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Article · January 2018

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Developing IBS online survey system for CIDB

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Abstract

One of the most common techniques for collecting primary data is by conducting a survey research. The traditional "paper-and-pencil" surveys have been used to collect primary data in different academic research fields for several years in spite of all the limitations of this approach. It has been proven that Web-Based Surveys could be considered as a serious alternative to the traditional "paper-and-pencil" format in all academic research fields. The popularity of online data collection methodology has increased recently in advanced countries. It is noticed that Construction Industry Development Board (CIDB) Malaysia need to distribute questionnaire survey about Industrialized Building System (IBS) in Malaysia constantly. Therefore, researchers have developed online survey system to enable Construction Industry Development Board (CIDB) Malaysia to conduct and manage its on-line survey system hence avoiding the need for paper-based survey. With a few clicks, a survey request can be developed and automatically transmitted to all companies which their e-mail addresses have been previously entered into the system that will allow respondents to reply via the web. Responses are then captured electronically by direct loading into a website database and analysis can be done with statistical software such as SPSS. The advantages of online survey system are very noticeable. This system can reduce employees' time and effort on data compilation. It is also much easier and faster for clients to complete the survey form. Postal mailing cost or printing cost would no longer be applicable. This system provides more efficient data and the low responses percentage can be improved.

Keywords

Online survey system, improving IBS in Malaysia.

INTRODUCTION

One of the most common techniques for collecting primary data is a survey research. The traditional "paper-and-pencil" surveys have been used to collect primary data in different academic research fields for several years [1]. In spite of that, the traditional approach has always had the disadvantage of a limited responses rate and spending long time in distributing and returning the survey [2]. Roztocki and Lahri [1] have proved in their study that Web-Based Surveys could be considered a serious alternative to the traditional "paper-and-pencil" format in all academic research fields. The popularity of online data collection methodology has increased recently in the advanced countries. Online survey system can provide an opportunity to collect online surveys in a more efficient and effective way than traditional approach [1]. IBS Online survey system is a tool developed carefully to enable Construction Industry Development Board (CIDB) Malaysia to manage its survey system online when needed and hence negating the need for paper based survey.

CIDB'S NEED FOR AN ONLINE SURVEY SYSTEM

It is noticed that CIDB needed to distribute questionnaire survey about Industrialized Building System (IBS) in Malaysia constantly in 2003, 2005 and 2009. In 2003, CIDB carried out a survey for IBS contractors while in 2005 the survey was for architects. The 2009 survey has not been published yet (depending on the publications availability of IBS Center website <http://www.ibscentre.com.my/>). Based upon IBS survey 2003, the respondents' percentage was only 3.4% of the total recipients [3]. The respondents' rate of IBS survey 2005 was only 6.6% [4]. This low percentage was expected for mailed survey. By using online survey system, low percentage of respondent can be overcome. It is expected that the importance of internet-based surveys will increase for academic data collection due to the ability of this approach to deal with problems and the non-ignorable advantages [2].

THE ADVANTAGES OF IBS ONLINE SURVEY SYSTEM

It is noticed that IBS online survey system has several advantages which can be highlighted as below:

1- Minimize time: by using online survey system, time needed for distributing questionnaire forms either by postal mail or by e-mail including attachments can be reduced. Also, it gives immediate results and reduce employees' time for data compiling (3+ hours to enter data into an Excel spreadsheet for 30 – 15 question surveys). Furthermore, it is easier and faster for client to fill out.

2- Minimize staff efforts: by using this approach, there will not be a need for staff to distribute questionnaire forms or enter data and compile it.

3- Cost saving: if the time and staff efforts will be minimized, so the cost will be reduced too. Also there is no need for postal mailing cost or printing cost.

4- Efficient data collection method: by using this system, there is no miscalculation of results, no illegible answers, no spoiled questions, no double answer selection and there are no missed pages or questions. Also it can provide quick data capture turnaround and feedback information. In addition, because the data is already in digital format, the possibility of human-error during data entry is eliminated.

5- Questionnaire Complexity: Internet web form surveys are fairly flexible (the software form usually more flexible than the printed page).

6- High response Rate: When web-form surveys were a novelty, response rates were quite high, perhaps above 50%. Based upon IBS survey 2003, the respondents' percentage was only 3.4% of the total sample that received the survey [3]. The respondents' rate of IBS survey 2005 was only 6.6% [4]. This low percentage was expected for mailed survey. By using online survey system, this low percentage can be increased. Usually the software form is less boredom than printed form for the respondent. Also, reminder messages can be sent through this system. [5] has experienced online survey tool for sample consisted of students, academics and work placement supervisors. This study revealed that online survey tool has good response rate (89% of all the students; 100% of all the academics and 68% of all the work placement supervisors).

7- Scalability: Unlike telephone or postal mail surveys, you can survey 10,000 people as easily as 10 people. This scalability is one of the reasons that decrease survey cost.

8- Simplicity: this system provide simplicity due to easier and faster fill out for client, no worries of clients having to receive and open attachments, no worries of clients needing to reply and save to return completed survey, clients don't have to download any software, no worries of clients not having the right word processing software, no client program version conflicts, no more email attachment malfunctions and no more email restriction problems due to file size. By using online survey tool the researcher can collect, manage, and analyze survey results with ease.

9- The ability to reach to larger Geographic Areas: Web-Based Surveys have the potential to reach a high number of participants in the most remote geographic areas.

METHODOLOGY

The researcher will handle the establishment and direct supervision of this online survey based system with IT company to build the core technology of such survey according to international criteria. The system structure will be similar to CIDB paper based survey and will be programmed using latest technology from Microsoft named asp.net 3.5 and AJAX technology, and it will be hosted on windows 2003 server with database server (MSSQL 2005). With few clicks, every one can build a survey request and send automatically to all companies previously entered into the system and allow the respondents to submit their responses via the web. The respondents will receive email containing a link to the website that is the survey questionnaire. Responses are then captured electronically by direct loading into a website data base and it can be analyzed with statistical software like SPSS. Sms messages will integrate the system to send sms to companies to alert (remind) for latest survey. Testing the survey system will be on some randomly selected companies under CIDB. All data can be converted to graphs and tables and also can be inserted smoothly into SPSS statistical software or Microsoft EXCEL for data analysis. Database management issues such as database security, access, backups, restores, resizing and so on can be addressed using the database management toolset which accompany the database.

IBS ONLINE SURVEY SYSTEM DESCRIPTION

A- IBS online survey system for operator

IBS online survey system consists of control panel to enable the operator to

1- Add company by inserting its details (name, Tel No., Fax No., e-mail, website, city and company registration type). Figure 1 shows this interface.

The screenshot shows the 'Add Company' form in the IBS online survey system. The form has the following fields: Company Name (text input), Mobile (text input with '00' prefix), Fax (text input with '00' prefix), Email (text input), Company Website (text input with 'http://www.' prefix), City (dropdown menu with 'Click here to choose'), and Company Registration type (dropdown menu with 'Click here to choose'). There is an 'Add Company' button at the bottom. On the right side, there is a sidebar menu with a tree view containing: Companies (expanded), Survey, Page, Questions, Publish, Result, Mailing List, and SMS Alert.

Figure 1. Adding new company and its details

2- Create the survey by inserting its name, open and close date and description. Figure 2 shows this page.

The screenshot shows the 'Add Survey' form in the IBS online survey system. The form has the following fields: Survey Name (text input), Open Date (text input with '11/6/2010'), Close after (days) (text input), and Status (checkbox labeled 'Active'). There is a rich text editor for the Description. On the right side, there is a sidebar menu with a tree view containing: Companies (expanded), Survey (expanded), Questions, Publish, Result, Mailing List, and SMS Alert.

Figure 2. Adding new survey and its description

3- Create pages of survey by selecting survey name and inserting page name and its description. Figure 3 shows this page in the system.

The screenshot shows the 'Add Page to Survey' form in the IBS online survey system. The form has the following fields: Survey Name (dropdown menu with 'Cont Survey'), Page Name (text input), and Page Description (text area). There is an 'Add Page to Survey' button at the bottom left and a 'Logout' button at the bottom. On the right side, there is a sidebar menu with a tree view containing: Companies (expanded), Survey (expanded), Page (expanded), Questions, Publish, Result, Mailing List, and SMS Alert.

Figure 3. Adding new page and its description

4- Create new question and insert its response choices. This interface can be seen in figure 4.

The screenshot shows the 'Add Question' form in the IBS online survey system. The form has the following fields: Survey Name (dropdown menu with 'Assessment of IBS in Malaysia'), Page (dropdown menu with 'Page1'), Question Type (dropdown menu with 'Rep/Informational'), and Question (text area with 'Does the company intend to implement IBS construction projects in future?'). There is a 'Text' field and an 'Options' field (each option on a new line). There are 'Add Question' and 'Add Successfully' buttons at the bottom. On the right side, there is a sidebar menu with a tree view containing: Companies (expanded), Survey (expanded), Page (expanded), Questions (expanded), Publish, Result, Mailing List, and SMS Alert.

Figure 4. Adding new question and its response choices

5- Publish survey: the operator can publish this survey through respondents' e-mails or sending short messages to their hand phones which previously inserted in companies' information page.

6- Getting results: by using this system, the operator can get survey results for one company or for all companies. This interface can be seen in figure 5.

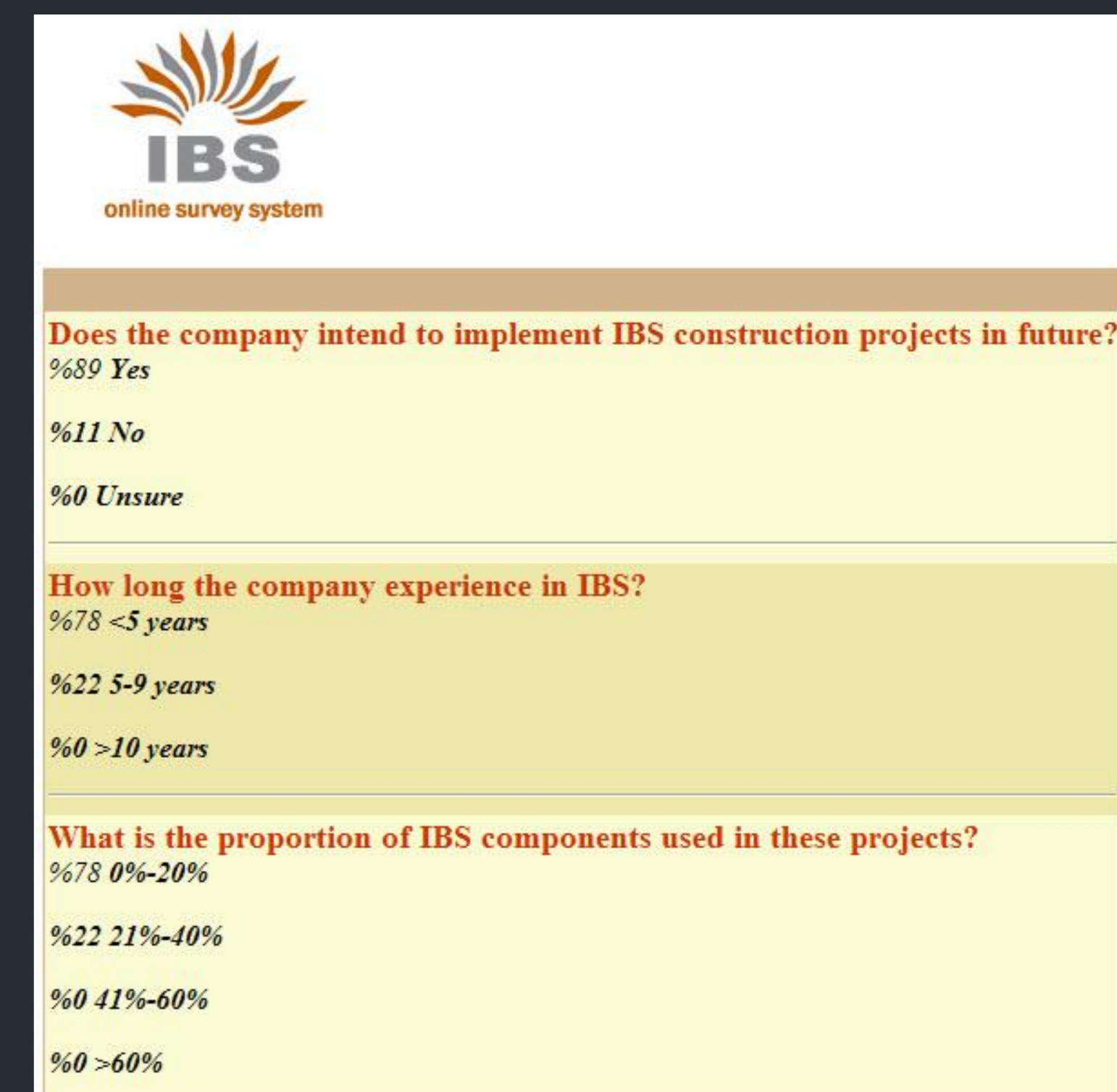


Figure 5. Survey results

B- IBS online survey system for respondents

Four pages will be appearing to the respondents when they click on the survey link that they receive on their e-mails and hand phones. Below is the description of these pages.

1- The first page that will appear to the respondents is the introduction from survey coordinator.

2- IBS Details: in this page, the respondents have to choose one option for each question which previously provided by the operator.

3- IBS Advantages: the purpose of this page is to collect information about the advantages that the companies have achieved in IBS projects. The respondents are required to choose one of five likert scale options (Strongly disagree, Agree, Neutral, Agree, Strongly agree) for each question.

4- IBS Constraints: the purpose of this page is to collect information about the constraints that the companies have encountered in IBS projects. The respondents are also required to choose one of five likert scale options for each question.

5- IBS Suggestions: the purpose of this page is to collect information about respondents' suggestions to improve IBS in Malaysia by choosing one of five likert scale options for each suggestion.

CONCLUSION

Online surveys have several important advantages over -paper and pencil- surveys that make them particularly attractive to researchers. These include reduced response time, lower cost, ease of data entry, flexibility of and control over format, higher response rate, advances in technology, recipient acceptance of the format, and the ability to obtain additional response-set information.

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