payment mechanism. Finally, those related to crowdworkers are continuous crowdworker availability and continuous crowdworker improvement. With the proposed conceptual model, it is hoped that the relevant key players can take progressive actions to ensure that the crowdsourcing ecosystem is sustained. For future research, it is recommended that the proposed model be tested to measure its validity.

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