

# Evaluating the Success of Belize Telemedia Limited Information System

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## Abstract

*Belize Telemedia Limited is the telecommunication juggernaut in Belize. Its reach is tremendous, and it has remained virtually unscathed by budding competitors in its field of business. The purpose of this study is to analyse this business' human resource management system software, "PeopleSoft", and attempt to establish a correlation between it and the rate of success in the delivery of quality service and production. This study provides an empirical test of an adaptation of DeLone and McLean's success model in the context of Peoplesoft. The data used in the research was collected using physical copies of questionnaires distributed to thirty (30) participants. The participants were selected using the purposive sampling method. The model consists of six constructs: information quality, system quality, service quality, user satisfaction, use, and perceived benefits. The subsequent constructs added were the complimentary technology quality and self-efficacy measure. The results of the study show that respondents gave an average score of 4.73 for "User Satisfaction" and an average score of 4.75 for "Perceived Net Benefits".*

**Keywords:** PeopleSoft, Information and Computer Technology (ICT), Telecommunication, Perceived Net Benefits, Service Quality, Complementary Technology Quality

## Introduction

Technology is changing at breakneck speeds. The phenomenal rates at which these metamorphoses in hardware and software occurs is incredible and its effects are far reaching.

The emerging new technologies are forcing businesses to evolve into ICT friendly environments where customer satisfaction is key (Davis, 2002; Jimoyiannisa & Komisb, 2007). Information and communication technology is fast becoming the standard by which all businesses are judged; the most efficient vendors utilize technology to market effectively, equating to success in the current economic climate. In Belize, Belize Telemedia Limited is the premier telecommunications and multimedia company. It was established in 1972; previously called Belize Telecommunications Limited, but was rebranded in May of 2007. The company rose to affluence and became Belize's leading provider of telecommunications, a position it still holds today. Today BTL, under a new guise "Digi", provides the latest in cutting edge technology and has established Belize's first high-speed, fibre-optic network.

The purpose of this study is to establish a correlation between the software that BTL uses called "PeopleSoft" and the qualitative statistical outputs the company produces. The PeopleSoft software is an enterprise resource planning system created by Oracle Inc., a robust system that is multifaceted in its uses. ERP software such as PeopleSoft is highly configurable to accommodate the diverse needs of users across most sectors of the economy (Becker, 1998). It can be used by students to enroll in classes, update their contact information, view and pay tuition, accept or decline financial aid, and see their grades and transcripts. In business and human resource management "faculty and staff use PeopleSoft to access their benefits, pay check, and update their contact information" (Klaus et. al, 2000). BTL integrates the software into its human resource management system. For this reason much of their success in business management can be perceived to be linked to the effective use of this software.

The study seeks to analyse the impact that age, educational fidelity and years of working experience has on the overall company's operation and efficacy in using PeopleSoft. Although there has been numerous research conducted that sought to analyse company norms and quality of service, not very many have been conducted involving companies as unique as BTL. BTL exists in an economic climate within which it has only one viable competitor, which usually equates to an inconsistency in quality of service because of its "monopoly-type" characteristics. "It is well known that problems can arise for three broad reasons: distributive justice, external effects and scale economics" (Melitz, 2003). Regardless of the economic climate in which the company operates, there seem to be an intrinsic quality that makes BTL successful in its approach.

Key qualitative statistics that will be considered in the research include the "Systems Quality", "Information Quality" and "Service Quality" that is afforded or attained by using PeopleSoft. This research can prove valuable to businesses and human resource departments who wish to be guided by established best practices in procuring new cohorts within their establishments. The analysis of the data collected will be represented in tables and alternate formats to present findings.

## **Originality**

The submission of this paper has not been published or accepted in a journal or conference proceedings, nor presented at another conference. Additionally, this is the first time that the Peoplesoft Information System is being evaluated in reference to a Belizean company. There is

no current published article on how the information system has affected the organization, BTL, or its customers.

## Literature Review

The theoretical framework primarily focuses on the 1992 and 2003 Delone and McLean IS Success Model. The main objective, based on this IS Success Model, is to present the theoretical foundation and the conceptualization of the success of "Peoplesoft" Information System at Belize Telemedia Limited. These chosen frameworks were seen relevant in order to conduct a thorough analysis from the gathered data.

Delone and Mclean (1992) developed their model by considering information to be the output of an IS or the message in a communication system. The work by both Shannon and Weaver (1949) and Mason (1978), noted that the effect of information on its recipient (user) is consistent at a technical level, a semantic level, or an effectiveness level. The technical level provides a detailed system of transmission in order for communication to be conveyed.

E-HRM system is a special type of IS. Within this section we will determine the theoretical foundation and conceptualization of an e-HRM success based on prior IS success studies. Delone and Mclean both discussed that there were six major factors in IS success, specifically: the quality uniqueness of the IS itself (system quality), the quality of the productivity of the IS (information quality), utilization of the output of the IS (use), the IS user's response to the IS (user satisfaction), the effect of the IS on the behavior of the user (individual impact) and the effect of the IS on organizational performance (organizational impact). As the basis for both process and causal considerations, the success found within the six scope are designed to be interrelated rather than independent. This has important implications for the measurement, analysis, and reporting of IS success in empirical studies (Delone & Mclean, 2003).

Records indicates that both authors tested both principles to identify, categorize and analyze the IS measure of success. These results have been published in several journals between 1981 and 1988. In 1978 Richard Mason developed the use of categorization which was based on Claude Shannon and Weaver's Information Theory in 1949. Moreover, Shannon's information theory was improved based on mathematical theories involving signal transmissions with maximum telephone line capacity at a minimum distortion. Due to the IS success there was an expansion in different kind of communication which developed the philosophical portion of the theory relating to the human communication in 1962. Delone and Mclean proposed the six dimensions of IS success based on Mason's taxonomy.

The most important work done by the Belize Telemedia Limited is being able to develop a field of communication for customers by utilizing their Peoplesoft Information System. The theoretical structure used is Adaptive Structuration Theory. This theory was formulated by DeSanctis and Poole to describe the interplay between advanced information technologies, social structures, and human interaction (Greenbaum, 2017). Adaptive structuration theory basically explains the use and effects of technologies in organizations. Belize Telemedia Limited is

actively upgrading and is fast becoming one of the best telephone and internet providers in the region. This growth is far-reaching, as it is now transforming technology and taking it into urban communities within Belize.

Within this organization the Peoplesoft Information System makes life much easier for customers. With the integration of a better network (internet speeds) members can also access account balance information via the “Digi” mobile app. PeopleSoft also offers business process management (BPM) tools, allowing users to set up orders and workflows, as well as automate processes. PeopleSoft can serve as an ERP system, or its applications can be used individually. According to Sife, Lwoga, and Sanga (2007), developing countries globally were operating within Information and Communication Technologies (ICTs) where the resource-constraints were evident and the greater population were not as skilled or equipped with the basic “how-to” in operating ICTs and other technological applications. Despite the mandate for great telecommunication services, Belize Telemedia Limited strives for better output with the information given out to customers.

Belize is a relatively young and developing country venturing into providing proper service via communications networks. The lack of a systematic approach to ICT implementation was considered as a “Digital Divide” which in definition, was referred to a limit to access between demographics in relation to information and technology (Lutz, 2003). The main criteria known as the “Digital Divide” created a gap between these developing countries and online services and communication. This process enabled the use of efficient and skilled human resources in these countries for technical issues faced due to the lack of or minimal complementary assets needed to operate technical systems. Technology and design factors may allow room for local improvisation, but the ability of implementers in developing countries to better define such improvisations will depend partly on local capacities. A wide range of such local capacities is required, but there is a central requirement for hybrids (Earl, 1989).

## **Research Methodology**

### **Research Model and Hypotheses**

When it comes to the information system success within Belize Telemedia Limited, faculty and staff use Peoplesoft information system to access their benefits, salary payments and update their contact information. Thus, this study proposes a comprehensive model of Peoplesoft success (see Fig.1), which suggests that information quality, system quality, service quality, complementary technology quality, use, user satisfaction, and perceived net benefit are success indicators in Peoplesoft. We studied the definitions of the Delone and Mclean IS success model's success dimensions, contrasted them with Peoplesoft's specific properties, and merged the different points of view into a revised classification scheme. Consequently, we included the following success dimensions in our theoretical model:

Complementary Technology Quality, Service Quality and Intention to Use were placed in the updated model and there was a combination of Individual and Organizational impact into Net Benefits within Peoplesoft. Information quality, net benefits, system quality, and service quality are success variables within Peoplesoft's system. Based on Delone and Mclean theoretical findings on Information system success model; information quality, which focuses on

Peoplesoft's quality output, is very important when it comes to decision making and its usefulness to its users. Service Quality comprises of an overall support related to Peoplesoft maintenance providers. User satisfaction was based on the employees' attitude toward the Peoplesoft Information systems. This had a great impact on determining information system success as it relates to how often the employees use the system. The net is the achievement of Peoplesoft objectives for using the system to access benefits, paychecks and updating information.

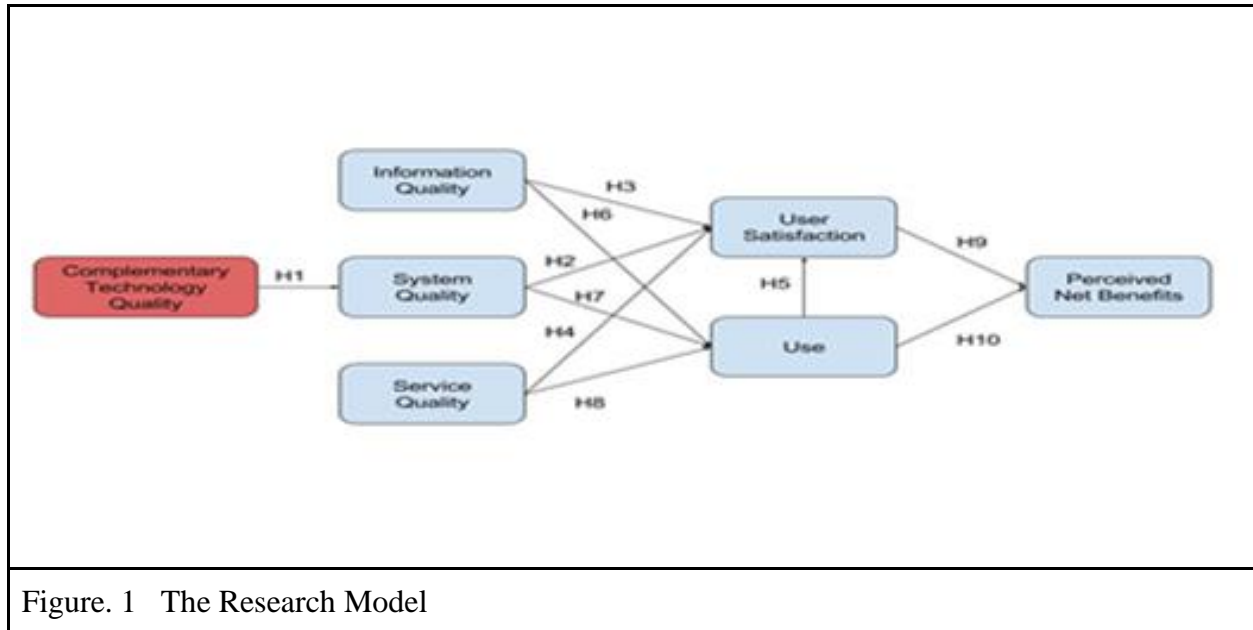


Figure. 1 The Research Model

The hypothesized relationship between Peoplesoft success variables are based on the theoretical and empirical work reported by Delone and Mclean (2003). Even though more research is needed before it could serve as a basis for the selection of appropriate IS measures. Accordingly, the study hypothesized the following ten hypotheses tested:

- H1. Complementary technology quality will positively impact system quality.
- H2. Information quality will positively impact user satisfaction.
- H3. System quality will positively impact user satisfaction.
- H4. Service quality will positively impact user satisfaction.
- H5. Use will positively impact user satisfaction.
- H6. Information quality will positively impact use.
- H7. System quality will positively impact use.
- H8. Service quality will positively impact use.
- H9. User satisfaction will positively impact perceived net benefit.
- H10. Use will positively impact perceived net benefit

## Construct Measurement

To ensure the validity of the research, measurement scales for the quantitative data collection were mainly elicited from previously verified instruments. The Bailey and Person (1983) seven item scale was utilized which included a few adjustments to fit the specific contents of Peoplesoft. Bailey and Person's instrument is the standard instrument in the IS field, because it has been widely accepted and used by several researchers. The validity and the reliability of the instrument have been tested.

| Table 1. Measurement items for questionnaire. |  |                          |
|---|--|--------------------------|
| Construct                                     | Survey Questions   | Source                   |
| Information Quality                           | IQ1: The Belize Telemedia Information System provides information that is exactly what you need<br>IQ2: The Belize Telemedia Information System provides information you need at the right time<br>IQ3: The Belize Telemedia Information System provide information that is relevant to your job<br>IQ4: The Belize Telemedia Information System provides sufficient information<br>IQ5: The Belize Telemedia Information System provides information that is easy to understand<br>IQ6: The Belize Telemedia Information System provides up-to-date information | Bailey and Person (1983) |
| System Quality                                | SQ1: Is Belize Telemedia Information System easy to use?<br>SQ2: Is Belize Telemedia Information System user friendly?<br>SQ3: Does Belize Telemedia Information System provides high-speed information access?<br>SQ4: Does Belize Telemedia Information System provides interactive features between users and the system?   | Alshibly, (2011)         |
| Complementary Technology Quality              | CTQ1: The computer (desktop computer, laptop, mobile, device) you normal use to access Belize Telemedia Information System adequate<br>CTQ2: The computer (desktop computer, laptop, mobile device) you normally use to  | Teece, D. J. Yip (1992)  |

|                                 |  |                                  |
|---------------------------------|--|----------------------------------|
|                                 | <p>access Belize Telemedia Information System has a fast and reliable system.</p> <p>CTQ3: The speed of the internet connection used to access Belize Telemedia Information System adequate?</p> <p>CTQ4: The reliability of the internet connection used to access Belize Telemedia Information System is adequate.</p>   |                                  |
| Computer Self-Efficacy Measures | <p>CSE-1 .... If there was no one around to tell me what to do as I go.</p> <p>CSE-2 .... If I had never used an information system like it before.</p> <p>CSE-3 .... If I had only the information system manuals for reference.</p> <p>CSE-4 .... If I had seen someone else using the information system before trying it myself.</p> <p>CSE-5 .... If I could call someone for help if I got stuck.</p> <p>CSE-6 .... If someone else had helped me get started.</p> <p>CSE-7 .... If I had a lot of time to complete the job for which the information system was provided.</p> <p>CSE-8 .... If I had just the built-in help facility for assistance.</p> <p>CSE-9 .... If someone showed me how to do it first.</p> <p>CSE-IO.... If I had used similar information systems before this one to do the same job.</p> | Cassidy, S., & Eachus, P. (2002) |
| Service Quality                 | <p>SV1: The support staff keep the Belize Telemedia Information System up to date</p> <p>SV2: When users have a problem the Belize Telemedia Information System staff show a sincere interest in solving it</p> <p>SV3: Belize Telemedia Information System staff respond promptly when users have a problem</p> <p>SV4: Belize Telemedia Information System support staff tell users exactly when services will be performed.</p>   | Change et al., (2009)            |
| User Satisfaction               | <p>US1: Most of the users have a positive attitude of Belize Telemedia Information System</p>  | Seddon and Yip (1992)            |

|                        |  |   |
|------------------------|--|---|
|                        | <p>the Moodle system function.</p> <p>US2: You think that the utility of the Belize Telemedia Information System is high.</p> <p>US3: Belize Telemedia Information System has met your expectations.</p> <p>US4: You are satisfied with the Belize Telemedia Information System.</p>   |   |
| Use                    | <p>U1: Your frequency of use of the Belize Telemedia Information System is high</p> <p>U2: You depend upon Belize Telemedia Information System</p> <p>U3: You were able to complete a task using Belize Telemedia Information System even when there was no one around to tell you what to do</p> <p>U4: You have the knowledge necessary to use the Belize Telemedia Information System</p>   | <p>Balaban et al., (2013)</p> <p>Rai et al., (2002)</p> |
| Perceived Net Benefits | <p>NB1: Belize Telemedia Information System helps you improve your job performance</p> <p>NB2: Belize Telemedia Information System helps the organization save cost.</p> <p>NB3: Belize Telemedia Information System helps the organization achieve its goal</p> <p>NB4: Belize Telemedia Information System improves the assessment and training</p> <p>NB5: Using Belize Telemedia Information System in job increases my productivity.</p> <p>NB6: Overall, using Belize Telemedia Information System in job increases my productivity.</p> | <p>Alshibly, (2011);</p> <p>Tansley et al, (2001)</p>   |

## Data Analysis

All the questions in the internal user and external user response analysis were measured using a 7-point Likert Scale with scales ranging from strongly disagree (1) to strongly agree (7). The bar graphs below demonstrate the internal users' valuation of the Benefits Information System under eight constructs based on the DeLone and McLean model: information quality, system quality, service quality, complementary technology quality, computer efficacy measure, user satisfaction, use and perceived net benefits. The bar graphs illustrate the percentage Likert rating chosen for each construct.

### *Sampling and data collection*



The data for this study were collected from a sample of Human Resource (HR) managers and employees from Belize Telemedia Limited. The method of the research sampling is ‘purposive sampling method’ whereby questionnaires were distributed to specified employees to gain their perspective regarding the software. Out of the 30 questionnaires distributed to HR employees, all questionnaires were received, yielding a response rate of 100 percent; an acceptable result that facilitated the research to be conducted. The respondents' characteristics is presented in Table 2. Male participants represented a slightly higher percentage of the completed sample (approximately 40%) compared to female participants (approximately 30%). 26.7% of the participants were aged 25-35 years. The completed sample was composed of well-educated individuals, approximately 40% of whom held Bachelors . The participants were employees that had contact with the Peoplesoft Information System. Of note, approximately 30% of the participants had more than 10-15 years’ work experience.

Table 2. Characteristics of the respondents

| <b>Characteristics</b> | <b>Number</b> | <b>Percentage</b> |
|------------------------|---------------|-------------------|
| <b>Gender</b>          |               |                   |
| Male                   | 12            | 40%               |
| Female                 | 18            | 60%               |
| <b>Age</b>             |               |                   |
| Less Than 25           | 7             | 23.3%             |
| From 25 to 35          | 8             | 26.7%             |
| Over 35 to 45          | 6             | 20%               |
| Over 45 to 55          | 3             | 10%               |
| Older than 55          | 6             | 20%               |
| <b>Education</b>       |               |                   |
| PhD                    | 3             | 10%               |
| Masters                | 12            | 40%               |
| Bachelors              | 7             | 23.3%             |
| Associates Degree      | 6             | 20%               |
| High School            | 2             | 6.7%              |
| Primary School         | 0             | 0%                |

| Work Experience |   |       |
|-----------------|---|-------|
| Less than 5     | 7 | 23.3% |
| From 5 to 10    | 8 | 26.7% |
| Over 10 to 15   | 9 | 30%   |
| More than 15    | 6 | 20%   |



Figure 2. Histogram of the Information Quality construct

Figure 2. Illustrates the average responses for Information Quality construct. The results showed that majority of the responses are average.

**Histogram of System Quality**

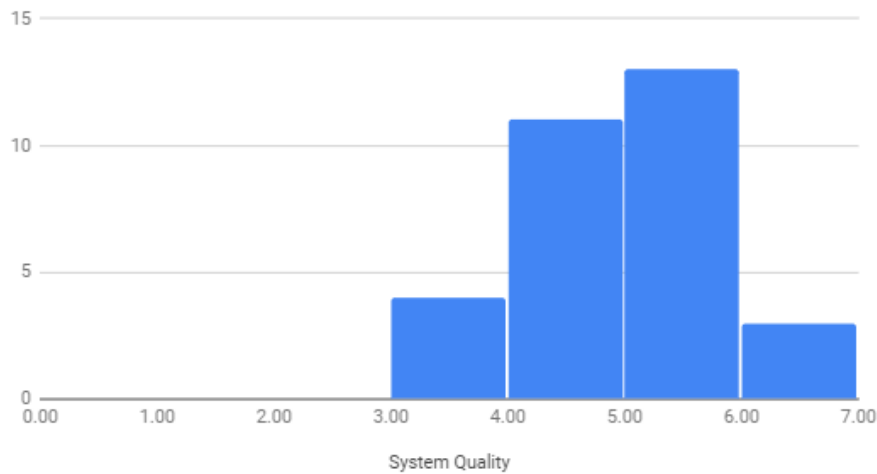


Figure 3. Histogram of the System Quality construct

Figure 3. Illustrates the average responses for the System Quality construct, showing that majority of the respondents agree that the People soft information system is easy to use and user friendly.

**Complementary Technology Quality**

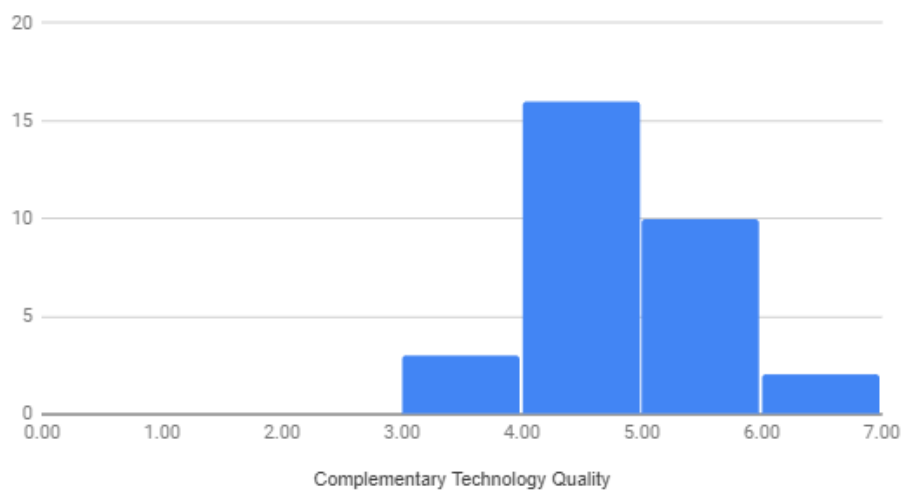


Figure 4. Histogram of the Complementary Technology construct

Figure 4. Illustrates that most of the respondents agree and are satisfied with the devices that are used.

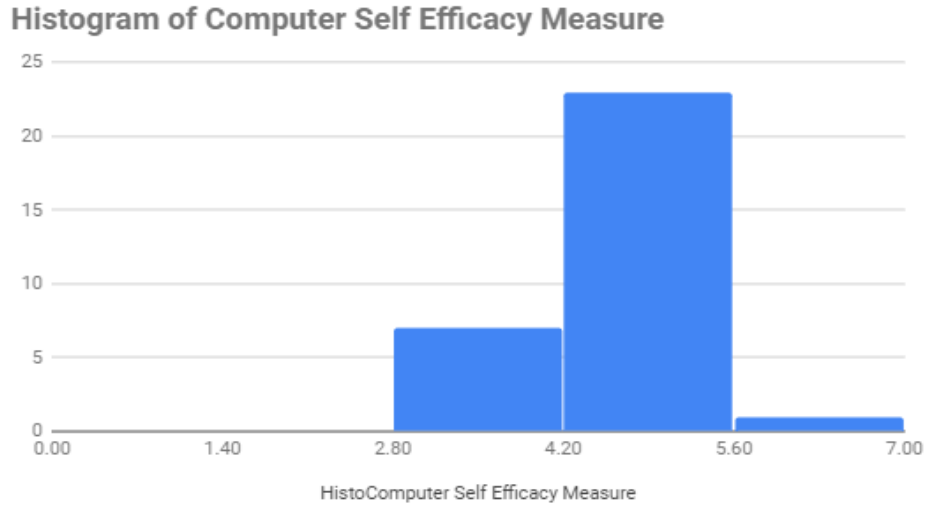


Figure 5. Histogram of the Computer Self-Efficacy Measure

Figure 5. Illustrates that majority of the response scores that are above average, indicating that most of the respondents agree that they are able to complete their job.

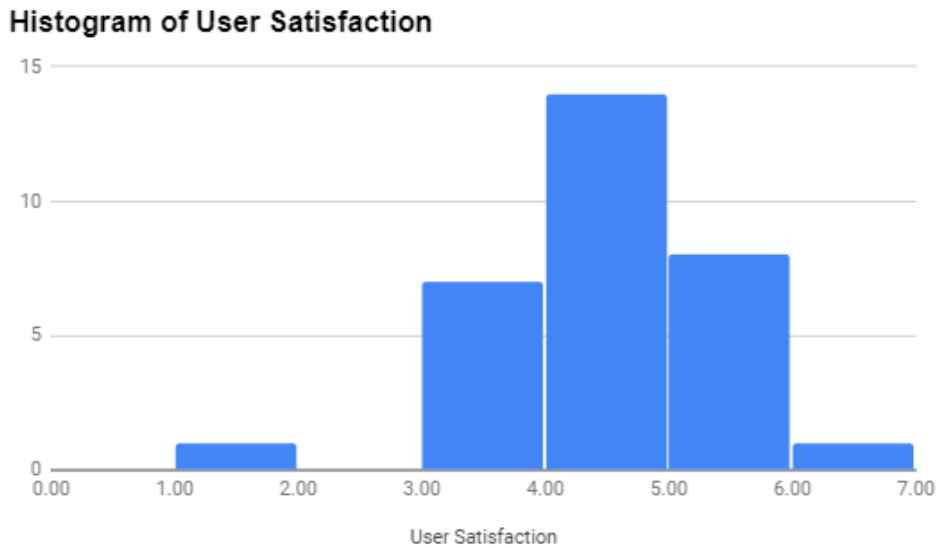


Figure 7. Histogram of the User Satisfaction construct

Figure 7. Illustrates that majority of the respondents agree that the information system utilized is adequate but may not be optimal.

**Histogram of Use**

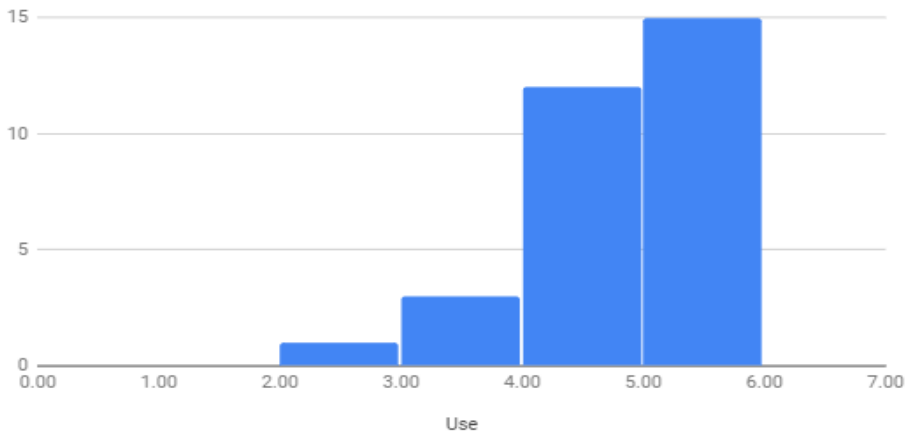


Figure 8. Histogram of the Intention of Use construct

Figure 8. Illustrates that staff is dependent upon the information, indicated by the high frequency of use.

**Perceived Net Benefits**

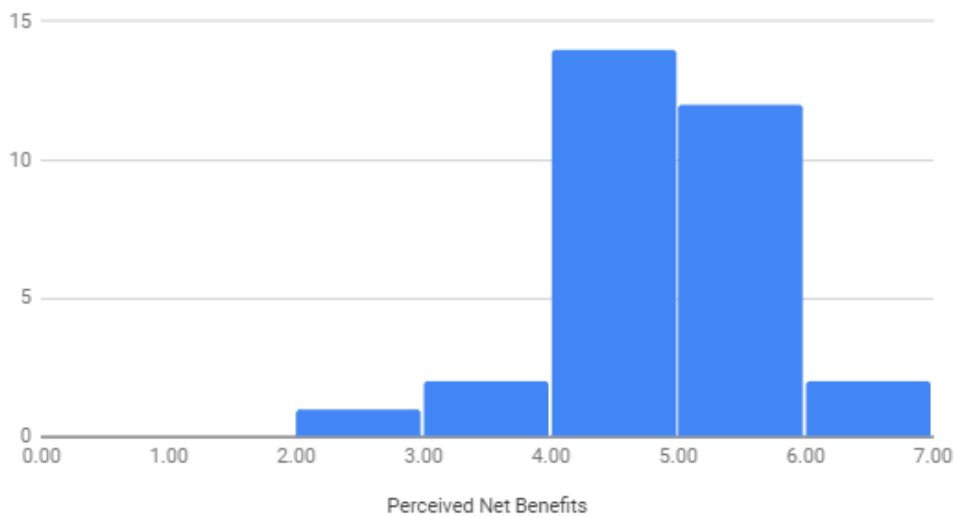


Figure 9. Histogram of the Perceived Net Benefits construct

Figure 9. Illustrates respondents agreement that Peoplesoft Information System enables them to improve their job performance, as well as their productivity.

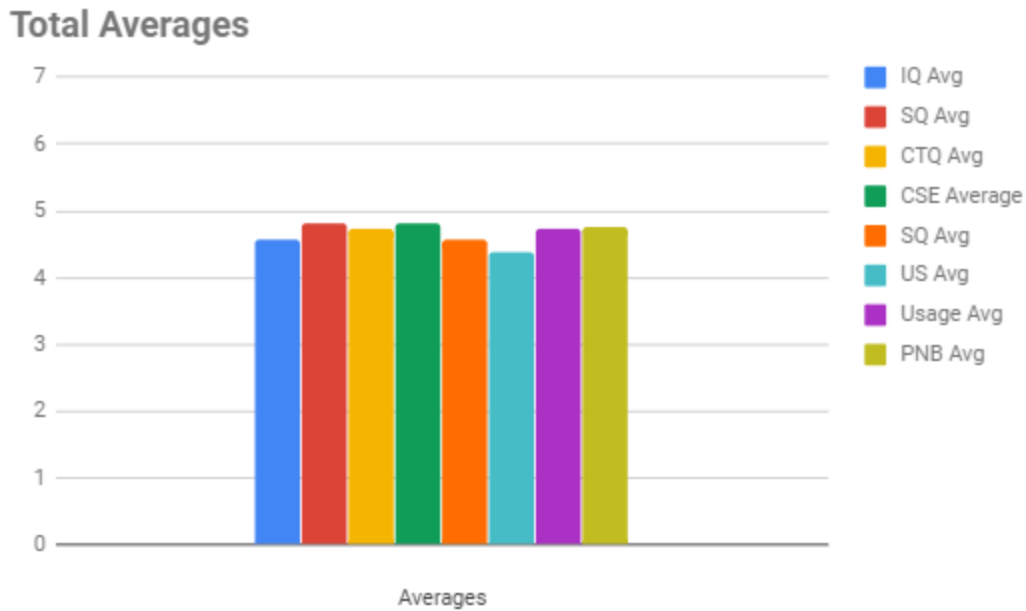


Figure 10. Histogram of the Average Responses for the IS Success constructs

The results showed that all responses are above average and Service Quality and System Quality are the highest response scores. Although the User Satisfaction response is relatively lower than the other statistics, its key indicator shows that the average user is adequately satisfied with the services provided by the IS. A rationale for this may be attributed to staff members not getting the optimal output from the system being used, hence the reason they are not completely satisfied with the performance of the system. Even though the response to User Satisfaction was a bit low, the overall usage of the system was moderate, an indication of the system's ease of use.

## **Conclusion**

### ***Findings***

The main purpose of this study is to evaluate the success of Belize Telemedia Limited information system internally with the DeLone & McLean IS Success Model. Our records indicate that, internally, the data findings are based on different elements that consist of system quality, complementary technology quality, computer self-efficacy, service quality, user satisfaction, use, and perceived net benefits of the system being evaluated. Hence, with the data collected, we were able to establish a correlation between company success and the use of the information system "PeopleSoft". When it comes to system quality and user satisfaction, the Benefits System is considered satisfactory, easy to use, accessible, and user friendly.

### **Limitations**

Not unlike other research of this kind and magnitude; time constraints was a significant factor. Data collection would have been more easily facilitated if more time was afforded. The sampling method chosen; purposive sampling method, may have limited the scope of respondents that was selected for the sample. Another, more open method of sampling would have made for a more diverse sample size.

### **Future research**

In the future, sufficient data would need to be collect on Peoplesoft information system prior to the launch of a quantitative investigation. With this foundational information at our fingertips, the hypothesis for our findings can be tested.

### **Acknowledgements**

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