

# **Assessing the Effectiveness and Efficiency of the Use of the Crime Information Management Systems (CIMS) in the Belize Police Department**

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## **Abstract**

*Management Information System (MIS) collects data from many different sources and then processes and organizes that data to help businesses make decisions. E-Government is slowly stepping in to make the process of services to customers easier, faster and more convenient; the Belize Police Department (BPD), implemented an information system called Crime Information Management System (CIMS) to record and update any criminal activity which allows efficient and effective communication between departments, access to relevant data, and dependable referencing. This paper will assess the findings as it relates to the effectiveness and efficiency of the Crime Information Management System used by the Belize Police Department. The Instrument used to abstract pertinent information to determine the effectiveness and efficiency of this platform was Delone and McLean's IS success model. The questionnaire outlined the six (6) dimensions: Information Quality, System Quality, Complementary Technology Quality, Service Quality, User Satisfaction, and the Use and Perceived Net Benefits to ascertain its ease of use, accessibility, improve work performance, and overall satisfaction of the Belize Police Department.*

**Keywords:** Crime Information Management Systems, Belize Police Department, Management Information Systems, National Institute of Justice, Crime mapping, Police Information Technology Unit

## **Introduction**

Belize is advancing slowly in a technologically driven era. The organizations which once relied heavily upon recording information using only pen and paper for storing and retrieving information via books and files have now resorted to the development and implementation of Information Systems. Software and platforms are being introduced to make time-consuming and tedious tasks accomplished faster and more effectively.

The Belize Police Department is no different. The Department has transitioned from once using report diaries to now manipulating the Crime Information Management System (CIMS). The implementation of the CIMS has demonstrated a more professional and ethical approach to report data handling, continue to develop the investigative and crime reduction capacity of a modern national system as well as confidence that it can stand scrutiny and help improve operational performance. As a result, the Belize Police Department will be able to approach issues of disclosure with greater confidence that the data will be relevant, timely, and accurate.

Information management has been defined as the organization-wide capability of creating, maintaining, retrieving, and making the right information immediately available in the right place, at the right time, in hands of the right people, at the lowest cost, in the best media, for use in decision making. (Langemo, 1980)

The Crime Information Management System (CIMS) is a powerful data storage, search/ retrieval, and analysis tool. It is designed to minimize time on file searching and paperwork, allowing more time for other tasks. This makes it quicker and easier to input, save, find, store, and share information across databases with co-workers that link together pieces of information to build a picture of connections or a pattern of behavior. (crime pattern analysis).

CIMS is used as a tool to assist in solving crimes, to constantly and effectively collate and link countrywide incidents reported to the Belize Police Department. Users are to ensure that crimes are correctly classified, registered, collated, and disseminated to units within the department promptly for it to be useful. Crime and traffic statistical data are analyzed for crime patterns, logistical, and tactical operational purposes. (Police Lesson Notes, 2019).

This research paper seeks to assess if the CIMS make the day to day job of police officers attached to the Belize Police Department more effective and efficient. It also seeks to identify the satisfaction of the public in which they serve. Forty (40) sample questionnaires were collected and analyzed to represent the Belize Police Department. The limitations found were time, demographic group, and financial restraint.

The research will show that the majority of police officers' use of the CIMS enhance their work productivity and performance. It will also highlight that there is a need to improve the overall function of the CIMS to gain a better user experience.

The Belize Police Department has been operating CIMS for more than a decade now. This makes the system a prime choice for research groups to evaluate its effectiveness and its efficiencies. While this particular research is not the first to look at the CIMS of the BPD, it is understandable why it was chosen, the correlation between technology and law enforcement services will surely peak everyone's interest.

CIMS was first introduced in November 2007. The system was piloted in the City of Belmopan followed by Belize City before being rolled out countrywide to the rest of the police department. The Belize Police Department has its Police Information Technology Unit (PITU) in both Belmopan and Belize City, they are responsible to maintain the system servers. The system is currently operating on the latest version as of February 2020. The members of the unit are also responsible to teach users how to properly use the CIMS and maintain the software on all computers keeping them up to date and assist with queries.

To have success with CIMS depends on how effective and how efficient it is being utilized by the BPD. The unknown is that it does not show if the users input all the information that is necessary since no person can oversee and verify the process. Some of the challenges that are faced with the system are concerns about having a balance between privacy and security, with technology emerging it is important to use it responsibly and lawfully. Also, if a user is inactive for twenty days, the system automatically locks you out. This can become a real issue if someone is out on vacation or excess sick leave for over twenty days. There is also a restriction to access depending on the district the user is in; it not only limits the knowledge of the information the user needs but it also limits the access of criminal activity that the user can see. CIMS helps in cross-checking data on criminals or any person involved in any offense through all districts. A report can be uploaded even if the incident took place in another district, this helps in crime mapping. CIMS can have more areas for improvement if the data that is compiled is recorded, completed, and done appropriately. Also, providing oversight and having someone inspect the work that is being recorded to improve accountability.

The main objectives of this research are to determine the use of the CIMS within the Belize Police Department. How officers within the police department view the use of this tool to assist them in conducting their daily functions. The integration of technology to help with crime-fighting and the degree to which the officers are comfortably utilizing it to perform efficiently and effectively. The CIMS is a valuable commodity for the police department, this platform is being utilized countrywide.

## **Literature Review**

Technology has been changing rapidly and advanced tremendously. It allows us to communicate, interact, and work in a faster and better manner. These technologies don't only help us do things faster and better but they also enable profound changes in the way that work is done in businesses and organizations. It is driving us to a new industrial revolution. In the digital era, people are focusing on the trading of products and services via digitalized data, information, and knowledge. This not only enables new ways of control but it also coordinates and collaborates activities at a lower cost. Most businesses are transforming the use of Management Information systems (MIS). MIS is the study of balancing networks used to collect, process, create, and distribute data. (Laudon & Laudon, 2012).

While the CIMS make the day to day job of police officers far less time consuming by incorporating a computerized system of gathering data rather than relying on the "colonial days" use of pen and paper to record reports in report diaries; it also makes decision making far more precise since proper crime mapping data can be generated, subsequently allowing superior officers to make better decisions and strategic plans as it relates to the concentration of manpower, police presence or even mounting security cameras.

A research conducted by (Awodele et al, 2015) recounted how the Nigeria Police Force (NPF) recorded statements before the use of the Crime Records Manage System (CRMS). A complainant fills in a First Information Report (FIR) form which includes his or her statement concerning the accused. When the accused is brought in, their details are handwritten into case files. Before the advent of computers, these files were kept in wooden or metal wardrobes under lock and key. This was susceptible to damage by pest and unfavorable environmental conditions (Kawai & Samson, 2011). Similarly, before the Crime Information Management System (CIMS) was introduced to the Belize Police Department (BPD) reports were handwritten in report diaries and case files compiled manually before being stored in filing cabinets.

The National Institute of Justice produced a document for use by the New York police department on an information system. The system was known as the Criminal Record Information and Management System (CRIMS). “The Criminal Record Information and Management System used by the department is a computerized case management computer program designed entirely for criminal trial courts. The CRIMS makes available the position of any court criminal case and it is essential to resolve and for confirmation of a possible warrant” (2005). There are some key advancements in computerized information management system concerning law enforcement and its perceived and actual benefits. CIMS increases the competence of the management of criminal records and acts as a foundation for decision making and improved the trustworthiness of the law enforcement function.

Since effective policing leans heavily on the rapid sharing of sensitive crime-related data; the recent explosion in information technology is a positive development for law enforcement agencies (Holmes, 2014). As compared to the Crime Information Management System used by the Belize Police Department, Holmes has outlined five ways that technology helps boost crime-fighting in his research which includes: Sharing Information, Security and Surveillance upgrades, Social Media, Crime mapping Technology and Mobile technology.

Crime mapping is an important technical function that is part of modern police enforcement. Police analysts routinely map crime incidents to both detect general patterns of crime that can focus their enforcement and prevention efforts as well as to identify and apprehend specific offenders who are committing crimes. Long known for the famous pin map, invented by the London Metropolitan Police Department in the 1820s, most large police departments in the United States and elsewhere routinely use geographic information systems (GIS) to map crime data as part of their strategic and tactical activities (Levine, 2005).

Mapping law enforcement report data can be an effective way to analyze where crime occurs. The resulting visual display can be combined with other geographic data (such as the locations of schools, parks, and industrial complexes) and used to analyze and investigate patterns of crime and help inform responses. A research conducted by (Hunt, 2019) stated that in the early 2000s, National Institute of Justice (NIJ) started to expand from evaluating place-based policing practices and strategies (e.g., hot spots policing) to exploring the statistical techniques used to forecast and predict crime and how that affects the effectiveness and efficiency of place-based policing practices and strategies.

Additionally, putting a Crime Management System in place as outlined in a research conducted by (Khan et al, 2019) will make reports making much more convenient for not only police officers but also the community at large. The Crime Management System Is a web-based platform for online complaining and computerized management of crime records. Using Intranet, a person who wishes to file a complaint or report an incident must register before login and once the admin authenticates the user, he/she can log in to the website and file a complaint.

According to Manish Gupta et.al (2015), a study was conducted on the police department in India which stated that the police department constructed a Crime Criminal Information System (CCIS) to stay abreast of criminal actions in the country. The police department uses the information system to address numerous problems they encounter in their country and to aid in the reduction of the crime rate. Before the information system was implemented, they had to take into consideration the structure and responsibilities of the police in the department. As well as, the key changes and challenges the police will encounter due to the high crime rate. Therefore, there was a great need for a support system that would highlight the roles and activities operated by the police department. As a result, studies revealed that the information system was a success in the country as a means to combat criminal activities.

Similarly, (Ganiron Jr et al, 2019) explain in his research how Crime Management and Reporting System would help the complainant and the authority to communicate privately and easily with regards to the reported issue. Also, it would be easier for the complainant to report a witnessed crime without the fear of getting involved in the problems because of the security that the only authorized user can see the report.

Based on the findings conducted in this research, recommendations were made for further study: widening the limit of the system by considering other cities; a generic platform for keeping human records from birth till death, deploying this sort of platform will serve as a source of information on persons from various states within the country and even those outside. Verification using biometrics is highly recommended to enhance the security of data stored in the system. This increases the restriction on access to the system, thus unauthorized users have no access to the system. Face recognition technology can be added.

The main objectives of this research are to determine the use of the CIMS within the Belize Police Department. How officers within the police department view the use of this tool to assist them in conducting their daily functions. The integration of technology to help with crime-fighting and the degree to which the officers are comfortably utilizing it to perform efficiently and effectively. The CIMS is a valuable commodity for the police department and its use has been countrywide.

## **Methodology**

The research focused on the collection of qualitative and quantitative data from the BPD from three districts namely, Belmopan, Belize, and Orange Walk to establish their experience using CIMS. The methodology used was a questionnaire as this was believed to adequately collect data for the variables being studied. The Delone and Mclean IS success model developed in 1992 was used to identify the relationship between seven critical dimensions of the IS success model. (Delone and Mclean 2003). Some lists of information gathered that measures how effective CIMS is functioning are:

Information quality - this measured the relevance of the information provided by CIMS. The timeliness of information provided, the accuracy, user-friendliness, and whether the information was enough to complete the task.

System Quality – measured user-friendliness and ease of use.

Technology quality – measured the effectiveness and accessibility of the electronic device used.

Service Quality – This measured the maintenance of the system, that it is up to date, and how effective issues are solved.

User satisfaction – measured the user's impression of the system and their attitude towards it.

Use – measures the frequency and dependency of use, also if tasks are completed on time and the knowledge towards using it.

Net benefits – measures the effectiveness overall, quality of service being delivered, and achieving work goals and objectives.

The questionnaire not only collected the above information, but it also collects specific background information on the user such as:

- o Gender
- o Age
- o Years of service

## Hypothesis

H1. Information quality will influence user satisfaction

H2. System quality will increase user satisfaction

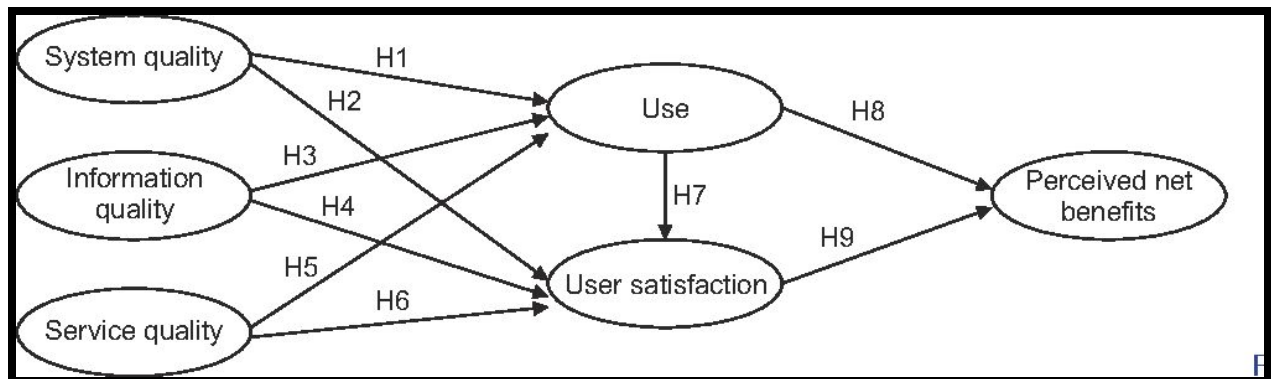
H3. Technology quality will influence the use

H4. Service quality will influence user satisfaction

H5. User satisfaction will influence the use

H6. The use will influence perceived net benefit

H7. Net Benefit will increase service



A quantitative approach was taken to aid with the research question. The validity of the research information was confirmed using the (McLean, 2003) seven-item scale. This was applied with several adjustments to fit the setting of the CIMS. Delone and McLean Information System (IS) Success Model as a framework and model for measuring the complex dependable variable in IS research. Each of the seven constructs was measured using the Likert Scale ranging from one to seven, with one being strongly disagreed and seven as strongly agree.

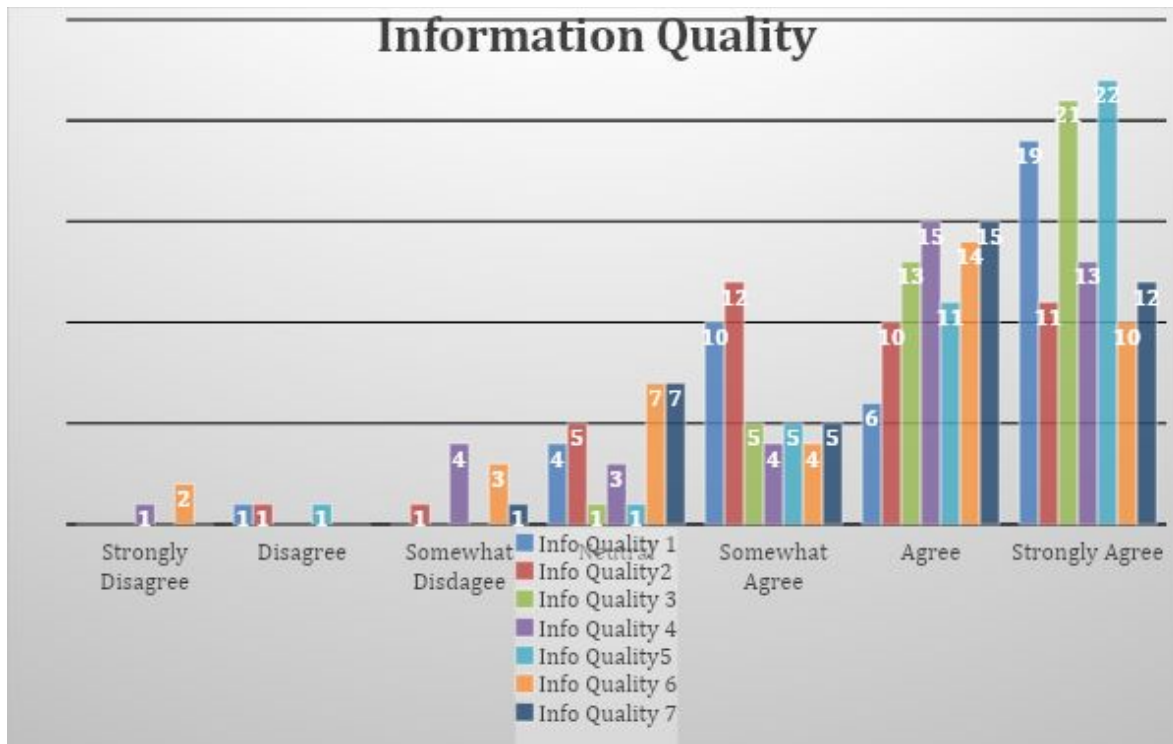
There were 40 participants chosen to complete questionnaires who were from Belize City, Orange Walk, and Belmopan. This pie chart depicts the gender of each participant as illustrated. 23% of the participants were female while the other 77% were males.

Also, the age of each participant was taken into account. In the bar graph above, it portrays that 8 participants are 25 years or younger, 25 participants were between the ages of 25-35, 5 participants were between the ages of 36-45, 2 participants were between the ages of 46-55 and 0 were over 55.

The years of service of participants was also done. 16 participants had 1-5 years of service, 1 individual had 6-10 years of service, 16 participants had 11-15 years of service, 4 participants had 16-20 years of service and 3 individuals had 20 or more years of service.

## Data Analysis and Results

When the question was posed to the targeted audience of the survey as it relates to “The CIMS provides information that is exactly what you need” 47.5% or 19 persons gave responses that they strongly agree while 10% or 4 persons gave responses indicating that they are neutral and 0% or 0 person gave a response that they strongly disagree.



When the question was posed to the targeted audience of the survey as it relates to “The CIMS provides the information you need at the right time” 27.5% or 11 persons gave responses that they strongly agree while 12.5% or 5 persons gave responses indicating that they are neutral and 0% or 0 person gave a response that they strongly disagree.

When the question was posed to the targeted audience of the survey as it relates to “The CIMS provides information that is relevant to your job description” 52.5% or 21 persons gave responses that they strongly

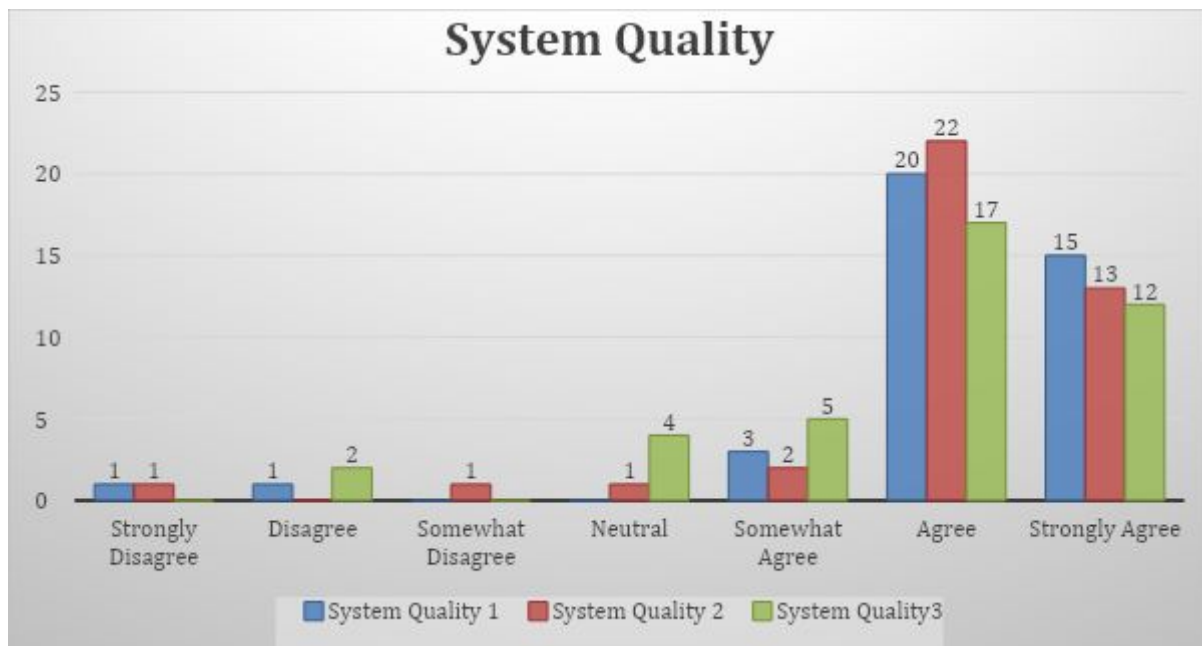
agree while 2.5% or 1 person gave responses indicating that they are neutral and 0% or 0 person gave a response that they strongly disagree.

When the question was posed to the targeted audience of the survey as it relates to “The CIMS provides sufficient information” 32.5% or 13 persons gave responses that they strongly agree while 7.5% or 3 persons gave responses indicating that they are neutral and 2.5% or 1 person gave a response that they strongly disagree.

When the question was posed to the targeted audience of the survey as it relates to “The CIMS provides information that is easy to understand” 55% or 22 persons gave responses that they strongly agree while 2.5% or 1 person gave responses indicating that they are neutral and 0% or 0 person gave a response that they strongly disagree.

When the question was posed to the targeted audience of the survey as it relates to “The CIMS provides up-to-date information” 25% or 10 persons gave responses that they strongly agree while 17.5% or 7 persons gave responses indicating that they are neutral and 5% or 2 persons gave responses that they strongly disagree.

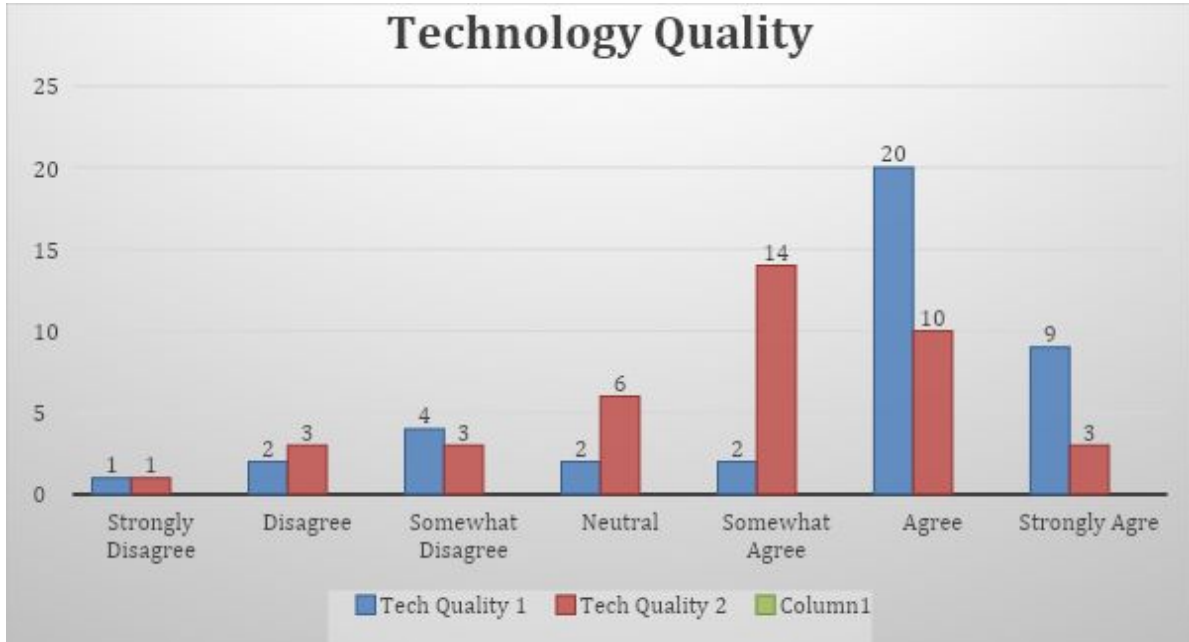
When the question was posed to the targeted audience of the survey as it relates to “The CIMS provides sufficient information” 30% or 12 persons gave responses that they strongly agree while 17.5% or 7 persons gave responses indicating that they are neutral and 0% or 0 person gave a response that they strongly disagree.



In terms of the system quality, the survey looks at how CIMS is easy to use, 2.5% or 1 participant strongly disagree while 37.5% or 15 participants strongly agree. Secondly, the user friendly of the CIMS was asked and the results indicated that 2.5% or 1 participant somewhat disagree, 2.5% or 1 participant remain



neutral while 32.5% or 13 participants strongly agree. Thirdly, it asked whether it provides interactive features between the users and the system, this indicated that 5% or 2 participants disagree, 10% or 4 participants remain neutral and 30% or 12 participants strongly agree.

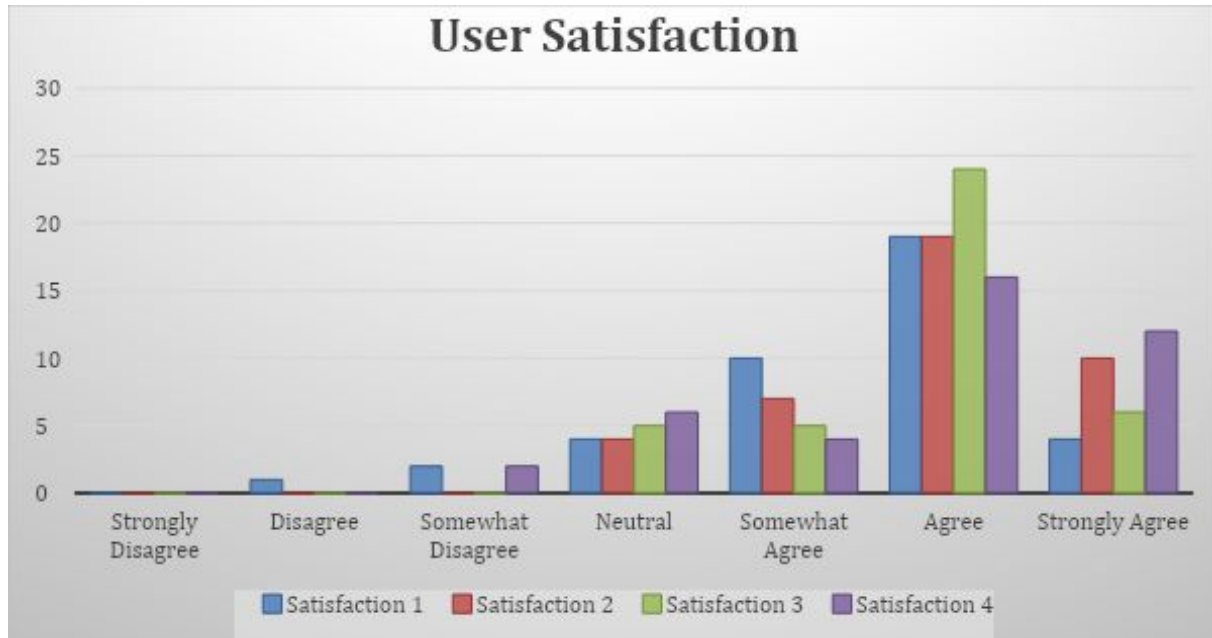


In the question “ The computer you normally use to access CIMS is adequate?”, 2.5% or 1 participant strongly disagree, 5% or 2 participants remain neutral, 50 % or 20 participants agree while 22.5 % or 9 participants strongly disagree. In the question “The computer you normally use to access CIMS is

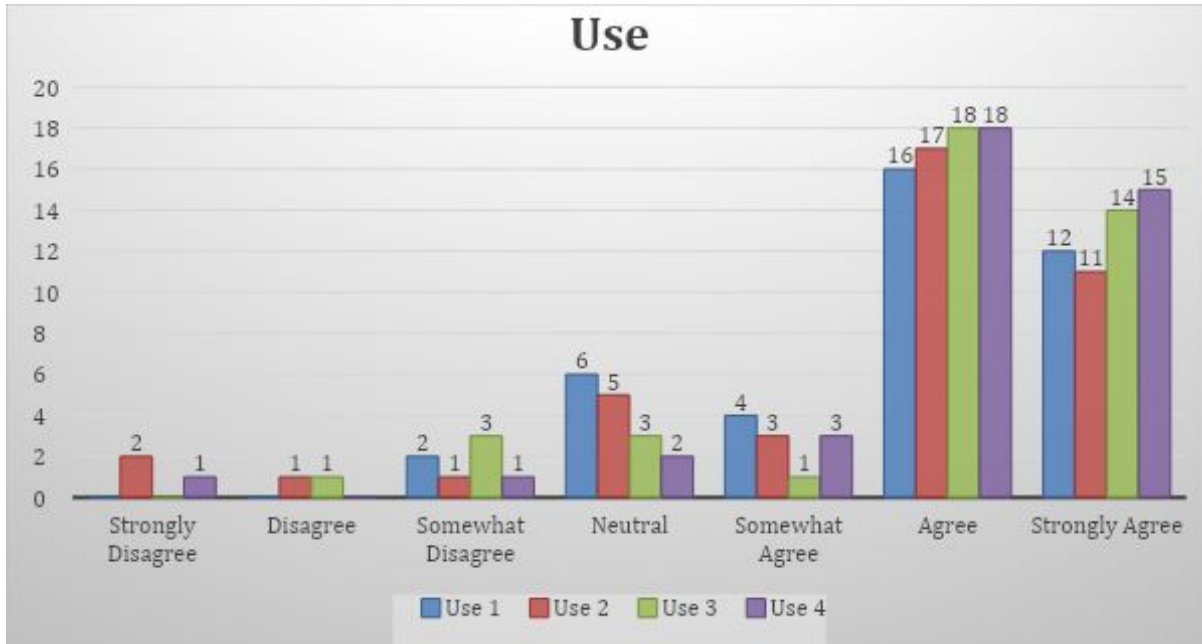
adequate”, 2.5% or 1 participant strongly disagree, 15% or 6 participants remain neutral, 25% or 10 participants agree and 7.5% or 3 participants strongly agree.



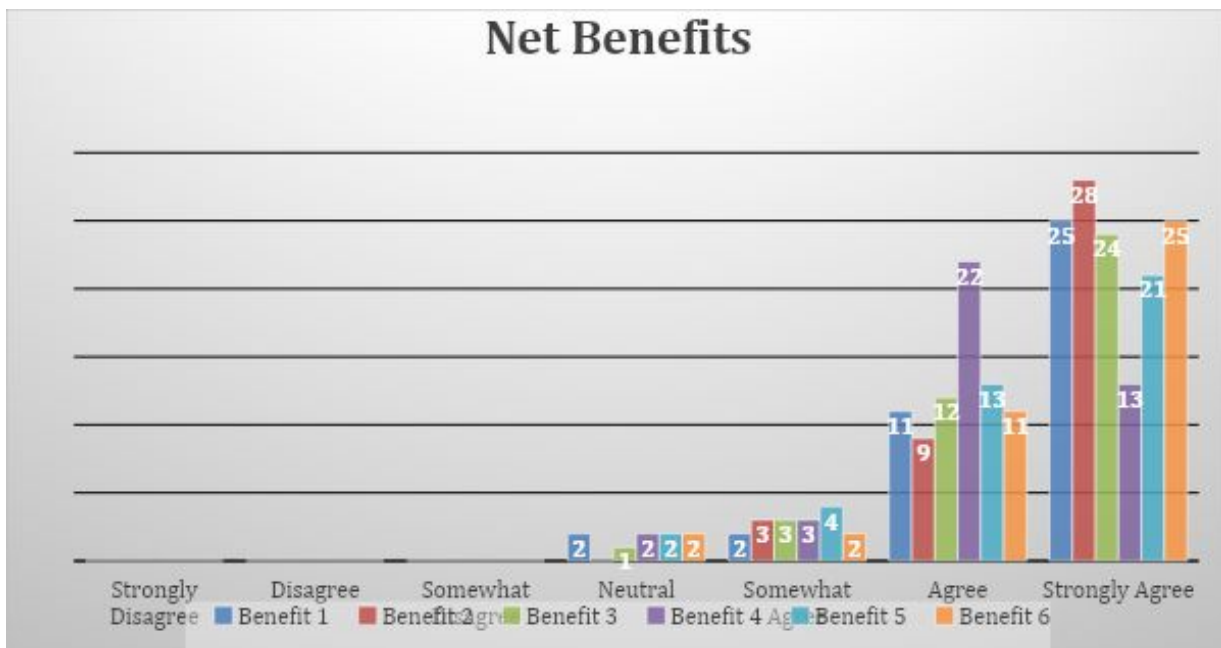
In terms of service quality, 5% or 2 participants strongly disagree, 7.5% or 3 participants remain neutral, 47.5% or 19 participants agree and 2.5% or 1 participant strongly agree that the support staff keeps the CIMS software up to date. Secondly, 5% or 2 participants strongly disagree, 5% or 2 participants remain neutral, 32.5% or 13 participants agree and 15% or 6 participants strongly agree that when the users have a problem, the CIMS support staff show a sincere interest in solving it. Thirdly, 5% or 2 participants strongly disagree, 10% or 4 participants remain neutral, 35% or 14 participants agree and 10% or 4 participants strongly agree that CIMS support staff respond promptly when users have a problem. Lastly, 5% or 2 participants strongly disagree, 7.5% or 3 participants remain neutral, 30% or 12 participants agree and 12.5% or 5 participants strongly agree that the CIMS support staff tells users exactly when services will be performed.



In the question “Most of the users have a positive attitude of CIMS”, 5% or 2 participants somewhat disagree, 10% or 4 participants remain neutral, 47.5% or 19 participants agree while 4 strongly agree. In the question “You think that the utility of the CIMS is high”, 10% or 4 participants remain neutral, 47.5% or 19 participants agree while 25% or 10 participants strongly agree. In the question “The CIMS has met your expectations”, 12.5% or 5 participants remain neutral, 60% or 24 participants agree while 15% or 6 participants strongly agree. In the question “You are satisfied with the CIMS”, 5% or 2 participants somewhat disagree, 15% or 6 participants remains neutral, 40% or 16 participants agree while 30% or 12 participants strongly agree.



In the question “You frequency of use of the CIMS is high”, 5% or 2 participants strongly disagree, 15% or 6 participants remains neutral, 40% or 16 participants agree while 30% or 12 participants strongly agree. In the question “You depend upon the CIMS”, 5% or 2 participants strongly disagree, 12.5% or 5 participants remains neutral, 42.5% or 17 participants agree while 27.5% or 11 participants strongly agree. In the question “You can complete a task using CIMS even when there was no one around to tell you what to do”, 7.5% or 3 participants somewhat disagree, 7.5% or 3 participants remains neutral, 45% or 18 participants agree while 35% or 14 participants strongly agree. In the question “You know necessary to us the CIMS”, 2.5% or 1 participant, strongly disagree, 5% or 2 participants remains neutral, 30% or 12 participants agree while 37.5% or 15 participants strongly agree.



When the question was posed to the targeted audience of the survey as it relates to “The CIMS helps you improve your work performance” 62.5% or 25 persons gave responses that they strongly agree while 5% or 2 persons gave responses indicating that they are neutral and 0% or 0 person gave a response that they strongly disagree

When the question was posed to the targeted audience of the survey as it relates to “The CIMS helps you save time” 70% or 28 persons gave responses that they strongly agree while 0% or 0 persons gave responses indicating that they are neutral and 0% or 0 person gave a response that they strongly disagree

When the question was posed to the targeted audience of the survey as it relates to “The CIMS helps you achieve your work goals” 60% or 24 persons gave responses that they strongly agree while 2.5% or 1 person gave responses indicating that they are neutral and 0% or 0 person gave a response that they strongly disagree

When the question was posed to the targeted audience of the survey as it relates to “Using the CIMS improves your quality of service delivery” 32.5% or 13 persons gave responses that they strongly agree while 5% or 2 persons gave responses indicating that they are neutral and 0% or 0 person gave a response that they strongly disagree

When the question was posed to the targeted audience of the survey as it relates to “Using the CIMS at work improves your effectiveness and efficiency” 52.5% or 21 persons gave responses that they strongly agree while 5% or 2 persons gave responses indicating that they are neutral and 0% or 0 person gave a response that they strongly disagree

When the question was posed to the targeted audience of the survey as it relates to “Overall, using CIMS enhance your work productivity” 62.5% or 25 persons gave responses that they strongly agree while 5% or 2 persons gave responses indicating that they are neutral and 0% or 0 person gave a response that they strongly disagree.

## **Discussion**

A significant problem that was encountered was the slow speed of the internet. The accessibility of the CIMS is dependent upon the reliability of the internet.

Many of the respondents agreed that the CIMS is easy to use and user-friendly.

The results show that the software on the device and the device hardware used to access the CIMS is adequate as it should be and the support staff quickly addresses any issue that may arise.

Looking at the service quality the majority of the respondent believes that the CIMS service quality is adequate; the CIMS is maintained consecutively, resulting in better user experience for an and officer developing a great and deal of appreciation towards using CIMS for improved working experience.

The CIMS helps the police department in the expansion of its services and is time-saving because functions that use to take 24 hours plus to get a response, now only take a matter of minutes since the information is now readily available at your fingertips.

H1. Information quality will influence user satisfaction

H2. System quality will increase user satisfaction

H3. Technology quality will influence the use

H4. Service quality will influence user satisfaction

H5. User satisfaction will influence the use

H6. The use will influence perceived net benefit

H7. Net Benefit will increase service

Information quality that was evaluated was sufficient and positively influenced user satisfaction.

System quality has a majority of the survey population agreed that the CIMS is user friendly, has interactive features and good quality.

Technology quality had a more favorable response as it relates to the technology being adequate.

Service quality has a high percentage of the survey population agreeing to software updates, problem-solving, and timely response from support staff.

User satisfaction most of the users have a positive attitude toward the CIMS.

Use the vast majority of the survey population has a high use and are dependent on the CIMS.

Net benefit majority expresses that the CIMS improves work performance, saves time, helps to achieve work goals, and improve service delivery.

## **Conclusion**

Management Information Systems can provide remuneration to other businesses and organizations making them efficient and effective between different departments. MIS ensures quick and consistent referencing and the available access to pertinent data and documents. This will show a major improvement in organizational and departmental techniques such as classifying, registering, collating, and disseminating information. CIMS as a tool improves crime mapping and analysis. The daily assistance in the department will improve and increase contact with the rest of the world. MIS delivers a valued time saving benefit to the entire workforce. CIMS currently needs to be updated with more current programs to ensure a more integrated function. This will not only give the users a better operational experience in the workplace but also increase productivity. Enhancing service and efficiency when dealing with members of the public will generate a favorable image in the Belize Police Department.

## **Recommendations**

The time it takes users to access the CIMS would decrease significantly providing the department with faster internet speed.

The device used by the different stations and units to be checked for the proper use and handling by the IT section regularly.

A maintenance package is needed that will include hardware and software upgrade to stay current with technology

The service quality needs some improvement to increase the degree of user satisfaction.

To have a train the trainer program to increase the number of officers outside the IT section to assist with issues relating to the CIMS such as officer's account being locked. This will not only increase productivity but also it will help to be more efficient.

## **Limitations**

While time was a factor in conducting the research one of the constraints was the availability of officers to participate in the survey process.

Since the sample size was too small, the number of officers that participated in the survey cannot reflect a true opinion of the department.

Received feedback from only forty officers.

The analysis of the data reflected only a minority view since a larger pool is necessary to have a key understanding of the user CIMS relationship.

Financial resource limits the survey demographic to Belize City and Orange Walk.

## References

- Levinson. C. (2018) "Purpose of Management Information System" Retrieved from <https://bizfluent.com/facts-6852581-purpose-management-information-system.html>
- Ciasco, W. and Montealegre R. (2016) "How Technology is changing work and Organizations" Colorado, Denver. Retrieved from: [https://www.researchgate.net/publication/299400943\\_How\\_Technology\\_Is\\_Changing\\_Work\\_and\\_Organizations](https://www.researchgate.net/publication/299400943_How_Technology_Is_Changing_Work_and_Organizations)
- Levine. D (2004) "Crime Mapping and the Crime Stat Program" Houston, Texas. Retrieved from: <https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.0016-7363.2005.00673.x>
- Ratcliffe, J.H. Crime Mapping, and the Training Needs of Law Enforcement. *European Journal on Criminal Policy and Research* **10**, 65–83 (2004). <https://doi.org/10.1023/B:CRIM.0000037550.40559.1c>
- Gupta Manish et.al, (2015) "Crime data Mining for Indian Police information system" Indian Institute of Technology Delhi, Hauz Khas, New Delhi, Retrieved from [http://ww.w.csi-sigegov.org/1/40\\_410.pdf](http://ww.w.csi-sigegov.org/1/40_410.pdf)
- Hunt. J. (2019) "From Crime Mapping to Crime Forecasting: The Evolution of Place-Based Policing" Washington, DC. Retrieved from: <https://nij.ojp.gov/topics/articles/crime-mapping-crime-forecasting-evolution-place-based-policing>
- Tomas. J. (2019) "Development of an Online Crime Management & Reporting System" Retrieved from [https://www.researchgate.net/publication/333964966\\_Development\\_of\\_an\\_Online\\_Crime\\_Management\\_Reporting\\_System](https://www.researchgate.net/publication/333964966_Development_of_an_Online_Crime_Management_Reporting_System)
- Duff, W.M. and Asad, M.C. (1980), *Information Management: An Executive Approach*, Oxford University Press, London, p. 243.
- Belize Police Department, Police Lesson Notes, 2019.
- Pattavina. A. (2005) "Information Technology and the Criminal Justice System" New York. Sage publications.

## **Annex**

### **Purpose**

This research is required for the CMPS30120 MIS course at University of Belize University. This questionnaire asks for information about yourself and how often you use the Smart Stream System. The data gathered will be analyzed to determine the success of the Smart Stream system at your ministries' department.

Please answer each question based on your use of the Smart Stream system. 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 is no right or wrong answer. Please tick the boxes to mark your answers.

<b>1. Background Information</b>	<b>Answers:</b>
Please indicate your gender:	Male <input type="checkbox"/> Female <input type="checkbox"/>
Please indicate your age:	<25 <input type="checkbox"/> 25-35 <input type="checkbox"/> 36-45 <input type="checkbox"/> 46-55 <input type="checkbox"/> >55 <input type="checkbox"/>
Please indicate the length of time you have been working with NEMO:	1 <sup>st</sup> Year <input type="checkbox"/> 2 <sup>nd</sup> Year <input type="checkbox"/> 3 <sup>rd</sup> Year <input type="checkbox"/> 4 <sup>th</sup> Year <input type="checkbox"/>
Please indicate your working experience:	<5 <input type="checkbox"/> 5-10 <input type="checkbox"/> 11-15 <input type="checkbox"/> >15 <input type="checkbox"/>

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



<b>2. Information Quality</b>		<b>Disagree</b> ----- <b>Agree</b>
IQ1: The Smart Stream system provides information that is exactly what you need	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>	
IQ2: The Smart Stream system provides information you need at the right time	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>	
IQ3: Smart Stream system provides information that is relevant to your line of work	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>	
IQ4: The Smart Stream system provides sufficient information	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>	
IQ5: The Smart Stream system provides information that is easy to understand	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>	
IQ6: The Smart Stream system provides up-to-date information	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>	
IQ7: The smart stream system provides sufficient information	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>	
<b>3. System Quality</b>		<b>Disagree</b> ----- <b>Agree</b>
SQ1: The Smart Stream system is easy to use	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>	
SQ2: The Smart Stream system is user-friendly	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>	
SQ3: The Smart Stream system provides interactive features between users and the system	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>	
<b>4. Complementary Technology Quality</b>		<b>Disagree</b> ----- <b>Agree</b>
CTQ1: The computer (desktop, laptop) you normally use to access Smart Stream is adequate	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>	
CTQ2: The computer (desktop, laptop) you normally use to access Smart Stream has a fast and reliable internet connection	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>	
<b>5. Service Quality</b>		<b>Disagree</b> ----- <b>Agree</b>
SV1: The support staff keep the Smart Stream software up to date	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>	
SV2: When users have a problem the Smart Stream system support staff show a sincere interest in solving it	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>	
SV3: The Smart Stream system support staff respond promptly when users have a problem	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>	
SV4: The Smart Stream system support staff tells users exactly when services will be performed	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>	

<b>6. User Satisfaction</b>	<b>Disagree</b> ----- <b>Agree</b>
US1: Most of the users have a positive attitude of the Smart Stream system. the Moodle system function.	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>
US2: You think that the utility of the Smart Stream system is high.	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>
US3: The Smart Stream system has met your expectations.	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>
US4: You are satisfied with the Smart Stream system.	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>
<b>7. Use</b>	<b>Never</b> ----- <b>Often</b>
U1: Your frequency of use of the Smart Stream system is high	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>
U2: You depend upon the Smart Stream system	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>
U3: You were able to complete a task using Smart Stream even when there was no one around to tell you what to do	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>
U4: You have the knowledge necessary to use the Smart Stream system	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>
<b>8. Perceived Net Benefits</b>	<b>Never</b> ----- <b>Often</b>
NB1: The Smart Stream system helps you improve your employment performance	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>
NB2: The Smart Stream system helps employee and employer save costs	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>
NB3: The Smart Stream system helps you achieve your office goals	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>
NB4: Using the Smart Stream system improves employee appraisal and training	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>
NB5: Using the Smart Stream system at your place of employment increases your career productivity	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>
NB6: Overall, using Smart Stream enhances employee performance	1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/>

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

Thank you for your participation.

