Evaluating the Success of Utility Star Information System at Belize Water Service Ltd.

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Abstract

The rapid development of technology has created the need to evaluate information system performance in all institutions. Thus, this research makes use of the DeLone and McLean's Information System success model to evaluate the success of the Utility Star Information System used at Belize Water Services Ltd. The purpose of this research is to analyze the overall usefulness and quality of the implemented software and determine how successful the software has been in improving the decision-making process at BWS. This research was probable by using a 46-question survey which was distributed to 35 employees at BWS countrywide. Results indicated that the usage of system within the different department has contributed to increasing performance of employees, bettering decision making and goal achievement within the organization. Consequently, we can conclude that Utility Star information system has proven to be useful to BWS, supporting the initial hypothesis.

Keywords: Utility Star, technology, efficiency, usage, BWS, decision making, information system, management

Introduction

According to Weedmark (2019) Management Information System allows for the collection and storage of data, which is used as a communication tool for analyzing information in order to monitor operations and make effective business decision. Thus, the success of a highly effective information system (IS) such as Utility Star can have a major impact on the running of an organization and whether the organization is successful.

Belize Water Service Ltd. (BWS) was formed in January 2001, as a part of the privatization initiative of the Government of Belize (GOB). It was vested from the assets and liabilities of the Water and Sewerage Authority (WASA), which GOB used to secure majority shares of approximately 82.6%. The remaining shares are held by Social Security Board (10%) and numerous minority shareholders (Annual Yearly Report, 2010)

The Utility Star is a software which supports the Belize Water Service by collecting the necessary data and information vital to the operations of the organization. The mission of Utility Star is to provide customers with the solutions that works well and enables organizations to meet or exceed their business goals. (Unknown, 2019) This software is a business intelligence software in which all customer information are recorded in each district, the system then analyzes the data and management can use this analyze data to make decisions and report such as customer's monthly bills.

The information system also reports any irregularity in data collected. According to Bonner (1995), the information system compares the data from the previous months and establishing a pattern of consistency between the months. When irregularity appears, the system will warn its user of these issues. Managers then have the option to investigate the issue further. Thus, the involvement of managers and decision makers in all aspects of information system is a major factor in its success, as this can lead to higher profits and lower costs. (Rosca, Doina & Banica, Logica & Mirela 2010)

The utility star is an essential system to the daily running of the numerous departments at BWS branches country. Therefore, the primary objective of this research is to explore and evaluate how successful and effective the information system is to its user and how well it aids in decision making. The main goal of this study is not only to bring awareness to the Utility Star system, but to highlight the achievements the software has made. First, we evaluate the advancement of Utility Star Software. Secondly, according to previous studies, a complete hypothesis is recommended. Thirdly, the technique used to measure and outcomes of the study are presented. Lastly, speculative and decision-making are debated for the future research.

Literature Review

In this section we discussed the theoretical approach and formulation of Utility Star based on previous Information System success studies. In their structural variables, researcher adopted IS success model because of the most comprehensive model used as a theoretical framework to study information systems success as to measure IS evaluation in IS field. In 1992, DeLone &

McLean developed Information Systems (IS) success model as a comprehensive framework for measuring the performance of information systems (DeLone & McLean, 1992). This model consists of six interrelated dimensions of information systems success: System Quality, Information Quality, Use, User Satisfaction, Individual Impact, and Organizational Impact.

There are nearly as many measures as IS success: it is comprehensible when considering that "information", a message or an IS output in a communication system, can be measured at 3 levels, including technical, semantic, and eff ectiveness (DeLone & McLean, 1992). In the communication, technical level as the system efficiency and propriety that information eff ectively; semantic level as the information success in promulgating intended meaning; and eff ectiveness level as the information impact on the receiver (Shannon and Weaver 1949). Thus, "effectiveness" as "influence" and information as "event hierarchy take place at an information system receiving which may be used to identify the various approaches that might be used to measure output at the influence level" (Mason, 1978). The events include the information application and information receipt, controlling a transform in system performance and recipient behavior (DeLone & McLean, 1992).

In 1980, Keen referred to the lack of the scientific basis in IS research and argued that mandatory variables (e.g., user satisfaction, usage) would continue to mislead researchers and dodge the information theory issue. In searching for the IS success, there are many studies have been shown. This is understandable when considered as "information", an output of IS or a message in communication systems, can be viewed at different levels (e.g., technical level, semantic level, and effectiveness level) (1992). In communication context, Shannon and Weaver (1949) denied technical level as the propriety and efficiency of the system that effectiveness the information, semantic level as the intended the information in promulgate the intended meaning, and effectiveness level as the effect of the information to the receiver. Based on this basis, Mason (1978) considered "effectiveness" as "influence" and denied information influence level as "hierarchy of events which take place at the receiving end of an information system which may be used to identify the various approaches that might be used to measure output at the influence level". According to DeLone and McLean (1992), the influence events include the receipt of the information, and the application of the information, leading to a change in recipient behavior and a change in system performance.

After the publication of the first IS success model (DeLone & McLean 1992), some scholars claimed that the IS success is incomplete and suggested that more dimensions should be included in the model or proposed the other models. For example, Seddon (1997) argued that the IS success model gaps comprehensiveness and further prespecified the original IS success model by differentiating actual and expected impacts, as well as by incorporating the additional perceived usefulness in TAM [8]. Then, Rai et al. [39] showed that both original D&M model and Seddon (1997)' s model are adequately explained IS success. Therefore, DeLone and McLean (2002, 2003) added service quality in an updated IS success model. After that, several authors tried to test this model empirically. For example, Gable et al. (2008) reconceptualized the DeLone and McLean model and suggested new IS success model. Additionally, Sabherwal et al. (2006) conducted a comprehensive analysis to validate the D&M model and highlighted the importance of contextual attributes in IS success. However, Gable et al. (2008) evaluated that many

measures in D&M model were inappropriate to measure the ERP success. Thus, Gable et al. (2008) removed user satisfaction and proposed another model, including system quality, information quality, individual impact, and organizational impact. This model was also considered as a base for the IS success model (2005). After that, Petter et al. (2008) reviewed research published from 1992 to 2007 and identified the variables that potentially can influence on IS success. Furthermore, other domains have been tested using the D&M model that integrated with technology adoption model, including ERP, social network, cloud–based e–learning, e–banking, etc.

DeLone and McLean's model is critiqued for insufficient explanation of its underlying theory and epistemology, with many questioning the suggested causal/process nature of the model (Ballantine etal., 1996, Myers et al., 1998). Seddon, (1997) was the first to empirically test part of the causal structure, his investigation evidencing support for some model paths. Other researchers have since tested causal relationships between other of the six constructs, yielding mixed results (Bonner, 1995, Hunton and Flower, 1997). This lack of theoretical grounding, combined with the weak explanation for causality and mixed results from empirical studies, raises concerns about the validity of the suggested relationships.

Organizations evaluate their Information System (IS) for various reasons. Positive impacts are the ultimate outcome sought, their measure being the "acid-test" of the IS. A frequently asked question is, "Has the IS benefited the organization?" or "Has the IS had a positive impact?" (e.g., Melville et al.,2004). These questions seek a measure of net benefits or impacts to date. They look backward. The IS, being a long-term investment, is expected (ceteris paribus) to yield a continuing flow of benefits into the future. Thus, other questions of interest include – "Is the IS worth keeping?", "Does the IS need changing?" or "What future impacts will the IS deliver?" These questions look forward. We propose that the quality of an IS arguably our best predictor of its probable future impact. We thus argue that a holistic measure for evaluating an IS should consist of dimensions that together look both backward (impacts), and forward (quality). We define the IS-Impact of an Information System (IS) as a measure at a point in time of the stream of net benefits from the IS, to date and anticipated, as perceived by all key user groups. The IS-Impact Model is a holistic index representing the stream of net benefits; the impact half measuring net benefits to date, the quality half being our best proxy measure of probable future impacts, and "impacts" being the common denominator.

In the modern organization, the use of advanced Information Technology (IT) systems are required for us to reach out to the intended customers. The main purpose is to implement a secure and accurate Information System in a cost-effective manner. Globalization and advanced technology such as broadband and mobile internet growth have made it easier for organizations to provide their services on a larger market. The rapid growth of Information Technology has developed a massive demand for the advancement of technological tools and systems.

Methodology

The research intends to evaluate the success of the Utility Star information system at the Belize Water Service Ltd. The research project will be carried in a quantitative research form. The IS

Success Model developed by William H. DeLone and Ephraim R. McLean in 1992 will be used to assess the current success of the system. This is a correlational research designed to investigate if the Utility Star system has improved the decision making and performance of the various departments at BWS.

Data will be gathered by developing a forty-seven-question survey to be filled out by the employees of BWS countrywide. Firstly, we will ensure permission is granted from the Chief Executive Officer at the organization. Then, we will ask for the permission on various employees for different departments. Questionnaires will be sent to the various branches countrywide; employees will be allotted one week to answer the surveys and return them. Data will then be inputted into a google sheet and analyze. Data collected and all relevant findings will be display using tables, bar charts and histograms.

Model

For the purpose of the study we develop a questionnaire with questions focusing on the eight dimensions of the DeLone & McLean IS Model. In order to preserve content validity of the quantitative data collected, the scales used to determine the success of the information system were merely extracted from instruments that were used in previous researches.

The information quality construct was measured through a seven-item scale from Bailey and Person (1983). The Bailey and Pearson's instrument is widely accepted and has become a standard construct in the IS field as it has been tested for reliability and validity. Likewise, instruments from Alshibly (2011) were modified and used to evaluate the system quality through a four-item scale. Service quality construct was evaluated using a modified four-item scale adopted from the Chang et al (2009) instrument. The Use construct was measured through a four-item scale adapted from previous studies (Balaban et al., 2013; Rai et al., 2002). User Satisfaction was defined as the evaluative judgement and affective attitude towards the information system. This construct adopted from Seddon and Yip (1992) was measured with a four-item scale.

Furthermore, the perceived net benefits were defined as an achievement of the firm's objective as well as the end user related objectives. This element was evaluated by a six-item scale adopted from Alshibly, (2011) and Tansley et al (2001). Computer Self-Efficacy element developed by Compeau, D. R., & Higgins, C. A. (1995) was included to observe user's ability to use the system. This element was measured through a ten-item scale. Complementary Technology Quality adopted from Teece, D. J. (1988) which was evaluated by a three-item scale was included to assess if the available technology aided the success of the information system, and this element is measured through a four -item scale. These items were evaluated using a 7- point Likert Scale ranging from strongly disagree (1) to strongly agree (7).

See appendix for actual questionnaire distributed.

Table 1. Presents the measurement items for the research.

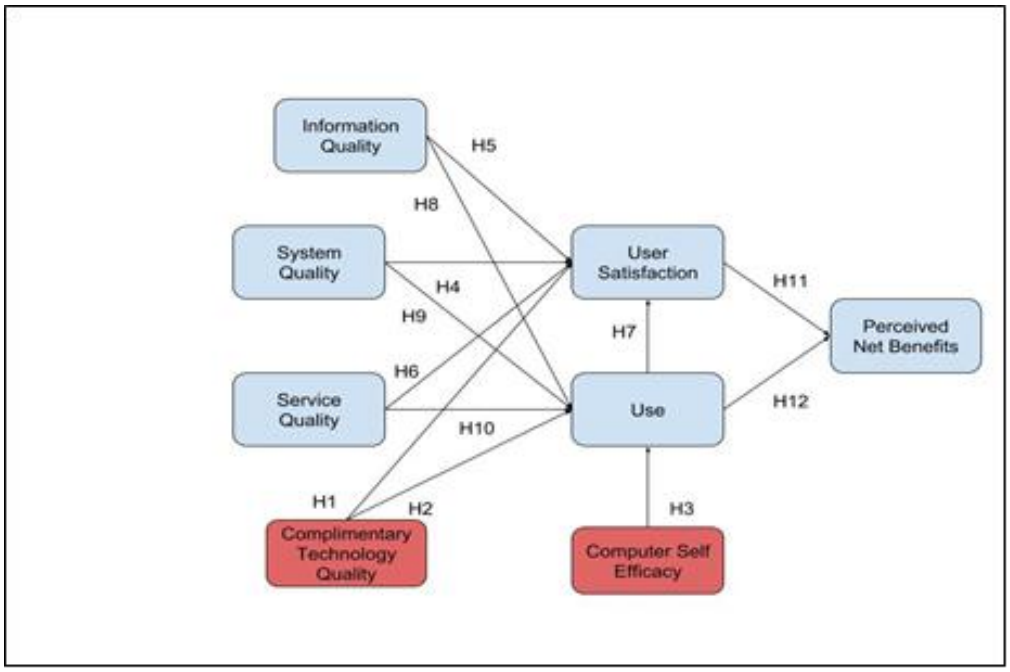
The Utility Star Survey Construct		
Construct	**Questions**	**Source**
Information Quality	IQ1: The Utility Star system provides information that is exactly what you need? IQ2: The Utility Star system provides information you need at the right time? IQ3: The Utility Star system provides information that is relevant to your work? IQ4: The Utility Star system provides sufficient information? IQ5: The Utility Star system provides information that is up to date? IQ6: The Utility Star system provides up-to-date information? IQ7: The Utility Star system provides sufficient information?	Bailey and Person (1983).
System Quality	SQ1: The Utility Star system is easy to use? SQ2: The Utility Star system is user-friendly? SQ3: The Utility Star system provides high-speed information access? SQ4: The Utility Star system provides interactive features between users and the system?	Alshibly, (2011).
Complementary Technology Quality	CTQ1: The software on the device (desktop, laptop, handheld) used to access Utility Star system is adequate? CTQ2: The device hardware (desktop, laptop, handheld) used to access Utility Star system is adequate? CTQ3: The speed of the internet connection used to access the Utility Star system is adequate? CTQ4: The reliability of the internet connection used to access the Utility Star System is adequate?	Teece, D. J. (1988).
Computer Self Efficiency Measure	CSE1: If there was no one around to tell you what to do as you go along? CSE2: If you had never used an information system likes this before? CSE3: If you only had the information system manuals for reference? CSE4: If you had seen someone else using the information system before trying it yourself? SCE5: If you could call someone for help if you got stuck?	Compeau, D. R., & Higgins, C. A. (1995).

	CSE6: If someone else had helped you to get started? CSE7: If you had a lot of time to complete the job for which the information system was provided? CSE8: If you had just the built-it in help facility for assistance. CSE9: If someone showed me how to do it first. CSE10: If you had used similar information systems before this one to do the same job?	
Service Quality	SV1: The support staff keeps the Utility Star System software up to date? SV2: When users have a problem the Utility Star support staff show a sincere interest in solving it? SV3: The Utility Star System support staff respond promptly when users have a problem? SV4: The Utility Star System support staff tell users exactly when services will be performed?	Chang et al., (2009).
User Satisfaction	US1: Most of the users have a positive attitude of Utility Star System? US2: You think that the utility of the Utility Star System is high? US3: The Utility Star System has met your expectations US4: You are satisfied with the Utility Star System?	Seddon and Yip (1992).
Use	U1: Your frequency of use of the Utility Star System is high? U2: You depend upon the Utility Star System? U3: You were able to complete a task using the Utility Star System even when there was no one around to tell you what to do? U4: You have the knowledge necessary to use the Utility Star System?	Balaban et al., (2013) Rai et al., (2002).
Perceived Net Benefits	NB1: The Utility Star System helps you improve your academic performance? NB2: The Utility Star System helps students save costs? NB3: The Utility Star System helps you achieve your academic goals? NB4: Using the Utility Star System improves assessment and training? NB5: Using the Utility Star System at school increases your academic productivity? NB6: Overall, using Utility Star enhances teacher performance?	Alshibly, (2011).

Theoretical Structure

The DeLone & McLean model has also been found to be a useful framework for organizing IS success measurements. The model has been widely used by IS researchers for understanding and measuring the dimensions of IS success. The relevant DeLone & McLean IS Model focuses its results on experienced benefits to explain the success or failure of the implemented information system. Ten years after the first publication of the DeLone & McLean IS Model in 1992, the model was reviewed and updated. The model determines the success of such systems through the factors of presence or absence of system, information and service quality as they affect users' intention to use, actual use and user satisfaction. These are further analyzed through how actual use and user satisfaction of the system deliver net benefits to the organization.

The below diagram illustrtates the six dimensions of the DeLone and McLean model in addition to the Complementary Technology Quality and Computer Self – Efficency used to validate this research.



Hypothesis

The hypothesized relationship between Utility Star system success variables are based on the theoretical and empirical work reported by DeLone and McLean (2003). As they suggest, the success model needs further development and validation before it could serve as a basis for the selection of appropriate IS measures. Accordingly, the study hypothesized the following twelve hypotheses tested:

H1. Complementary technology quality will positively impact user satisfaction.
H2. Complementary technology quality will positively impact system use.

H3. Computer self-efficacy will positively impact system use.
H4. System quality will positively impact user satisfaction.
H5. Information quality will positively impact user satisfaction.
H6. Service quality will positively impact user satisfaction.
H7. Use will positively impact user satisfaction.
H8. Information quality will positively impact use.
H9. System quality will positively impact use.
H10. Service quality will positively impact use.
H11.User satisfaction will positively impact perceived net benefit.
H12.Use will positively impact perceived net benefit.

Data Collection

The data for this study was collected from a sample of BWS employees from all different department countrywide. The method of the research sampling is stratified random sampling which gives the researchers to use their own judgment to select suitable people for the sample. Out of the 35 questionnaires distributed to the employees, 30 usable questionnaires were returned, yielding a response rate of 86%, which is considered acceptable.

The respondents' characteristics is presented in the below table. The table shows that there was a slightly higher participation by females being 57% while the males made up 43% of the total respondents. The results indicated that 60% of the participants were between the ages 25-35 and 70% of them were at BWS for less than five years. 47% of the participants was from the customer service department while 26% from the finance department. The remaining was from various other departments.

Table 2. Employee of Respondents

Characteristics	**Number**	**Percentage**	**Characteristics**	**Number**	**Percentage**
Gender			**Age**		
Male	13	43%	Less than 25	2	7%
Female	17	57%	From 25 to 35	18	60%
Total	**30**		From 36 to 45	8	26%
			From 46 to 55	2	7%
Department			More than 55	0	
Customer Service	14	47%	Total	**30**	
Finance	8	26%			
Operations	3	10%	**Years of Service**		
IT	0		Less than 5	21	70%
Technical Service	1	3%	From 5 to 10	6	20%
HR/PR	2	7%	From 11 to 15	3	10%

Internal Audit	2	7%	More than 15	0	
Total	**30**		Total	**30**	

Data Analysis

The results from the data gathered from Belize Water Service on the success of the Utility Star system are displayed in eight histograms and one bar chart below. This research study does not test the validity of the research model used. It mostly focuses on an applied research methodology to test the average responses and see if the hypothesis tested were supported.

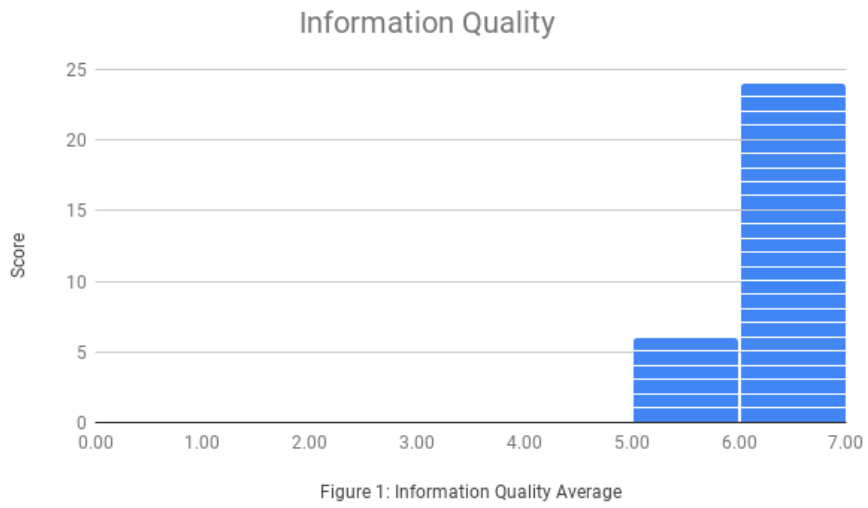


Figure 1: Information Quality Average

Figure 1: The histogram illustrates that majority of the employees at BWS strongly or somewhat agree that Utility Star system provides sufficient data that is accurate and up to date in order for them carry out their daily tasks.

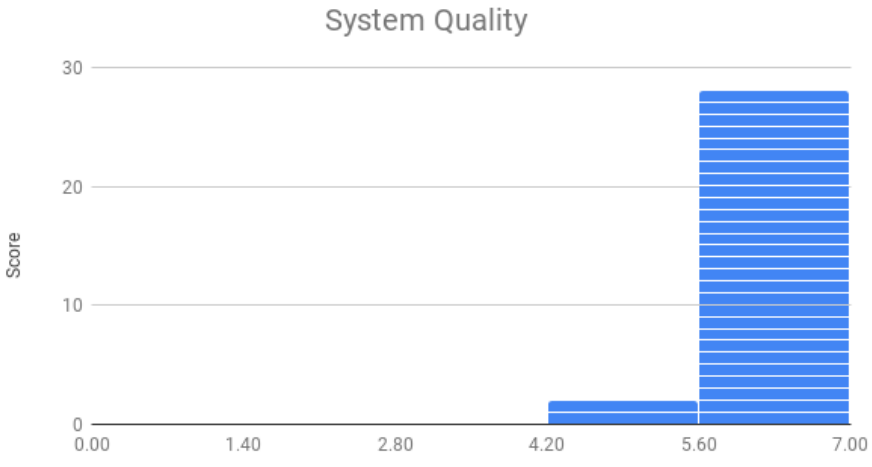


Figure 2: System Quality Average

Figure 2: The histogram shows that almost 90% of the respondents agree that the Utility star system is very easy to use, it also provides interactive features for the users while providing high speed data.

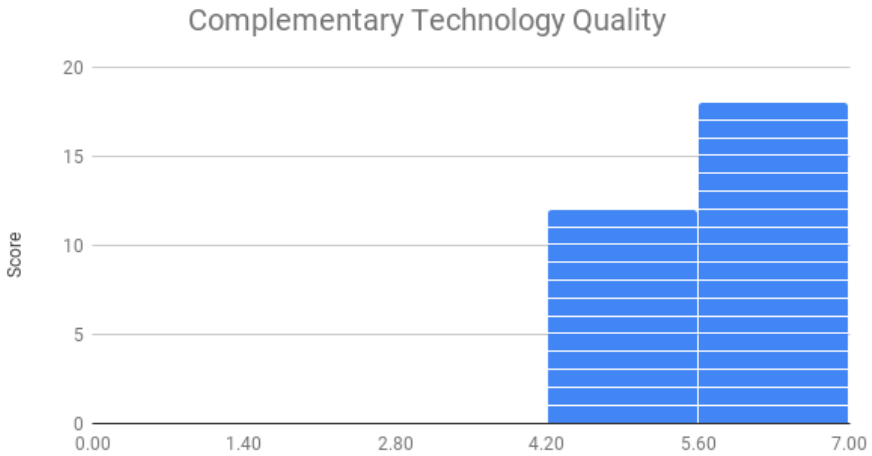


Figure 3: Complementary Technology Quality Average

Figure 3: Based on the results obtained from the survey, 60% agree that the software and hardware at BWS is competent and adequate to allow the Utility Star system to run efficiently.

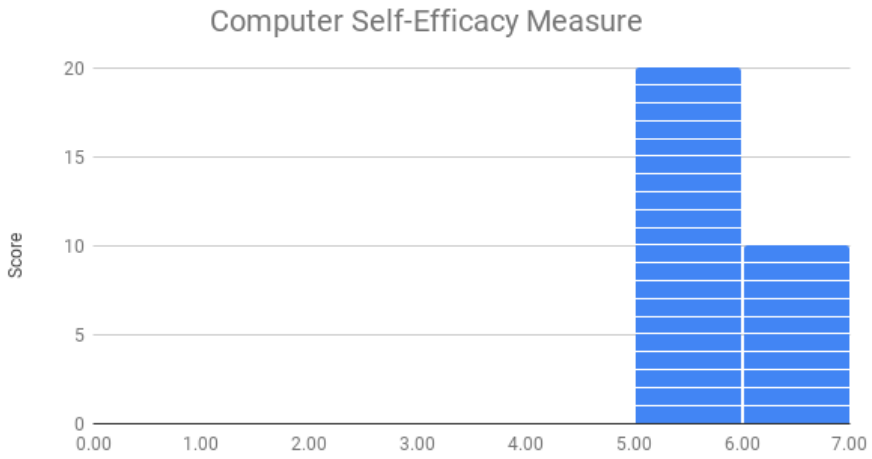


Figure 4: Computer Self-Efficacy Measure Average

Figure 4: The histogram shows that 67% of participants somewhat agree that the Utility Star is easy to maneuver on their own. While, 33% of participants strongly agree that the system is easy to use without guidance or just manuals.

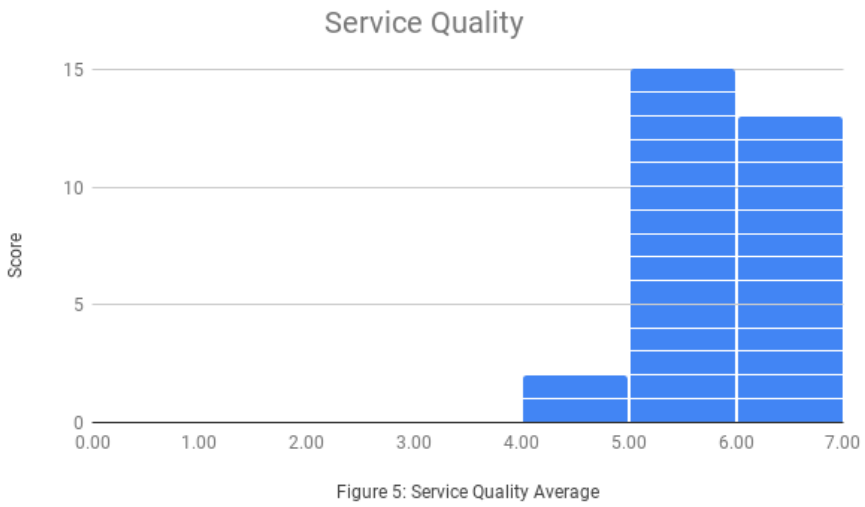


Figure 5: Service Quality Average

Figure 5: The data reveled that majority of the participants agreed that the Utility Star support staff was competent in keeping the system up to date and responding promptly to any issues which arose regarding the system.

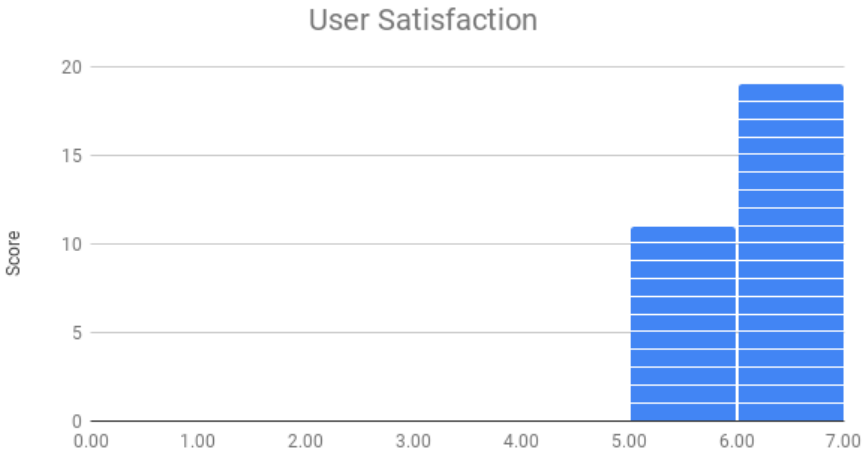


Figure 6: User Satisfaction Average

Figure 6: Given the response displayed on the histogram above, 63% of the users are satisfied by the Utility Star system. The participants using the system believe that the system has met their expectations fully.

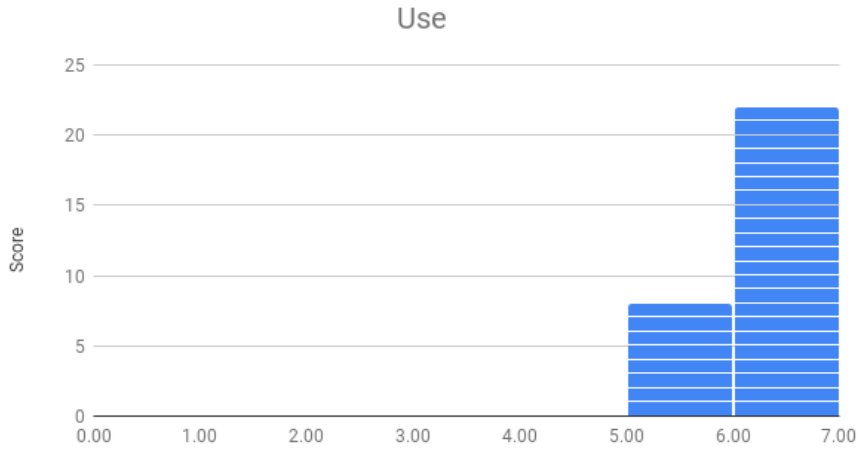


Figure 7: The utility star system is used in all different departments at BWS, however according to the results of data collected approximately 73% of participants strongly agreed that their usage and dependence is high. The participants also agreed on their ability to complete task alone.

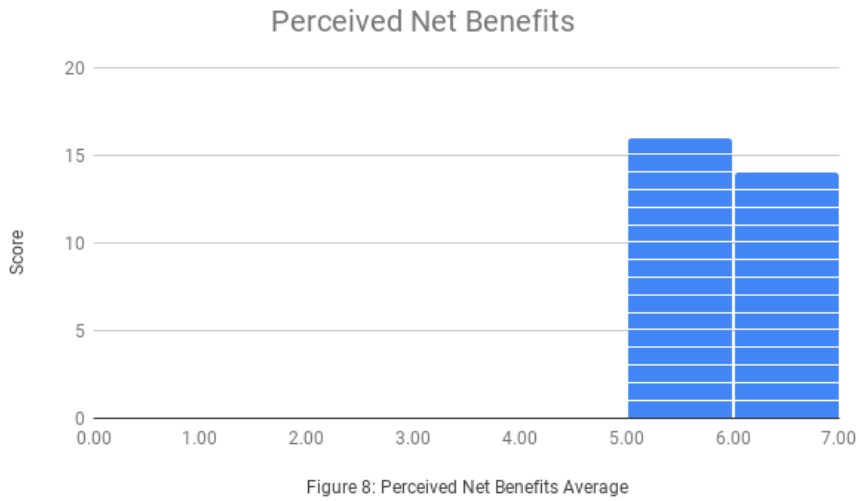


Figure 8: The histogram shows that the participants was basically slip when it came to the perceived net benefit of the utility star. About 47% agreed that the system helped them improve their individual performance and increase the overall productivity. While, 53% was neutral or only somewhat agreed.

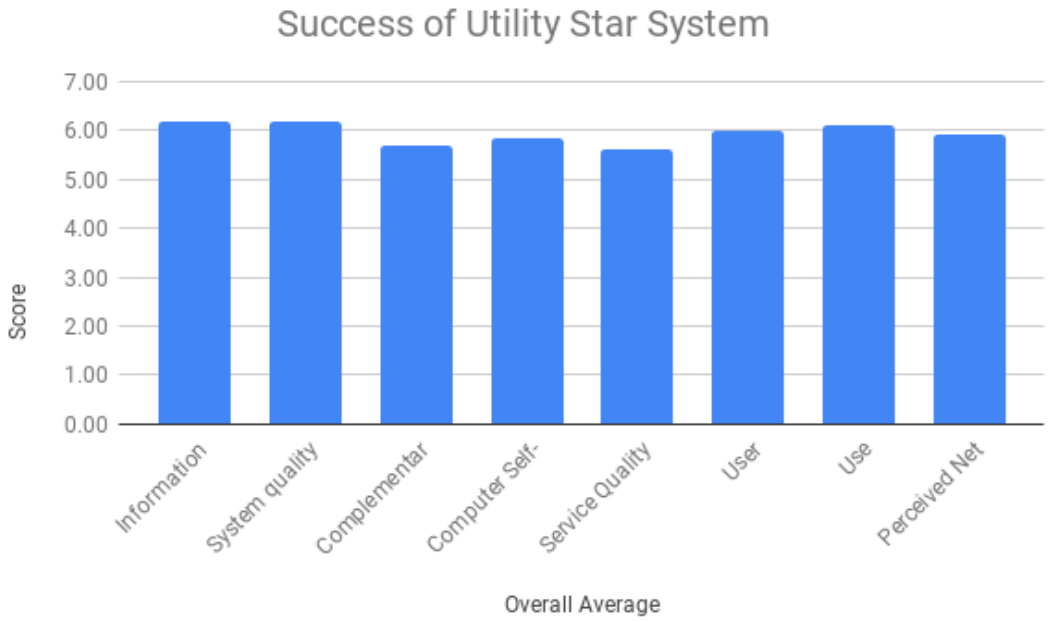


Figure 9: The bar chart above shows the overall success of the utility star information system; the average of each section has been averaged and the results have been placed into a bar chart. The following discussion will be focusing mainly on the overall average of each area.

Discussion

For the purpose of measuring the IS Success of Utility Star, an already existing model developed by DeLone and McLean (2003) was adopted. This IS Success Model studies various constructs that contribute to a high-grade system implementation.

The analysis of the results shows that information quality, system quality, complementary technology quality, system use, and perceived net benefit are well-founded constructs that properly measure the success of the IS. However, the results from the research indicates that information quality, system quality, user satisfaction and system use received better rating that those of complementary technology quality, computer self-efficacy measure and service quality.

It can be noted the complementary technology quality is very important to an organization. According to the survey, the information and system quality of Utility Star is on part however when it comes to the software used to access the system such as desktop, laptop or handheld they are not adequate. This can have a major impact on employee's daily function. Thus, BWS must invest in up to date software and devices that the system is being used on. BWS should also investigate internet provider speed and the reliability of the internet.

Furthermore, computer self-efficacy measure received conflicting results with 67% of participant somewhat agreeing or neutral on how well they can maneuver the system. It is advised for BWS to put more focus on developing proper evaluation to measure employee's abilities and identify staff members that require more guidance and training with the system. This, in turn, might

change perception and increase perceived net benefits, as according to the survey almost 50% of participants were neutral on the perceived net benefits of Utility Star.

In addition, 6% of the sample was neutral on the service quality. These participants perhaps require faster reaction time for system issues and desire for the system to be upgraded to time. As recommended, the participants level of system skills needs to be evaluated and if they are not sufficient, there must be training sessions implemented to help increase their capability.

Conclusion

Users have found Utility Star to be essential to their daily work function at BWS. The DeLone and McLean model assisted in properly analyzing the successful implementation of the Utility Star Information System. The eight constructs allowed us to determine the state in which the information system is currently at and how it can be improved for better performance in the future.

The constructs of information quality, system quality, user satisfaction and system use were generally on the same standard; users agreed that this made the system useful and helped them work effectively. However, complimentary technology quality and computer self-efficacy measures needs improvement. Thus, the technical/support staff at BWS has not done an adequate job at implementing and servicing the system. All the same, further instruction into the usage of the system and training is required to increase self-efficacy.

Limitations & Recommendations

One of the greatest limitations of this study was time. We understand that the survey was not an obligation or priority to the employees of BWS. They had numerous other tasks to deal with, which explains why we receive a response rate of 86%.

Nonetheless, the research still provided insight into the Utility Star information system. The study also provided a structure to explore the impact of both the system quality and user satisfaction, use and perceived net benefits. Undoubtedly, further research study can be completed using this research as foundation. We recommend researchers try to get a 100% response rate of a larger sample base as it may give a more accurate picture of the implementation success. We also recommend the use of the longer version of the survey as it may provide more accurate results.

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Appendix

Purpose

This research is required for the CMPS3012 MIS course at University of Belize University.

This questionnaire asks for information about BWS Employees and how often they use the Utility Star Software. The data gathered will be analyzed to determine the success of Utility Star at BWS.

Please answer each question based on your use of Utility Star. Your individual responses to the questionnaire will be strictly confidential and used solely for this research.

Instructions

This is a survey, not a test; there are no right or wrong answers. Please tick the boxes to mark your answers.

1. BWS Employees Background Information	Answers:
Please indicate your gender:	Male ☐ Female ☐
Please indicate your age:	<25 ☐ 25-35 ☐ 36-45 ☐ 46-55 ☐ >55 ☐
Please indicate your department:	Customer Service ☐ Finance ☐ Operations ☐ IT ☐ Technical Services ☐ HR/PR ☐ Internal Audit ☐
Please indicate how long you have been working at BWS:	<5 ☐ 5-10 ☐ 11-15 ☐ >15 ☐

Indicate your agreement with each statement by rating it from (1) strongly disagree to (7) strongly agree.

2. Information Quality	Disagree ----------Agree
IQ1: The Utility Star system provides information that is exactly what you need	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
IQ2: The Utility Star system provides information you need at the right time	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
IQ3: The Utility Star system provides information that is relevant to your job.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
IQ4: The Utility Star system provides sufficient information	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
IQ5: The Utility Star system provides information that is easy to understand.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
IQ6: The Utility Star system provides up-to-date information	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
3. System Quality	**Disagree ----------Agree**
SQ1: The Utility Star system is easy to use	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
SQ2: The Utility Star system is user-friendly	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
SQ3: The Utility Star system provides high-speed information access.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
SQ4: The Utility Star system provides interactive features between users and system.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
4. Complementary Technology Quality	**Disagree ----------Agree**
CTQ1: The software on the devices (desktop, laptop, handheld) used to access Utility Star system is adequate.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CTQ2: The device hardware (desktop, laptop, handheld) used to access Utility Star system is adequate.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CTQ3: The speed of the Internet connection used to access Utility Star is adequate	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CTQ4: The reliability of the internet connection used to access Utility Star is adequate.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
5. Computer Self-Efficacy Measure I COULD COMPLETE THE JOB USING UTILITY STAR SYSTEM...	**Disagree ----------Agree**
CSE-1: .... if there was no one around to tell me what to do as I go.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CSE-2: .... if I had never used an information system like it before.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

CSE-3: .... if I had only the information system manuals for reference.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CSE-4: .... if I had seen someone else using the information system before trying it myself.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CSE-5: .... if I could call someone for help if I got stuck.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CSE-6: .... if someone else had helped me get stared.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CSE-7: .... if l had a lot of time to complete the job for which the information system was provided	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CSE-8: .... if I had just the built-in help facility for assistance.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CSE-9: .... if someone showed me how to do it first.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
CSE-IO: .... if I had used similar information systems before this one to do the same job.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
6. Service Quality	**Disagree ----------Agree**
SV1: The support staff keep Utility Star system software up to date	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
SV2: When users have a problem, Utility Star system support staff show a sincere interest in solving it	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
SV3: The Utility Star system support staff respond promptly when users have a problem	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
SV4: The Utility Star system support staff tell users exactly when services w be performed	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
7. User Satisfaction	**Disagree ----------Agree**
US1: Most of the users have a positive attitude of Utility Star system.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
US2: You think that the utility of the Utility Star system is high.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
US3: The Utility Star system has met your expectations.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
US4: You are satisfied with the Utility Star system.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
8. Use	**Never ----------Often**
U1: Your frequency of use of the Utility Star system is high	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
U2: You depend upon the Utility Star system to perform your task	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
U3: You were able to complete a task using Utility Star system even when there was no one around to tell you what to do	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
U4: You have the knowledge necessary to use the Utility Star system	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
9. Perceived Net Benefits	**Never ----------Often**
NB1: The Utility Star system helps you improve your work performance	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
NB2: The Utility Star system helps the company save costs	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
NB3: The Utility Star system helps the organization achieve its goal.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
NB4: Using the Utility Star system improves the assessment and training	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
NB5: Using the Utility Star system at work increases my productivity.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
NB6: Overall, using Utility Star system enhances recruitment and performance management.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

Please return this survey to the person who gave you the form.

Thank you for your participation.