

Evaluating the Effectiveness of the Comarch BSS and OSS Suite Implementation at Belize Telemedia Limited

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Abstract

While a considerable amount of research that has been conducted on information systems success models, little research has been done to test the effectiveness of these systems. This study provides the empirical test on the adaptation of the Comarch System. The model consists of six dimensions: information quality, system quality, service quality, use, user satisfaction, and perceived net benefits. The hypothesized relationships between the six success variables are successfully supported by the data. The findings provide several important implications for research and practice. This paper concludes by discussing the limitations of the study which should be addressed in future research. Based on our findings, Comarch system is seen as very efficient and reliable in the eyes of the employees at BTL who uses this system on a daily basis. This system also adds value to the business as a whole by providing easier access to customers' information and eliminating paper trail.

Keywords: *Comarch, Telecommunication, Multimedia, Liberalized*

Introduction

Belize Telemedia Limited is the largest business, telecommunications and multimedia company operating in the country of Belize, with a book value in excess of US \$100m. With 500 employees and 15 branch offices throughout the country, Belize Telemedia Limited offers a broad range of services, including wire line, mobile, and data and Internet access. BTL had seen its mobile customer base double in less than five years. At the same time, the introduction of new services meant that customers received several invoices each month. Comarch helped BTL tackle both issues with an integrated end-to-end billing and customer management system. BTL was the incumbent telecommunications operator in the Central American country of Belize between 1987 and 2002, when the market was liberalized. Further privatization efforts prompted the company to develop and expand its business, rolling out new technologies while looking to expand its customer base. Comarch proposed a solution that allowed BTL to achieve End-to-end rating and billing, starting with xDR collection from the switches, including mobile and fixed services, Invoice generation and production of other financial documents, workflow and customer care management, Fraud detection for security management, user training at all levels of system usage as well as data

migration and system tuning. Currently, BTL maintains its position as the most important telecommunications company in Belize, with 33,500 fixed telephone lines, 130,000 cellular customers and 8,000 internet customers. The company also operates more than 1,000 payphones around the country. Comarch software systems continue to help the company fulfill its promise to expand its present wire line, mobile, data and Internet services by bringing on-stream a wide array of first-class services and products under each service portfolio.

Methodology

Approach

The population that the researchers aimed to survey for this study consisted of individuals who are employed at the Belize Telemedia Limited. The sample group consisted of a combination of both males and females with no specific age range. The research group distributed 30 surveys to 30 individuals (participants). The researchers will utilize a purposive sampling method, which means that the researcher selects participants according to the criteria he has set. This is only used when you are confident enough about the representative of the participants regarding the whole target population. (Sincero, 2012).

The reason the researchers to use this method is to acknowledge that the collection of relevant information from participants would not be easy as some are occupied and may not have the freedom to participate in the questionnaires due to confidentiality agreements which will pose a problem. Also not everyone would be willing to participate due to any implications that they might think would arise when answering. These are factors that may influence the selection process, hence the researchers will use this method to acquire a particular group of the participants within this large population that are willing to participate in the study and who meet the criteria. The main sources of data in which conclusions will be drawn upon will be derived from questionnaires developed by the researchers.

Data needs

This study has never been attempted before and, due to the type of study, the researchers developed a set of questions, which will assist in gathering the needed data. It was most appropriate to use a quantitative and qualitative research method since it provides an approach in order to understand the topic more thoroughly. The method will seek to answer questions, or to confirm knowledge, to address issues and shape thinking for future actions or non-actions. In addition, the quantitative method allowed the researchers to see the participants' reaction by gestures or responses to each question.

As a result of our targeted sample, only those chosen by the researcher will take part in the questionnaires. The questionnaires were issued on a pre-arrange date at the participants' place of employment (BTL). The participants in the questionnaires will be first given a consent letter which can be found in Appendix A to acknowledge their acceptance to participate in the questionnaire. The researcher will ensure all participants know that proper guidelines will be taken to safeguard that their information will be kept confidential and that, as participants, know that the information collected will be used only for the purpose stated and they can discontinue participation at any time.

The questionnaire will be the instrument used in this study. The questions for the questionnaires were provided by each member of the research group after gathering information for the research paper. The researchers then developed the questionnaires which consisted of mainly closed ended questions with options for the partaker to choose from which will be administered to the respondents and is scheduled to last approximately five minutes or less. The questionnaire was then collected and delivered to the primary researcher to begin the next stage of the research, Data Analysis.

Analytic Techniques

The questionnaires were collected. The researcher combined separate descriptions to formulate a coherent narrative. Relevant raw data will be inputted into excel software to generate statistical results and the findings will be analysed. The final results will then be displayed in pie charts. Based on the results, and the percentage in the charts, the interpretations will be drawn out.

Plan for interpreting results

The results will be interpreted base on the questions that were answered by the surveyed persons. If our results show a positive result, then it means that the specific Management Information Systems (COMARCH) does have a contributory factor in the business processes of Belize Telemedia Limited. The researcher then seek to answer the research question in ways that allow broader theoretical conclusions.

Literature Review

Comarch Technologies a technology wing of Comarch provides comprehensive end-to-end solutions combining HW & SW following the highest industry standards in safety and security. They offer services for IT, connected car, mobile software development, interoperability and cyber security. Comarch technologies renders services for consumer electronics and automotive R&D focusing on connectivity, data interchangeability, and user experience. Accumulated knowledge and expertise of their employees allows them to deliver high-quality products and services in compliance with industry and security standards (2017).

Comarch Convergent Billing System is a key module within the Comarch BSS suite, pre-integrated with other modules such as the Comarch catalog and BSS Mediation. Comarch CBS allows real-time charging for any service type, and facilitates the development of new business models in cooperation with partners a key element in expanding business in the digital world. Comarch Convergent Billing System is a high capacity, flexible and scalable service-agnostic telecom billing data management system which can be used by service providers to monetize services ranging from traditional telecommunications through MVNO and M2M to modern digital services. Comarch BSS tools are also featured in Gartner Magic Quadrant for Integrated Revenue and Customer Management. (2015)

Comarch InterPartner Billing allows service and content providers to exchange billing data and invoices, and share revenue or cost information with partners. The system also facilitates the management of relations with domestic and international business partners, and supports various business models which include revenue sharing, wholesale and roaming services. The Comarch interconnect billing platform is easily scalable, ready out of the box to support the newest services, and open to business evolution. Comarch InterPartner Billing can process high volumes of any kind of services (voice, data, messaging, content and others) within any kind of agreement, including bilateral, hubbing, revenue sharing, roaming, MVNO and content-based. The Partner Management functionality supports the management of relationships with partners and suppliers and can automate most tasks required for cooperating with them within the field of telecom interconnects billing.

Comarch Customer Management helps communication service providers sell more services, get closer to their customers, and significantly reduce customer churn. Pre-integrated with Comarch OSS/BSS suite and designed to work well with external OSS/BSS infrastructures, Comarch Customer Management is a flexible solution for telecom customer care that enables operators to benefit from an all-inclusive customer view and gain deep understanding of the customer base. The system provides extensive knowledge about customers, to achieve increased savings in customer service processes. Comarch Customer Management allows a seamless customer experience and provides a reliable 360-degree customer view. Thanks to pre-integration with other Comarch BSS/OSS suite components, the telecom customer care system stimulates business growth with carefully designed, intuitive and user-friendly IT tools. Comarch CM increases personnel efficiency, speeds up the creation of new contracts, and offers a wide range of tools for engaging customers. Comarch Customer Management is a comprehensive and fast-acting market response tool that gives the competitive edge and enhances client loyalty by improving telecom customer care.

COMARCH S.A. developed a support system solution for factoring transactions. While performing the first implementations throughout 2010, COMARCH engineers conceived a number of innovative enhancements to it. One of those was a solution addressing risk management in factoring transactions. As a result, tools were created that actually lie on the borderline between Business Intelligence and decision support systems and illustrate an interesting approach to support for factoring business processes.

Recently Comarch S.A. undertook a project called implementing innovation in IT systems for factoring process management (Stan, 99). A considerable portion of the project was concerned with the design and

development Comarch factoring fraud prevention; a system which provides factors with assistance in analyzing large amounts of transactional data and satisfy the requirement of delivering the right information to the right person in the right format, at the right time and the right place. This innovative solution has close affinities with two classes of information systems: decision support systems and business intelligence systems (Stan, 99)

Comarch Convergent Billing has been trusted by over 20 communication service providers worldwide, including KPN (the Netherlands), Telekom Austria Group, Siminn (Iceland), Turkcell Europe (Germany), CableCom (Mexico) and TV Cable (Ecuador) n Comarch BSS tools have also been featured in Gartner Magic Quadrant for Integrated Revenue and Customer Management n Comarch BSS supports multiple business models – B2B, B2C, B2B2C and others. The system Handles any kind of multi-sided business models, including cooperation with content providers, OTTs, application providers, MVNOs or companies from various industry verticals. In addition it also Manages multiple billing / product / network / payment providers and sales partners (including hierarchical, multi-level support for partners).

End-to-end rating and billing, starting with XDR collection from the switches, including mobile and fixed services

- Invoice generation and production of other financial documents
- Workflow and customer care management
- Fraud detection for security management
- User training at all levels of system usage
- Data migration and system tuning

Currently, BTL maintains its position as the most important telecommunications company in Belize, with 33,500 fixed telephone lines, 130,000 cellular customers and 8,000 internet customers. The company also operates more than 1,000 payphones around the country.

Comarch software systems continue to help the company fulfill its promise to expand its present wire line, mobile, data and Internet services by bringing on-stream a wide array of first-class services and products under each service portfolio (Comarch,2016)

Results

To do an assessment on the Efficiency and Effectiveness of the Comarch BSS and OSS Suite Implementation at Belize Telemedia Limited, we handed out thirty (30) survey questionnaires. First we tested the Information quality. This talks about what information the Comarch system provides. Questions include:

Information Quality
COMARCH convergent system provides information that is exactly what you need.
COMARCH convergent system provides information you need at the right time
COMARCH convergent system provide information that is relevant to your job
COMARCH convergent system provides sufficient information
COMARCH convergent system provides information that is easy to understand
COMARCH convergent system provides up-to-date Information

Table 1

Based on the questions, the average score from one(1) being strongly disagree to seven(7) being strongly agree was 5.09. So, in conclusion, majority of employees from Belize Telemedia Limited agreed that Comarch System do provide the necessary information the company and employees need to perform.

Second, we tested the System quality. This talks about what how easy or difficult the Comarch system is to use. Questions include:

System Quality
COMARCH convergent system is easy to use.
COMARCH convergent system is user-friendly
COMARCH convergent system provides high-speed information access
COMARCH convergent system provides interactive features between users and system.

Table 2

Based on the questions, the average score from one(1) being strongly disagree to seven(7) being strongly agree was 4.99. Therefore, in conclusion, majority of employees from Belize Telemedia Limited agreed that Comarch System is not difficult to use.

Third, we tested the Complementary technology quality. This talks about what technology the Comarch system is used on and if it is sufficient. Questions include:

Complementary technology quality
The software on the device (desktop computer, laptop, mobile device) used to access COMARCH is adequate.
The device hardware (desktop computer, laptop, mobile device) used to access COMARCH is adequate.
The speed of the Internet connection used to access COMARCH is adequate.
The reliability of the Internet connection used to access COMARCH is adequate.

Table 3

Based on the questions, the average score from one (1) being strongly disagree to seven (7) being strongly agree was 5.16. Therefore, in conclusion, majority of employees from Belize Telemedia Limited agreed that Comarch System is being run on good devices and the internet speed is fast enough.

Fourth, we tested the Computer self-efficiency. This talks about how efficiently you could complete a task using the Comarch system. Questions include

Computer Self-Efficacy Measure (I COULD COMPLETE THE JOB USING COMARCH)
if there was no one around to tell me what to do as I go.
if I had never used an information system like it before.
if I had only the information system manuals for reference.
if I had seen someone else using COMARCH before trying it myself.
if I could call someone for help if I got stuck
if someone else had helped me get started.
if I had a lot of time to complete the job for which COMARCH was provided.
if I had just the built-in help facility for assistance
if someone showed me how to do it first.
if I had used similar information systems before this one to do the same job

Table 4

Based on the questions, the average score from one (1) being strongly disagree to seven (7) being strongly agree was 5.02. Therefore, in conclusion, majority of employees from Belize Telemedia Limited said that Comarch System is not difficult to understand and they could complete their task on it.

Fifth, we tested the service quality. This talks about how efficiently you could complete a task using the Comarch system. Questions include

Service quality
The support staff keep COMARCH software up to date
When users have a problem,COMARCH support staff show a sincere interest in solving it
COMARCH support staff respond promptly when users have a problem
COMARCH support staff tell users exactly when services will be performed.

Table 5

Based on the questions, the average score from one (1) being strongly disagree to seven (7) being strongly agree was 5.02. Therefore, in conclusion, majority of employees from Belize Telemedia Limited said that the Comarch System support staff keep the software up to date and assist promptly when there is any problem with the system.

Sixth, we tested the user satisfaction. This talks about the attitude you have towards the Comarch system and if it has met your expectation. Questions include

User satisfaction
Most of the users bring a positive attitude or evaluation towards COMARCH function.
You think that the perceived utility about COMARCH is high.
COMARCH has met your expectations.
You are satisfied with COMARCH.

Table 6

Based on the questions, the average score from one (1) being strongly disagree to seven (7) being strongly agree was 5.16, which was the second highest result. Therefore, in conclusion, majority of employees from Belize Telemedia Limited said that they have a positive attitude towards the Comarch System and it is serving its purpose.

Seventh, we tested the use. This talks about how often you might use the Comarch system and if you have the necessary skill or knowledge to use it. Questions include

Use
The frequency of use with COMARCH is high.
You depend upon COMARCH
I was able to complete a task using COMARCH even if there was no one around to tell me what to do as I go.
I have the knowledge necessary to use COMARCH.

Table 7

Based on the questions, the average score from one (1) being strongly disagree to seven (7) being strongly agree was 5.14, which was the third highest result. Therefore, in conclusion, majority of employees from Belize Telemedia Limited said that the Comarch System is getting used a lot and the know how to use it.

Eight, we tested the perceived net benefits. This talks about how the Comarch system benefits you and your organization. Questions include

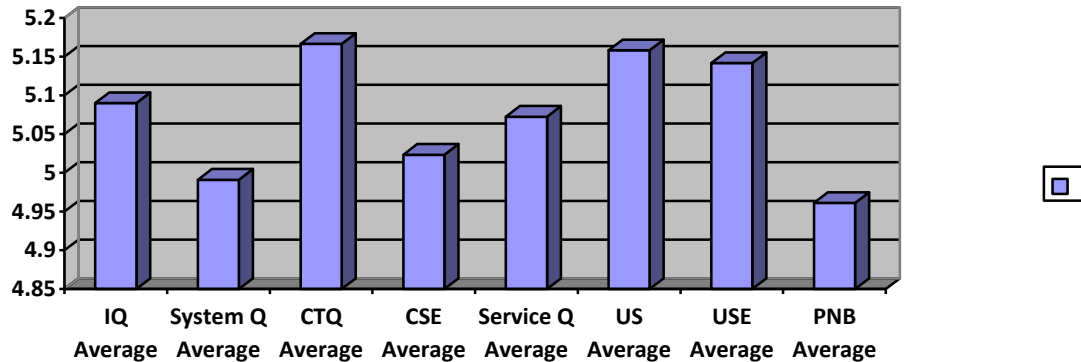
Perceived net benefits
COMARCH helps you improve your job performance.
COMARCH helps the organization save cost.
COMARCH helps the organization achieve its goal.
Using COMARCH improves the assessment and training
Using COMARCH in job increases my productivity.
Overall, using COMARCH enhances recruitment and performance management.

Table 8

Based on the questions, the average score from one (1) being strongly disagree to seven (7) being strongly agree was 4.96, which was the lowest result of all. Therefore, in conclusion, almost half of employees from Belize Telemedia Limited that filled out the forms feels that the Comarch System will not benefit them nor will it benefit the organization.

Below is a chart with the total averages of all the results gathered from our questionnaire.

IQ Average	System Q Average	CTQ Average	CSE Average	Service Q Average	US Average	USE Average	PNB Average
5.09	4.99	5.17	5.02	5.07	5.16	5.14	4.96



Conclusion

In conclusion, Comarch software systems continue to help companies fulfill their goals, by providing a wide variety of systems to increase productivity. Belize Telemedia Limited is the largest company that operates in the county of Belize, Comarch provided BTL with two systems to address some difficulties that the company was having, the End to end billing system and the Customer management system. The end-to-end billing is a very successful system at Belize Telemedia communications since it allows real time charging for any type of service. The end-to-end billing also facilitated the production of the financial documents, workflow and customer care management, fraud detection for security management and user training. The end-to-end billing has positively influenced the company, and employees possess positive attitude towards the system since it facilitates the workflow.

On the other hand, Comarch Customer Management helps communication service providers sell more services, get closer to their customers, and significantly reduce customer churn. Pre-integrated with Comarch OSS/BSS suite and designed to work well with external OSS/BSS infrastructures, Comarch Customer Management is a flexible solution for telecom customer care that enables operators to benefit from an all-inclusive customer view and gain deep understanding of the customer base. The system provides extensive knowledge about customers. Testing was done on eight (8) criterion in relation to the effectiveness and efficiency of this system and how it contributes to the success of the organization. We can be conclude by saying that the system is a major contributor to the continuing success of BTL and assists in meeting their goals. Employees are quite satisfied with the system itself and gave positive feedback as stated in the data analysis.

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