ASSESSING MALAYSIAN CROWDSOURCING PLATFORMS USING WEB OF SYSTEM PERFORMANCE (WOSP) MODEL

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ABSTRACT. Crowdsourcing allows organizations and individuals to tap into a large pool of people to accomplish tasks. Recent growth in crowdsourcing has triggered Malaysia to venture into crowdsourcing initiatives. This study intends to assess the performance of crowdsourcing platforms in Malaysia using the Web of System Performance (WOSP) model. The results give insights on the current state of crowdsourcing platforms in Malaysia and highlight the gaps that exist in these platforms. This eventually help to enhance the design of current platforms and promote higher uptake of crowdsourcing among Malaysians.

Keywords: crowdsourcing, web of system performance (WOSP)

INTRODUCTION

The growth of the Internet and modern communication technology has paved ways for the emergence of crowdsourcing. Crowdsourcing allows organizations and individuals to tap into a large pool of people through an open call via the an online platform to perform specific tasks. These tasks include business process operations to increase productivity, as well as menial tasks such as finding the best restaurants in town. Over the years, the concept of crowdsourcing has grown tremendously globally. In Malaysia, efforts have been formulated to help propel the development and use of crowdsourcing platforms.

This is an exploratory study intended to assess the performance of crowdsourcing platforms in Malaysia. Four locally developed platforms are assessed using the Web of System Performance (WOSP) model. WOSP is an extension of TAM approach by including system performance based metrics rather than just user perceptions. The findings of this study will highlight the current state of crowdsourcing platforms and suggest the required features to improve the design of future crowdsourcing platforms.

BACKGROUND

Crowdsourcing is a concept where organizations and individuals outsource tasks commonly performed by a few experts, to a large crowd through an open call via an online platform. This concept has been reasonably effective and is able to perform tasks at a faster rate (Aris et al., 2013). Crowdsourcing is now widely used to increase productivity and to some extend helps users perform menial tasks such as finding the best restaurants in town (OpenTable, 2015), and seeking alternative routes to avoid traffic jams (Waze, 2015).

Crowdsourcing consists of three components, namely the platform, job providers and workers (Mea et al., 2013). Job providers refer to organizations or individuals who require tasks to be performed. The tasks include translation, transcribing, image tagging, research and report writing, and etc., which must be completed within a specified time (Aris et al., 2013). The platform (web application), is a medium which facilitates job matching, hiring of workers and other business process activities. The workers (groups or individuals) can search appropriate jobs that match their qualifications, or through automated job matches.

Malaysia has just started venturing into crowdsourcing, hence there is limited understanding on the successful implementation of crowdsourcing. Among the limited studies, Arshad, Salleh, Aris, Janom, & Mastuki, (2013b), for example provided a general analysis on the current Malaysian crowdsourcing platforms. A more refined analysis is therefore needed to assess the system performance of Malaysia's crowdsoucing platforms.This study will use a performance based model to evaluate local crowdsourcing platforms.

Perception based model versus Performance based model

Technology Acceptance Model (TAM) has been widely used to gauge user's acceptance and uptake of technology (Venkatesh, Morris, Davis, & Davis, 2003). Generally, the TAM gauges the acceptance based on a 2-dimensional perspective, namely usefulness (Perception of Usefulness - POU) and ease-of-use (Perception of Ease of Use – POEU). TAM also suggests that there exist several factors which influence a user's decision to uptake and use a specific technology. While studies have validated TAM's constructs wide range of applications, several studies suggest that the TAM has its shortcomings due to its primary focus solely on user perceptions. As a result, a more system based oriented metric known as Web of System Performance (WOSP) is proposed as enhancement to TAM.

WOSP is a theoretical framework used for designing and evaluating advanced information system. The WOSP framework uses four fundamental system elements, namely boundary, internal structure, effectors and receptors to define performance (Whitworth, Fjermestad, & Mahinda, 2006). These four fundamental elements are further linked to eight system design goals. The eight goals can be classified into four "active" properties, which are functionality, flexibility, extendibility, connectivity that could make a system succeed. The remaining four "passive" properties are usability, security, reliability and confidentiality, whose absence can cause detrimental effect to a system. Details for the fundamental elements of WOSP and its eight design goals are described in the next section.

METHODOLOGY

This study evaluates four crowdsourcing platforms in Malaysia industry named YourPartTime (YourPartTime, 2015), EduScource(EduSource, 2015), MyKerja(MyKerja, 2015), and MyTeksi (MyTeksi, 2015). The first three platforms are proposed by Malaysia Crowdsourcing Association as a proof of concepts for Malaysian crowdsourcing. While MY Teksi, an established platform for taxi booking, is considered a benchmark in this study. Expert review was employed to assess the platforms involving three experts performing different types of tasks for each platform. The assessment is conducted using the following WOSP criteria, as shown in Table 1.

Table 1. WOSP Criteria

Dimension	Description	Features
Functionality	To Act Effectively Upon The Environment.	Basic functionality, Job matching, Payment mechanism, Appraisal
Usability	To Operate Efficiently Or Easily.	Learnability , Efficiency (Task completion time), Navigation (broken links), System Interface
Security	To Resist Or Avoid Outside Attack Or Take-Over.	Password, Random Number, Captcha Image, Verification Code
Extendibility	To Use Outside Components Or Data.	Openness (proprietary), Scalability, Compatibility (running on different platforms), Interoperability (Interaction with other applications)
Reliability	To Avoid Or Recover From Internal Failure.	Internal Failure (Errors), Availability
Flexibility	To Change To Fit Outer Circumstances.	Adaptability, Customizability, Modifiability
Connectivity	To Communicate With Other Systems.	Communicativeness, Interactivity, Sociability
Privacy	To Control Internal Information Release.	Confidentiality, Secrecy, Social rights, Ownership

RESULTS

The assessment was based on the eight design goals of WOSP (in Table 2). Basic functionality is featured in all platforms. However, a major drawback in these platforms is the lack of job matching facility. Job listings and seeking will be more efficient if web-crawling feature is in place. All platforms do not provide payment facility and left solely to the discretion of both employer and worker.

Table 2. Functionality Assessment of Crowdsourcing Platforms

Functionality (✓ denotes available)	Factors			
	Basic functionality	**Job matching**	**Payment mechanism**	**Appraisal**
YourPartTime	✓	None	✓	✓
EduSource	✓	None	None	NA
MyKerja	✓	None	None	NA
MyTeksi	✓	✓	None	✓

As for the usability assessment, all platforms are easy to learn and use (Table 3). Tasks such as job posting and seeking can be accomplished easily, requiring only a few clicks. Most platforms did not comply to the W3C standard by not providing the text resizing module, while some only carry texts in Malay language.

Table 3. Usability of Crowdsourcing Platforms

Usability (✓ denotes available)	Factors (ease of use)			
	Learnability	**Efficiency**	**Navigation**	**Interface**
YourPartTime	✓	✓	✓	No text resize
EduSource	✓	✓	✓	Malay language only
MyKerja	✓	None	Broken links	NA
MyTeksi	✓	✓	✓	✓

In all of the platforms assessed, it was observed that users are required to register and use password for logging in except My Teksi. In general most of the applications lack security measures for preventing unauthorized access as shown in Table 4.

Table 4. Security Assessment of Crowdsourcing Platforms

Security (✔ denotes available)	Factors			
	Password	**Random Number**	**Captcha Image**	**Verification Code**
YourPartTime	✔	None	None	Sent by email
EduSource	✔	None	None	Sent by email
MyKerja	None	None	None	None
MyTeksi	None	None	None	Sent by SMS/voice /email

Table 5 shows that all platforms are proprietary and has low degree of accessibility to view, use, and modify the application. YourPartTime is the only platform that is scalable enabled by a widget named Job Ad Network (JANe) that aids job providers to promote their job opportunities. All platforms are compatible with all major browsers and mobile devices. In terms of interoperability, only EduSource allows third party web owners to display their affiliate program using a script. MyTeksi supports interoperability by using mapquest to automatically display routes and locations.

Table 5. Extendibility Assessment of Crowdsourcing Platforms

Extendibility (✔ denotes available)	Factors			
	Openness	**Scalability**	**Compatibility**	**Interoperability**
YourPartTime	None	✔	✔	None
EduSource	None	None	✔	✔
MyKerja	None	None	✔	None
MyTeksi	None	None	✔	✔

Reliability refers to the probability that a required function is carried without failure under stated conditions for a stated period of time. All platforms assessed do not have internal failures which can cause detrimental effects to the system's performance (Table 6). In terms of availability, all platforms except for MyKerja performed well. Most pages in MyKerja cannot be found and Error 404 is returned.

Table 6. Reliability Assessment of Crowdsourcing Platforms

Reliability	Factors	
	Internal Failure	**Availability**
YourPartTime	None	✔
EduSource	None	✔
MyKerja	None	None
MyTeksi	None	✔

The flexibility of the platforms was assessed and none of the platforms is adaptable, customizable and modifiable (Table 7).

Table 7. Flexibility Assessment in Crowdsourcing Platforms

Flexibility	Factors		
	Adaptability	**Customizability**	**Modifiability**
YourPartTime	None	None	None
EduSource	None	None	None
MyKerja	None	None	None
MyTeksi	None	None	None

This study also assessed the platforms for its connectivity (Table 8). This factor refers to the platforms' ability to interact with users, as well as linking to social media tools. The study shows that only YourPartTime and MyTeksi are linked to social media sites. All platforms do not feature communicativeness and interactivity.

Table 8. Connectivity Assessment in Crowdsourcing Platforms

Connectivity	Factors		
	Communicativeness	**Interactivity**	**Sociability**
YourPartTime	None	None	✓
EduSource	None	None	None
MyKerja	None	None	None
MyTeksi	None	None	✓

Privacy ensures that personal information cannot be viewed by unauthorized parties. Overall, the privacy concerns are not being addresses by the platforms with the exception of YourPartTime (Table 9).

Table 9. Privacy Assessment of Crowdsourcing Platforms

Connectivity	Factors			
	Confidentiality	**Secrecy**	**Social rights**	**Ownership**
YourPartTime	✓	✓	✓	✓
EduSource	None	None	None	None
MyKerja	None	None	None	None
MyTeksi	✓	✓	✓	✓

DISCUSSION AND CONCLUSION

The results of this study suggest that the four crowdsourcing platforms only satisfy the usability requirements. This outcome is a typical result if TAM is used as the assessment framework which concentrates only on usability. However, this study based on WOSP gives more insights on the system performance such as security, openness and etc. Our findings indicate that most platforms provide basic functionalities such as job posting and seeking. However, intelligent job matching and secured payment mechanism are still lacking and should be considered. Platforms should also feature strong security mechanisms to address

trust issues with payment as well as safeguarding confidential information. Additionally, privacy policies are given less emphasis. Since most of these applications are still in the infancy stages, deliberations on extendibility, connectivity and flexibility have been minimal. These platforms should also leverage on the power of social media to promote interactions, thus resulting in a higher uptake.

The future work involved in this study covers engagement with developers and users of these platforms to gauge their requirements from such platforms. Coupled with the results of this study, a model to develop a better crowdsourcing platform can be proposed. This would pave ways to a better design of crowdsourcing platforms.

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