

Determining the effectiveness of the hybrid system used by Centaur Cable Network

Melissa Dominguez
Faculty of Management and
Social Sciences
#23 Watermelon Street
Corozal Town
2017217580@ubstudents.edu.bz

Anita Eck
Faculty of Management and
Social Sciences
Patchakan Village,
Corozal District
2017116988@ubstudents.edu.bz

Kenmore Hyde
Faculty of Management and
Social Sciences
Orange Walk Town
2015112802@ubstudents.edu.bz

Ebony Gentle University of Belize College Street, West Landivar 200217436@ubstudents.edu.bz

Udelia Catch
Faculty of Management and Social Sciences
Xaibe Village,
Corozal District
2017217575@ubstudents.edu.bz



Abstract

This research was conducted to determine the effectiveness of the hybrid system that Centaur Cabelnetwork uses in the country of Belize, many gaps that have been unnoticed were revealed. The research in comparison to the Delone and McLean's IS favorable outcomes. This model consists of eight different features: Information Quality, System Quality, Complementary Technology Quality, Service Quality, Computer Self-Efficacy Measures, User Satisfaction, Use, and Perceived Net Benefits. Techniques on the applied and basic research data was collected by questionnaires from 60 (sixty) individuals including Centaur's employees and customers. Hypothesis for these variables are supported by the data provided. Discoveries provide several suggestions for the research. The paper concludes by discussing certain limitations and how it can be improved.

Keywords: Centaur Cablenetwork, hybrid, variables, Management Information System

1.Introduction

Centaur Cablenetwork is a Belizean cable company with its headquarters situated in the Orange Walk Town. For over two decades, the company dedicate to quality service and excite products that has made it the leader of the communications industry providing its service from Ladyville to Corozal Districts. Entertainment and communications are very important according clients' needs and uses.

Centaur Cablenetwork provide more the best High-Speed Internet and is continuously investing and expanding their current network with the best and modern technology. Their fiber network is one of the largest and modern systems in Belize allowing clients and users to provide nothing but the best services to subscribers. The purpose of this research is to collect data on the effectiveness of the hybrid Information System that Centaur Cablenetwork offered to clients and users. To identify the strength, design and development required of an integrated information system, which makes the hybrid information system, the mixed data and knowledge management features they present. To measure the success of Information system that Centaur Cablenetwork utilized using D&M IS Success Model, with the 8 dimension and variables, Information Quality, System Quality, Complementary Technology Quality, Service Quality, Computer Self-Efficacy Measures, User Satisfaction, Use, and Perceived Net Benefits. The purpose of the research is about interpreting the experience that employees and users have with Centaur Cablenetwork either positively or negatively. To have an effective success on this research paper, researchers conduct questionnaires surveys to sixty sample questionnaires, participants were employees and clients. With the responses collected, researcher is to conclude whether Centaur Cable Network has the best quality service than any other competitor in the northern area of Belize.



2.Literature Review

In comparison to the Delone and McLean's IS favourable outcomes. This model consists of eight different features: Information Quality, System Quality, Complementary Technology Quality, Service Quality, Computer Self-Efficacy Measures, User Satisfaction, Use, and Perceived Net Benefits. DeLone & McLean Information Systems Success Model, also known as the D&M IS Success Model. The D&M IS success Model covers different perspectives of evaluating information systems. The Model define IS Success through it measuring and classified them into six major categories. The six interrelated dimensions of IS Success, consist of, system and service quality, (intention to) use, user satisfaction, and net benefits. (DeLone & McLean 1992).

D&M IS Success Model states that the system can be evaluated in terms of information, system and service quality, of which affect the use or intention to use and user satisfaction. The resulted benefits will either positively or negatively influence users' satisfaction and future use of the Information System. When users being, clients, employee, managers or any user of the product or service of Information System, it's assess the positive and negative aspects and user satisfaction is directly related with the benefits users receives and its main driving force behind the users' satisfaction. Those forces for user satisfaction are based on the following.

Today, Communication means so much more than just messages, its range of method and tools starts from including emails, all methods of messaging, conferencing and much more. In today the voice communication is emerging with other forms of communication to create converged environment that enables users to communicate effectively. Different communication and collaboration system, however, this can make task and work of managing a streamlined communications environment difficult. The IT takes a big role by mainlining two separate systems, ensuring the systems, ensuring the system works correctly and impeccably can be a challenge. In order to control the frustrating complex challenges. The hybrid communication systems can simplify a full features communication and collaborate environment. The hybrid system with the flexibility, scalability and features that come with a cloud-based service. According to Jeff Becker, Developer Designer. Benefits of a hybrid environment consist of Leverage current infrastructure, scalability, Opportunity to try the cloud, enable productivity anywhere, a clear migration path. (Becker, n.d.)

A hybrid system uses your current onsite communication system, with new functionality delivered via the cloud, that means you maintain control while exploring the advantage of cloud and get the most out of your investment. According to CIO Review, the hybrid system help organization to use networking technology, employees can employ their personal smartphone for work functions, of which support the synching of business information, for employees who have PC's tablets, tablets or in any smart phones. (Ericksen, n.d.) CIO Review also says that the technology trends have impacting business environment and functionality. Mobility is a characteristic of cloud along with big data, it provides opportunities to provide technology that enables the business to sell the business product in a more effectively, to serve police holder, and increase efficiency from employees. Buying capabilities and configuring and customizing, speed up the delivery process, the organization needs to build up a good relationship with networking.

According to (Corporate, n.d.), building the relationship with networking, along with IT increase the hybrid communication by increasing resources utilization of the business by,



Utilize Existing IT Infrastructure with Existing Telephones, Use the same Internet Connection for Voice and Data, Enables Users to Send SMS from their Email Client using GSM SIM, Use Smartphone for Office and Personal communication.

According to Matrix Telecom, the hybrid communication system increases the role, more control of customer satisfaction since there is high responsiveness of customers. It also reduces travel charges with office premise and between office and field resources. It also has control over operational costs, since it increases the organization efficiency, and no need to develop multiple location for administration since it miniated connected the different location. It also assures communication to continue between different location if in any case of service delivery failures due to transportation, (Corporate, n.d.) Hybrid communication also streamline business operation since it increases the staff responsiveness to customers and it contributes to the efficiency of the employee and provide more opportunities to customer to access the service of the business. According to Matrix Telecom, the hybrid communication makes the business communication more convenience for the organization since it contributes to identify call before being answered, and it can connect two or more Data Networking using E1 Line. (Corporate, n.d.).

According to Tony Bardo, Current technology trends, which range from the connected devices of the Internet of Things to bring-your-own-device initiatives and highperformance applications, are demanding more and more capacity and ability. Of which the hybrid networks system can blend those traditional Multiprotocol Label Switching networking with managed broad hand, it addresses the weak points. The hybrid model achieves this by taking advantage of the Internet and its lower price points and by intelligently prioritizing and routing the problem and manage the hybrid networking and helps to find facilities to solve the strain in networking capacity when encounter. According to Tony Bardo, The Hybrid communication is very effective for organization, either small to large enterprise, since it is comprised of advance telephony features to ensure cost saving, investment optimization, asset utilization and increased staff productivity and open doors for better opportunities for business, employees and customers. Despite of the improvement of the hybrid solution it offers, some business will still be hesitant to adopt it because of many security concerns related to internet based transported to dedicated networks, and high investment it requires for implementation in the organization(Bardo, 2005).

Delone and McLean's IS favourable outcomes can be achieved using Information service quality and system quality used by Organization and customers to increase net satisfaction.

3.-1Research Methodology

As Researchers, this study will educate the community on the facts of how the hybrid system works at Centaur, with an in-depth search on the, effects, and modifications in Belize today to obtain a better knowledge of how it works. The main objectives on this section is to outline the method that will be used to conduct this research.

It can be determined that the Information quality's main focus is based on Information System output and how it is being implemented and its usefulness and relevance to the customers. The complementary technological quality is simply how fast and consistent



the internet is whilst using the IS. The system quality evaluates how easy it is to use and operate the IS and how quickly the customers will grasp this technology. Service quality deals with how efficiently the IS responds to its users, how reliable they believe the system to be. In terms of the user satisfaction it is consistent with how well the customers recognize the IS and satisfaction with the IS.

So, based on the study we did at Centaur Cablenetwork staff and customer, we focused simply by using the IS success dimensions which are: service quality, complementary quality, system quality, system use, perceived net benefits, user satisfaction and information quality.

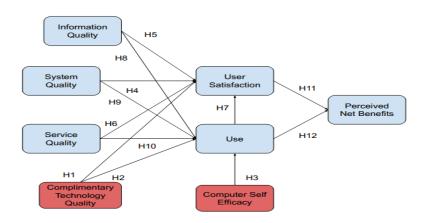


Figure 1. Information Systems Success Model (DeLone & McLean 2002, 2003)

3-2Hypothesis

- H1. Complementary technology quality will positively impact system quality.
- H2. System quality will positively impact user satisfaction.
- H3. Information 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

3-3. Key Definitions

Educate - give intellectual, moral, and social instruction to (someone, especially a child), typically at a school or university.

Population - A population is the number of living things that live together in the same place.

Qualitative - relating to, measuring, or measured by the quality of something rather than its quantity.

Quantitative - relating to, measuring, or measured by the quantity of something rather than its quality.

Survey - a general view, examination, or description of someone or something.

Instruments - In qualitative research & qualitative studies, the main instrument is the researcher him or herself. The researcher observes, takes notes, talks to people, etc. All of these are skills that need to be learned.

3-4. Population Size

The Ultimate Purpose of this research is to educate the community on how to determine the effectiveness of the hybrid system concentrating on the effects, and new technologies. Belize has seven districts including villages. Its estimated Population is approximately 388,000 according to Belize statistics (July 2018).

3-5. Sample Population

To fulfil this study, it is imperative that a Qualitative and Quantitative Research be conducted in the Northern area of Belize, Concentrating on Centaur Cablenetwork employees and customers. Participants in the study engaged to answer a questionnaire that was prepared by the researchers, it was conducted on the participants from ages less than 25 to 55 and above. A Sample of 60 Participants were surveyed.



3-6. Sampling Techniques

The study will use both basic and applied research for better results, qualitative and quantitative research will be used as sampling techniques to identify the effectiveness of the hybrid system. We will also be using Quota, Convenience, and Judgmental Techniques.

3-7. Research Instrument

Questionnaire is the instrument to collect data to get feedback on how we would determine the effectiveness of the hybrid system at Centaur Cablenetwork. The data requested will be used in strict confidence, names will not be a request and will not be used in the analysis of results. Participants will have the right to withdraw from the study at any given time at their discretion.

4-1. Data Collection

Researchers used the applied research methodology. The major purpose of the research was to determine the effectiveness of the hybrid system used by Centaur Cable Network. This research will analyze the results as applied research utilizing histograms and bar chart due to limited sample size.

Table 1.Characteristics of Respondents				
Characteristics	Number	Percentage		
Gender				
Male	26	52%		
Female	24	48%		
Age				
Less Than 25	10	20%		



17	34%
20	40%
3	6%
-	ο%
-	0%
2	4%
11	22%
16	32%
14	28%
7	14%
17	34%
15	30%
7	14%
11	22%
	20 3 - 2 11 16 14 7 17 15



4-2. Data Analysis and Results

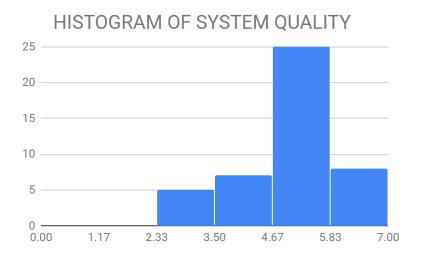


Figure 2.

The histogram above (Figure 2) is a graphical representation of users responses to the information quality of Centaur Cable Network. The responses range from 1.17 to 7 with the majority clustered between 2.33 and 7, which can be classified as a positive response. It can be concluded that the participants agrees that the quality of information provided by Centaur Cable Network is satisfactory.

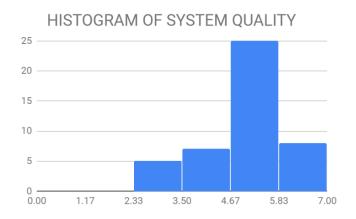


Figure 3.

The histogram above (Figure 3) is a graphical representation of the responses on the system quality of Centaur Cable Network. The majority of responses are clustered between 2.33 and 7, where participants responded positively to the system quality of Centaur Cable Network.





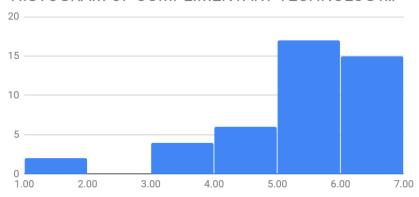


Figure 4.

The responses outline in (Figure 4) shows a positive feedback base on the questions asked for the complementary technology quality for Centaur Cable Network. The majority was clustered between 3 to 7, with the highest number strongly agree at 17 participants.

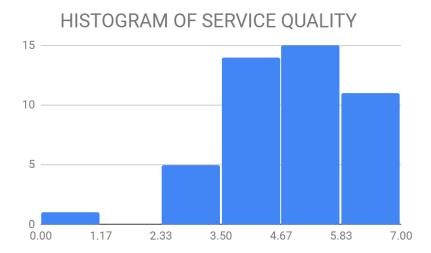


Figure 5.

Continuing with the positive feedback for Centaur Cable Network the histogram above (Figure 5) shifts slightly lower. The majority of the results cluster from 2.33 to 7, but scattered from 0.00 to 1.17. The results indicate that the service quality is satisfactory.





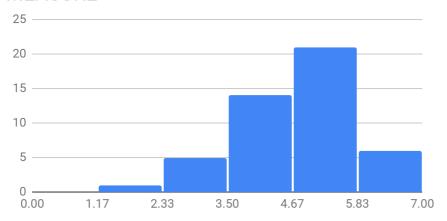


Figure 6.

The histogram is being displayed to show the results for computer self-efficacy measure (Figure 6) for Centaur Cable Network majority of participants strongly agree 2.33 and 7

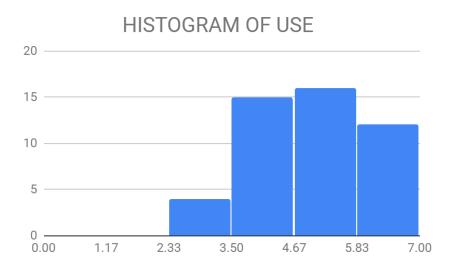


Figure 7.

The histogram above (Figure 7) display a graphical representation of the use of Centaur Cable Network hybrid system. All participants were familiar with the system use. A collection of result range between 3.50 and 7, also employees are aware on how to operate the Information Systems individually.





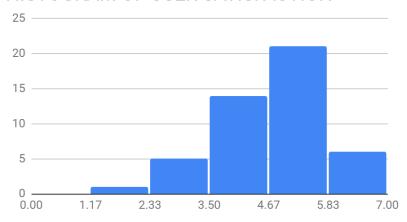


Figure 8.

The histogram above (Figure 8) shows a graphical representation of the participants user satisfaction with the hybrid system at Centaur Cable Network. Also, a very positive result, the majority falls between 2.33 and 5.83, concluding that the employees are satisfied with the Information System used.

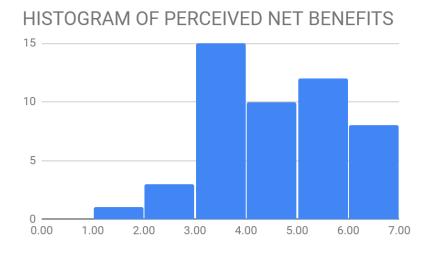


Figure 9.

The histogram above (Figure 9) displays a graphical representation of the responses given based on the perceived net benefits of Centaur Cable Networks hybrid system. The results show a collection of responses from 1 to 7, this shows a positive reaction for this area of the Information System.

Comprehensive, all the respondents that evaluated the hybrid system at Centaur Cablenetwork which resulted in majority of the ratings above 4. From this data, it can be concluded that the level of satisfaction the customers and staff are enduring is well above the average level, which therefore demonstrates that the service quality is well aligned with the user satisfaction level.



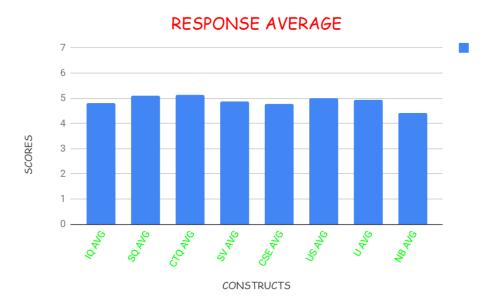


Figure 10.

Figure 10 shows the distribution of averages for different constructs used to measure the effectiveness of the hybrid system used Centaur Cablenetwork with an average rating for all constructs ranging between 4 and 5.15, it shows that majority of employees and customers find the information system, to be effective. For this information system, the construct with the lowest average rating was Computer Self-Efficacy, while Complementary Technology was the highest average rating construct with 5.15. System Quality and System Service received a fair rating leaving room for improvement on behalf of Centaur Cablenetwork, User Satisfaction, Information Quality, Use and Perceived Net Benefits were rated with averages within the range of 4.40 to 4.99, signifying a satisfactory rating.

5-1. Conclusion

5-2. Discussion

This research has addressed the concern for measuring the success of hybrid system at Centaur Cablenetwork. For this reason, the system success measurement model was developed based on the DeLone and McLean (2003) updated IS success model, which captures the multidimensional nature of hybrid system success.



The results shows information quality, system quality, service quality, use, user satisfaction, and perceived net benefit are a valid measurement of Centaur Cablenetwork System success. The hypothesized relationships between the six success variables were significantly supported. According to the proposed model, perceived net benefit is considered to be an average measure of the system success than the other five success measures. Perceived net benefit should develop if the formation of perceived quality, system use, and user satisfaction is appropriately managed. Thus, management attention might more fruitfully focus on the development of these psychological and behavioral processes.

This research exerted IS success model (Delone and Mclean, 2003, 2004), and the redesignated IS success models developed by sundry philomaths (Chen, 2010; Cheng, 2012; Floropoulos et al. 2010; Landrum and Prybutok, 2004; Seddon, 1997) to examine the paramount factors for approval of web-predicated learning management systems at the Centaur Cablenetwork.

The study suggests that system designers should develop systems with better functionalities, interactivity, utilizer interface and assured replication that reflect utilizer requisites to enhance everyone's acceptance and utilization of the system.

5-3. Limitation

Our research had a few limitations, this research is limited in that we used a voluntary sampling with the customers and employees for the data collection. A random sample from all the branches would have increased the generalizability of the results. With regard to inviting employees and customers to participate in the survey, the participating population was instructed to answer all or most of the questionnaire based on the hybrid system of Centatur Cablenetwork and to be concise as possible. However, by leaving the survey at the company and going back for it was not too good of a response, and time was also a limitation, which we had very little control over the sampling process. Despite these limitations, the present study provides valuable insights into the study of the effectiveness of the hybrid system at Centaur Cablenetwork.



References

- Bardo, T. (2005, December 15). *INSIDER*. Retrieved from INSIDER: https://gcn.com/articles/2015/12/21/hybrid-networks.aspx
- Becker, J. (n.d.). *ATI*. Retrieved from ATI: http://www.aticti.com/what-a-hybrid-communications-system-can-do-for-you/
- Castilho, M. A. (n.d.). Hybrid Information Systems; Integrating Data and Knowledge Management. *Hybrid Information Systems*, 119,120.
- DeLone, W.H., and McLean, E.R. 2004. "Measuring E-Commerce Success: Applying the DeLone & McLean Information Systems Success Model," International Journal of Electronic Commerce (9:1), Fall, pp 31-47.
- DeLone, W.H., and McLean, E.R. 2003. "The DeLone and McLean Model of Information Systems Success: A Ten-Year Update," Journal of Management Information Systems (19:4), Spring, pp 9-30.
- Centaur Communication Corporation LTD . (2019, April). *Centaur Communication Corporation LTD* . Retrieved from Centaur Communication Corporation LTD : http://www.centaurcablenetwork.com/
- Corporate, M. (n.d.). *Metrix, Telecom Solution*. Retrieved from Metrix, Telecom Solution: https://www.matrixtelesol.com/hybrid-communications.html
- Ericksen, C. &. (n.d.). *CIO REVIEW*. Retrieved from CIO REVIEW: http://www.aticti.com/whata-hybrid-communications-system-can-do-for-you/
- Laudon, K. C. (2012, 2010, 2007, 2006). Management Information Systems, Managing the Digital Firm. In K. C. Laudon, *Management Information Systems, Managing the Digital Firm* (pp. 163-197). New Jersey, : by Pearson Education, Inc., Upper Saddle River, New Jersey, 07458.

Answers:



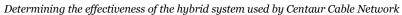
Appendix

Questionnaire I – "Effects on Internet and Cable Services" (Centaur Cablenetwork Employees & Customers)

This questionnaire asks for information about experience with Centaur Cablenetwork and how effective it is to you as an employee and a user. The company has recently added numerous services under the webpage. We would like to measure the use of the service and the effective and efficient it has been to customers in completing their transactions and its effects on the organization's performance. Please answer the questions in relation to your personal experience. Your individual responses to the questionnaire will be strictly confidential. **Instructions**

This is a survey, not a test; there are no right or wrong answers. Please tick the boxes to mark your answers. 1. Background Information

Please indicate your gender:	Male Female	
Please indicate your age:	<25	
Please indicate highest education level attained:	PhD Masters Bachelors Associates High School Primary School	
Please indicate your working experience:	<5	
Indicate your agreement with each statement by rating it from (1) strongly disagree to (7)	7) strongly agree.	
2. Information Quality	DisagreeAgree	
IQ1: Centaur Cablenetwork provides information that is exactly what you need	1	
IQ2: Centaur Cablenetwork provides information you need at the right time	1 🗆 2 🗀 3 🗀 4 🗀 5 🗀 6 🗀 7 🗀	
IQ3: Centaur Cablenetwork provides information that is relevant to your internet and cable needs	1 🗆 2 🗀 3 🗀 4 🗀 5 🗀 6 🗀 7 🗀	
IQ4: Centaur Cablenetwork provides sufficient information	1 🗆 2 🗀 3 🗀 4 🗀 5 🗀 6 🗀 7 🗀	
IQ5: Centaur Cablenetwork provides information that is easy to understand	1 🗆 2 🗀 3 🗀 4 🗀 5 🗀 6 🗀 7 🗀	
IQ6: Centaur Cablenetwork provides up-to-date information	1 🗆 2 🗀 3 🗀 4 🗀 5 🗀 6 🗀 7 🗀	
IQ7: Centaur Cablenetwork provides sufficient information	1 🗆 2 🗀 3 🗀 4 🗀 5 🗀 6 🗀 7 🗀	
3. System Quality	DisagreeAgree	
SQ1: Centaur Cablenetwork is easy to use	1	
SQ2: Centaur Cablenetwork is user-friendly	1 🗆 2 🗔 3 🗀 4 🗀 5 🗀 6 🗀 7 🗀	
SQ3: Centaur Cablenetwork provides interactive features between users and the services	1	



Determining the effectiveness of the hybrid system used by Centaur Cable Network				
4. Complementary Technology Quality	DisagreeA	Agree		
CTQ1: The computer (desktop, laptop, mobile device) you normally use to access Centaur Cablenetwork is adequate	1 🗆 2 🗎 3 🗎 4 🗎 5 🗎 6 🗎 7	7 🗆		
CTQ2: The computer (desktop, laptop, mobile device) you normally use to access Centaur Cablenetwork has a fast and reliable access.	1	7 🗆		
5. Service Quality	DisagreeA	Agree		
SV1: The support staff keeps Centaur Cablenetwork software up to date	1	7 🗌		
SV2: When users have a problem Centaur Cablenetwork support staff show a sincere interest in solving it	1 2 3 4 5 6 7			
SV3: Centaur Cablenetwork support staff respond promptly when users have a problem	1 2 3 4 5 6 7			
SV4: Centaur Cablenetwork support staff tell users exactly when services will be Performed and when promotions are available	1	7 🗌		
6. Computer Self-Efficacy Measure	DisagreeA	Agree		
CSE1: Centaur Cablenetwork guides you if no one is around Centaur Cablenetworksystem function.	1	7 🔲		
CSE2: Centaur Cablenetwork advices you if you have never used an information system like this before	1 🗆 2 🗆 3 🗆 4 🗆 5 🗀 6 🗀 7	7 🗌		
CSE3: Centaur Cablenetwork use only information system manuals for reference	1	7 🔲		
CSE4: Centaur Cablenetwork would try using the information system on other customers before trying it on myself	1	7 🔲		
CSE5: Centaur Cablenetwork could have phone call services to assist the needs of someone if they get stuck Centaur Cablenetworksystem function.	1	7 🔲		
CSE6: Centaur Cablenetwork would have someone help me get started	1 🗆 2 🗆 3 🗆 4 🗆 5 🗀 6 🗀 7	7 🔲		
CSE7: Centaur Cablenetwork provided time to completer the job for the information system that was provided	1	7 🔲		
CSE8: Centaur Cablenetwork had the built-in help facility for assistance Centaur Cablenetworksystem function.	1	7 🔲		
CSE9: Centaur Cablenetwork had someone show me how to do it first	1 2 3 4 5 6 7	7 🔲		
CSE10: Centaur Cablenetwork used a similar information system prior to the one being used to complete the same job	1	7 🔲		
7. User Satisfaction	Disagree	Agree		
US1: You have a positive attitude towards Centaur Cablenetwork Centaur Cablenetworksystem function.	1	7 🔲		
US2: You think that Centaur Cablenetwork is useful	1	7 🗌		
US3: Centaur Cablenetwork has met your expectations	1	7 🔲		
US4: You are satisfied with Centaur Cablenetwork	1	7 🔲		
8. Use	Never	Often		
U1: Your frequency of use of Centaur Cablenetwork is high	1	7 🗆		
U2: You depend upon Centaur Cablenetwork	1 🗆 2 🗀 3 🗀 4 🗀 5 🗀 6 🗀 7	7 🗆		
U3: You were able to complete a task using Centaur Cablenetwork even when there was no one around to tell you what to do.	1	7 🗆		
U4: You have the knowledge necessary to use Centaur Cablenetwork.	1 🗆 2 🗆 3 🗆 4 🗆 5 🗆 6 🗀 7	7 🔲		
9. Perceived Net Benefits	N	064		



$Determining\ the\ effectiveness\ of\ the\ hybrid\ system\ used\ by\ Centaur\ Cable\ Network$

NB1: Centaur Cablenetwork helps you improve your financial planning	1 🗆 2 🗀 3 🗀 4 🗀 5 🗀 6 🗀 7 🗀
NB2: Centaur Cablenetwork helps you save time and costs	1 🗌 2 🗎 3 🗎 4 🗎 5 🗎 6 🗎 7 🔲
NB3: Centaur Cablenetwork helps you achieve your financial goals	1 🗌 2 🗎 3 🗎 4 🗎 5 🗎 6 🗎 7 🔲
NB4: Using Centaur Cablenetwork improves your financial budgeting	1 🗌 2 🗎 3 🗎 4 🗎 5 🗎 6 🗎 7 🔲
NB5: Overall, using Centaur Cablenetwork enhances your productivity	1 🗌 2 🗎 3 🗎 4 🗎 5 🗎 6 🗎 7 🗍

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

Thank you for your participation.