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Effects of Network Crimes on Information Communication Technology Security in Uasin Gishu County, Kenya.

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Abstract: *The purpose of the study was to investigate the effects of Network Crimes on Information Communication Technology Security In Uasin Gishu County, Kenya.The investigation was guided by effects of Cyber Threats on Information Communication Technology Security in Uasin Gishu County, Kenya.The examination study strategy which was utilized for this situation is of subjective and quantitative investigation techniques in nature and for breaking down the information the scientist utilized spellbinding measurement which incorporated frequencies, rates, implies (which demonstrates the normal pace of study factors). For subjective information, information examination was finished utilizing topical investigation which included perusing and coding content for developing subjects that relate to the investigation. After cautiously evaluating the archives, rising subjects was noted and thereafter recorded. The study findings revealed that 49.1% disagreed that online piracy always scans all removable storage devices like USB Flash Disk before using them on the computers, 53.6% were in unison that cyber-stalking in Uasin Gishu County is carried out by qualified IT experts, 48.2% were in agreement that access to the county database is restricted to management personnel, 50% agreed that digital psychological warfare cause serious interruption or far reaching dread in the public eye*

Key Words: **Network Crimes &** ***Information Communication Technology Security***

I. INTRODUCTION

All inclusive in United States of America is seeing a fast development in the use `of Technology in both people in general and private segment. The contracting expenses of ICTs have made this across the board and decentralized, coming to a long ways past the political and financial elites of Western social orders, extraordinarily profiting the creating scene and explicitly Africa from multiple points of view. As expressed by Internet Africa had more than 167 million web clients with Nigeria speaking to in excess of 48 million web clients which thusly pulled in various universal financial specialists looking for new business openings over the mainland. Africa accepts that Africa is being advanced as the following worldwide innovation center and the landmass is said to be on the precarious edge of uncommon development and flourishing claims that "development has extended the accessibility, use, and usefulness of the web at a stunning rate. Today, there are in excess of two billion web clients all inclusive, an immense increment from the 361 million clients online in 2000". This is apparent in the developing number of cell phone and web clients crosswise over Africa as individuals keep on ending up increasingly more reliant on such advancements for ordinary use (Moeng, 2011).

Since the year 2000, an indispensable job in structure Kenya's economy and is viewed as a primary government need in the acknowledgment of national improvement objectives and destinations for riches and work creation, as stipulated in the 'Kenya Vision 2030' National Development Plan .Kenya has been encountering a quick increment in web infiltration over the most recent couple of years with the general web use getting to be less expensive, better and quicker. Presently.Such web paces empower enormous volumes of information to be sent and put away in a moment, improving the effectiveness among web clients (UNODC, 2013). Also, in 2013 the advertise in Kenya arrived at an estimation of US$5.16 billion, of which media transmission administrations represented 71.9 percent, equipment made up 22.3 percent, and IT administrations and programming spoke to 3.0 percent and 2.8 percent, separately. Spending is relied upon to keep becoming over the estimate time frame to arrive at an estimation of US$5.86 billion out of 2017 (CCK, 2013).

The fast development of Kenya's division has made it a main African center in imaginative advancements, and Kenyans have rapidly turned out to be subject to the administrations given to them through government and business sites, banking availability, and simplicity of interchanges. Because of the enormous profitability gains and new abilities empowered by development of in Kenya, the Kenyan government has joined into countless applications and for all intents and purposes each area of the nation's basic foundation including: wellbeing, security, agribusiness, money related administrations, and exchange (IDC 2014).

In such manner, the Kenyan government has "executed electronic frameworks in different state offices and other state- claimed organizations, including the national duty framework, the migration data framework, the lawful data framework, the incorporated money related administration framework and the instruction framework. Besides, most of these frameworks are arranged in the National Treasury, Home Affairs Department and the migration Offices for instance, presently offers online administrations, for example, accommodation of expense forms and installments, just as duty related data to natives and organizations. For government organizations, for example, the, the web is of impressive significance to the sending of a national single window for exchange assistance, and the reconciliation of traditions, port and travel forms, which thus eventually lessens the expenses for government and exchanging endeavors .Penetration of an association data framework could have broad results particularly in the present time of data edge technique. Governments, business associations and people the world over have put resources into data and correspondences Technologies suggesting the frameworks' safety efforts, and create security strategies that determine the right conduct of workers, customers and natives. A safe e-governments data framework ensures execution of the framework and upgrades dependability, certainty and conviction, yet in addition fulfills the security guidelines (Kenya, 2013).

A protected and solid data framework is perceived as a premise of upgrading certainty of e-government frameworks Late improvement and selection of budgetary foundations in Kenya of on the web and portable financial administrations is driving associations and people to beforehand unchartered hazard levels and more extensive introduction. The administration has presented various undertakings and

some are currently offered on the web, for example e- resident, I-charge, Kentrade single window framework, incorporated money related administration data framework Accessibility of taxpayer driven organizations through e-government other than offering to persuade genuine partners, has additionally opened basic databases and framework to the danger of digital assaults Invasion of e-government frameworks could have an effect one-government clients' frameworks' certainty and selection .As of late different foundations have been focuses of digital frailty; 103 government associations were casualty of digital assaults in Kenya in the period of February 2012 according to the report by Serianu IT security counseling firm.

This paper assesses elements influencing digital security in Kenya with an inclination towards the Public Service. Digital security is fundamentally the way toward guaranteeing the wellbeing of the internet from known and obscure dangers. The International Telecommunications Union expresses that digital security is the aggregate utilization of techniques, safety efforts, plans, dangers organization strategies, commitment, preparing, foremost practices, affirmation and aptitude that can be utilized to protect the data framework, association and related resources .Digital assaults includes the noxious use of data and correspondence innovation either as an objective or as a gadget by a few malevolent on-screen characters. Digital security could likewise allude to the security of web, PC systems, electronic frameworks and different gadgets from the digital assaults.

Digital security has effects affected business. The present data age has expanded the degree of association's reliance on the internet an effective assault bargains the privacy, respectability and accessibility of an framework and the data it hampers in an association. Digital burglary (digital undercover work) can bring about introduction of financial, owner, or secret data from which the interloper can pick up from while the genuine association misfortunes income or patent data. Open workplaces are workplaces in the form of the Consolidated Fund or straightforwardly out of assets given by government to individuals living inside its purview, either legitimately (through the open part) or by subsidizing conveyance of administrations. These administrations are given by different open workplaces in attempted of their particular commands. As of late there has been an expansion of the open workplaces connecting with and offering administrations to their clients through the ICT framework (Bulgurcu et al., 2010).

1.2 Statement of the Problem

Cyber security frameworks, cybercrimes are becoming more frequent, more sophisticated, and more widespread affecting crucial areas such as Telecommunications .These cybercrimes activated by; crackers, hackers, career criminals, pranksters, cyber terrorists, cyber bulls, salami attackers are increasingly having devastating impact to the information consumers as well organizations. Organizations have suffered immense losses in form of unwarranted access to confidential information, lack of data integrity, and exposure to obscene and financial losses. The financial losses due to cybercrime are enormous and damaging. According to Communications Authorities of Kenya first quarter report for 2018/19, National Cyber security Centre detected 3.82 million cyber-threats, a rise from 3.46 million reported from the last quarter. Within the review period, the banking sector remained the most targeted industry followed by government institutions (County Governments such as Uasin Gishu). Latest statistics from National Kenya Computer Incident Response Team Coordination Centre (2014).

A total of 123 cybercrime cases were reported in Uasin Gishu in the year 2018-2019 as compared to 72 cases in 2016- 2017, according to National Police Crime Situation Report (2017). This increase was attributed to reckless abuse of the social media during the electioneering period. Arrests were made as a result of use of intelligence and monitoring. There has been a rise of computer related frauds targeting banks, mobile money transfers services and SACCOs. The methods employed include identity theft, hacking, denial of services, intrusion and manipulation of computer systems.

Empirical and contextual studies have shown that even with the presence of cyber security framework, the dent caused by cybercrime is widening day by day. Conducted a study, which reveals that financial institutions in Kenya need to guard themselves against cybercrime. As the study concludes that there are emerging challenges of cyber threats in Kenya Banking sector, the study reported a monthly of increase of 100% in cybercrime. However, these studies have not significantly sought to examine factors contributing to cyber security framework in Kenya Telecommunication industry, a gap the present study sought to fill. This study sought to determine the effects of Cyber Threats on Information Communication Technology Security in Uasin Gishu County, Kenya.

1.3 Purpose of the Study

The purpose of the study was to find out the effects of Network Crimes on Information Communication Technology Security in Uasin Gishu County, Kenya.

II. LITERATURE REVIEW

Network crimes in information Communication Technology Security

System or web wrongdoing is any illicit online movement submitted on the web, through the web or utilizing the web. The across the board web wrongdoing marvel includes various worldwide degrees of enactment and oversight. In the requesting and ceaselessly transforming IT field, security specialists are perpetrated to battling web wrongdoing through safeguard advances, for example,

interruption recognition systems and bundle sniffers.
.Fanatic gatherings are as of late utilizing the internet for enrollment of individuals, coordination of physical assault, souring of assets, assaulting sites and spreading the gathering's purposeful publicity monetary profit is a noteworthy inspiration for non – political frameworks assault. A study on digital security and politically, socially and religiously persuaded digital assaults assesses the sources and nature of digital assaults and indicates characterizing and positioning different wellsprings of digital assaults key and among the initial phases in guaranteeing successful digital security. The key inspiration for digital assailants should be assessed with respect to an associations frameworks for compelling digital security arranging and execution (Creswell, 2013).

Unapproved access means trespassing into a PC without assent, and recovering information, putting away information, speaking with, blocking, or changing information or programming. Hacking means breaking into a PC framework with the expectation of perniciously adjusting, harming, or upsetting the PC framework or systems. Investigations of hierarchical and human variables influencing PC and data security (CIS) have assessed different measurements. The measurements canvassed in the examination incorporate selection and usage of PC and data security methodology and approaches, workers' acknowledgment and adherence to security strategies and the effect of the executives support in appropriation and usage of CIS technique and policies. Culture in security frameworks is multidimensional and incorporate dependable security forms, security administration, coordination and control top administration backing representative association and preparing and workers' valuation for security The effect of authoritative and human highlights on data framework's security have additionally been explored the above investigations lead to an improvement of a coordinated structure consolidating mechanical elements with authoritative and human factors in data framework security and furthermore underlining on their interaction (Scott, 2002).

Ibikunle and Eweniyi completed an investigation on difficulties and answer for digital security issues in Nigeria. The investigation perceives targets of digital security to incorporate tending to frameworks and systems vulnerabilities; advancement and supporting a digital security culture by foundations and individual; determining a successful joint effort in digital security among private and open associations even past political bounders: staying in contact with new improvement in digital wrongdoing and their compelling arrangements; and guaranteeing frameworks accessibility, classification, uprightness and legitimacy (Straub,1990).

111: RESEARCH METHODOLOGY

3.1 Research Design

This study was descriptive survey research design and explanatorily research design**.** Descriptive design involved gathering of quantitative information that can be tabulated along a continuum in a numerical form (Collis and Hussey, 2013). This design also entailed in gathering data that described events and then organized, tabulated, depicted and described the data collected.

Where description of the state of affairs of phenomena was done as it existed (Kombo and Tromp, 2011). The aim of this research design was to establish and give a report on the ways things are (Mugenda andMugenda, 2003). The descriptive design suitability to this study is due to its efficiency in gathering enough information which can be obtained from a selected target group of respondents within a given population set under the study. Explanatory designs involved the study which the primary goal is to know and identify with the trait and mechanisms of the relationship and association between the independent and dependent variable. (Cooper and Schindler (2003), an explanatory study uses theories or hypotheses to account for the forces that caused a certain phenomenon to occur. And it goes beyond description and attempts to explain the reasons for the phenomenon. It involved series tests of significance for testing hypotheses in order to determine with what validity data can be said to indicate conclusions.

This study employed both qualitative approach and quantitative approach, which helped clarify some sections of the study. Lieber and Weisner (2010) stated that the combination of both inductive and deductive reasoning by the mixed methods approach has helped in answering questions and providing comprehensive evidence for studying research problems than either of the approaches. According to Duo, mixed paradigm research have guiding principles for collecting and analysing data; which is termed as a research process of both the quantitative and qualitative in nature and which is a phase in conducting the research process. This has been in contention as being useful to the of the combination of these approaches which ensures understanding of a research problem under the study than using one of the two, however the mixed methods research provides strengths to both qualitative and quantitative research.

3.2 Study Area

The study was carried out in Uasin Gishu County government ICT department which is in Eldoret Town .Uasin Gishu County Government is located on a plateau and has a cool and temperate climate. The researcher decided to choose Uasin Gishu County because it is affected by cybercrime each and every year.

3.3 Target Population

Kombo, 2011, in his investigation diagrams populace as a unit or a characterized gathering of individuals, fragments, and family units that are being contemplated. The investigation was led in Uasin Gishu County, Kenya. The examination applied Krejcie and Morgan

equation of test assurance to create an example of 150 ICT staffs of County Government of Uasin Gishu Krejcie and Morgan table (1970).

3.4 Sample Size and Sampling Technique
An enumeration was led where by every one of the 150 ICT staffs of County Government of Uasin Gishu was inspected since the objective populace is little and sensible.

3.5 Sample size
3.5.1 Sampling Technique
The exploration utilized the system of stratified irregular testing; this is the point at which the objective populace was sub-separated into strata. The stratum involved Managers, Assistant directors, Section heads and Supervisors. Two arrangements of study units was required for the reasons for this investigation. This along these lines required utilization of a blend of testing systems. Stratified and straightforward arbitrary examining techniques was utilized to choose workers of Uasin Gishu County, Kenya (Creswell and Plano-Clark, 2011).

3.5.2 Data Collection
The investigation got the essential sources from Uasin Gishu County using an organized and semi-organized survey.
The investigation embraced surveys in gathering information has characterized poll as that arrangement of inquiries which has been arranged and confined in a way that is simpler to handle and utilized by the specialist in getting enough material for breaking down the information. Furthermore, polls were utilized due to their effectiveness, not costly and can be utilized when getting information from an a lot bigger example. In this investigation, the analyst planned surveys which were utilized to accumulate data from representatives since the sample size was huge. The survey was structured dependent on study destinations and was directed utilizing - drop-and-pick-later-strategy (Kothari (2013).

3.5.3 Informant Interview
This is a point by point talk with which is conveyed or led to witness people who have profound data on a given network, and knows regular events in the network. Key witness meeting were utilized to gather data from different scope of individuals; heads of offices and chiefs, who are accepted to have direct information about digital wrongdoing in Uasin Gishu County. The examination utilized key source meeting. This included one on one meeting between the specialist and the sources utilizing open-finished inquiries questions. This strategy was gainful to the examination as it permited free-trade of thoughts, and fit posing progressively complex inquiries and getting increasingly point by point reactions.

3.5.3 Pilot Study
The pilot study was done in Moi Teaching and Referral Hospital ICT office. The members were urged to remark and make recommendations which was utilized to improve the exploration instruments to guarantee their legitimacy, unwavering quality and practicability.

3.5.4 Validity of the Research Instruments
According to Kabiru and Njenga (2009), Legitimacy as that way of degree in which the instrument estimates what it should gauge and this incorporates Content legitimacy and Construct legitimacy as a component of estimating instruments to be utilized in the examination. Content legitimacy was accomplished through introducing the instruments to managers together with counseling the specialists. After pilot study, the exploration accomplished develop legitimacy by the utilization of factor examination and make some correlation close by what Kaiser-Meyer- Olkin's proportion of 0.5 has demonstrated.

3.5.5 Reliability of instrument.
The consistence of instruments in getting similar results is what is alluded to as the dependability of research instrument (Orodho 2012).The research will receive a test-retest position in which survey instrument will be utilized more than once on similar respondents to test for the inner consistency. After pilot study, unwavering quality was resolved utilizing Cronbach Alpha coefficient. The two outcomes were connected and determined to check for the dependability file which on the off chance that it surpasses 0.7 shows satisfactory reliability. The unwavering quality record was set up by the Cronbach Coefficient Alpha recipe. Its primary intention is pre-trying the instruments to build up lucidity of importance and intelligibility of everything in the investigation instruments.

3.5.6 Data Collection Procedure
In the wake of being cleared by the college experts on composing, printing and guarding the proposition the analyst obtained a specialist letter for research. When the specialist gets an assent he searched for somebody to help him in dealing with the polls. Before managing the polls, they will initially be checked for precision, consistency and fulfillment.

3.5.7 Data Analysis

The examination study technique which was utilized for this situation is of subjective and quantitative investigation strategies in nature and for breaking down the information the scientist utilized unmistakable measurement which incorporated frequencies, rates, implies (which demonstrates the normal pace of study factors), and the standard deviation which told the best way to discover a lot of scores all things considered.

The inferential insights which were embraced were Regression Model of relationship to get the noteworthy and factual connection between the factors.

The empirical model is as follows;

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$

Y- Cyber crime β_0= Constant

β_1- β_5 - Coefficient X_1 –Cyber Threats X_2-Network Crimes X_3 – Access Crimes X_4 – Abetting Crimes ε –Error

3.5.8 Ethical Consideration

The examination embraced the accompanying moral contemplations:

Totally deliberate interest was looked for as nobody is constrained to respond to addresses they would prefer not to. There are some moral worries that was considered before embraced on the investigation. Educated assent regarding all members was guaranteed by requesting that they use where vital coding as opposed to utilizing their names or some other individual data in surveys. The researcher provide adequate information concerning the study, adequate opportunity for the respondent to consider all options regarding the study, and assure them that they were not compelled to participate in the study. The participants were not coerced to sign the consent form. So as to accomplish this, the respondents were permitted to just tick where proper. This exploration was secret and was kept by the scientist alone.

There was an introductory letter from Mount Kenya University, National Commission for Science Technology and Innovation (NACOSTI), Ethical Review Committee (ERC) demonstrating the reason with respect to why the examination is being directed to the investigation and how he plans to secure the data of the respondents so as to keep away from stresses and in this way making the respondents to unreservedly take an interest in filling polls.

IV: DISCUSION OF FINDINGS

Network crimes on information communication technology security

The second objective of the study was to determine the effects of access crimes on information communication technology security in Uasin Gishu County, Kenya. The study results were presented as in table 4.1 below.

Table 4.1 Network crimes on information communication technology security

Statements		**SD**	**D**	**UD**	**A**	**SA**	**Total**
Is cyber-bullying conducted through the use of computer.?	f	9	10	6	11	74	110
	%	8.2	9.1	5.4	10	67.3	100
Cyber stalking is carried out by qualified IT experts	f	2	12	26	59	11	110
	%	1.8	1.1	23.6	53.6	10	100
Access to internet services has leads to rampant online sexual exploitation of children	f	10	30	2	65	3	110
	%	9.1	27.3	1.8	59.1	2.7	100
The IT department has enough personnel in their department.	f	20	60	8	10	12	110
	%	18.2	45.5	7.2	9.1	11	100
Directors support and implement decisions made by the IT department	f	11	54	33	5	7	110
	%	10	49.1	30	4.5	6.4	100
The IT department has its own budget to run the department.	f	12	62	10	6	20	110

	%	11	56.4	9.1	5.4	18.2	100

(Source: Researcher, 2020)

Based on the first statement that is cyber-bullying conducted through the use of computer.?, the study findings revealed as follows; 8.2% strongly disagreed that cyber-bullying is conducted through the use of computer, 9.1% disagreed that cyber-bullying is conducted through the use of computer, 5.4% were undecided, 10% agreed that cyber-bullying is conducted through the use of computer and 67.3% strongly agreed that cyber-bullying is conducted through the use of computer. From the study results we can infer that most of the employees 67.3% were in agreement that cyber-bullying in Uasin Gishu County was conducted through the use of computer.

Based on the second statement that cyber-stalking is carried out by qualified IT experts, the study findings revealed as follows; 1.8% strongly disagreed that cyber-stalking is carried out by qualified IT experts, 1.1% disagreed that cyber-stalking is carried out by qualified IT experts, 23.6% were undecided, 53.6% agreed that cyber-stalking is carried out by qualified IT experts and 10% strongly agreed that cyber-stalking is carried out by qualified IT experts. From the study results we can infer that the majority 53.6% were in unison that cyber-stalking in Uasin Gishu County is carried out by qualified IT experts.

Based on the third statement that access to internet services has leads to rampant online sexual exploitation of children, the study findings revealed as follows; 9.1 strongly disagreed that access to internet services has lead to rampant online sexual exploitation of children, 27.3% disagreed that access to internet services has lead to rampant online sexual exploitation of children, 1.8% were undecided, 59.1% agreed that access to internet services has lead to rampant online sexual exploitation of children and 2.7% strongly agreed that access to internet services has leads to rampant online sexual exploitation of children. The findings implies that most employees 59.1% in the County Government were in agreement that due to availability of internet services there has been rampant online sexual exploitation of children. Based on the fourth statement that IT department has enough personnel in their department, the study findings revealed as follows; 18.2% strongly disagreed that IT department has enough personnel in their department, 45.5% disagreed that IT department has enough personnel in their department, 7.2% were undecided, 9.1% agreed that IT department has enough personnel in their department and 11% strongly agreed that IT department has enough personnel in their department.

Based on the assertion that Directors support and implement decisions made by the IT department, the study findings revealed as follows; 10% strongly disagreed that Directors support and implement decisions made by the IT department, 49.1% disagreed that Directors support and implement decisions made by the IT department, 30% were undecided, 4.5% agreed that Directors support and implement decisions made by the IT department and 6.4% strongly agreed that Directors support and implement decisions made by the IT department. The study findings implies that the majority of the respondents 49.1% disagreed that directors in the county government support and implement decisions made by the IT department while only 4.5% were in agreement.

On the last statement that IT department has its own budget to run the department, the study findings revealed as follows, 11% strongly disagreed that IT department has its own budget to run the department, 56.4% disagreed that IT department has its own budget to run the department, 9.1% were undecided, 5.4% agreed that IT department has its own budget to run the department and 18.2% strongly agreed that IT department has its own budget to run the department. From the study results we can infer that the majority 56.4% disagreed that IT department in Uasin Gishu County has its own budget to run the department, this implies that the county government needs to set up a specific budget for the IT department.

According to Arora (2016), the world today is experiencing an exponential growth in cyberspace. Nevertheless, Kenya has witnessed a significant ascend in Internet activities and it is quite assertive to say that such phenomenal growth in access to information on one hand leads to empowered individuals and organization and on the other hand also poses new challenges to government and citizens. To make the cyber-world safe is the need of the hour. Putting up deterrent measures against cybercrime is essential to national cyber-security in protecting critical infrastructure of the nation as well as for individuals. In this regard, the prime objective of the government is to prevent cyber-attacks and to protect the country's critical infrastructure. It also focuses on reducing vulnerability to cyber-attacks so as to reduce and minimize damage and recovery time. To prevent the cybercrimes, individuals and governments need to clearly understand the crime schemes in the cyberspace and the contemporary and continuing Internet trends and behaviours of these criminals.

Information and communication technologies (ICTs); does not benefit to individuals, organizations and governments; but also widens the scope of criminal activities as well (Srivastava, 2012). Presently, the credit card thefts and online money-laundering cases of cyber-crimes are on the rise. Harassment and defamation through social media are also a matter of concern to individuals. Cyber-terrorism is the most prominent aspects of cyber-crime across countries. It is the lack of cyber-crime awareness that leads to cybercrimes. The Cabinet Committee on Security (CCS) approved the National Cyber Security Policy in July 2013 that aims to create a secure computing environment in the country and build capacities to strengthen the current set up with focus on manpower training.

V: SUMMARY OF THE FINDINGS, CONCLUSION AND RECOMMENDATION

5.1 Summary of the Findings

Based on the second objective the study conclude that cyber bullying in Uasin Gishu County was conducted through the use of computer carried out by qualified IT experts, due to availability of internet services there has been rampant online sexual exploitation of children. Uasin Gishu County lacks adequate personnel in the IT department, it also lacks a budget to run its activities, the directors in the county government do not support and implement decisions made by the staff in the IT department.

5.2 Conclusion

The study conclude that cyber-bullying in Uasin Gishu County was conducted through the use of computer carried out by qualified IT experts, due to availability of internet services there has been rampant online sexual exploitation of children. Uasin Gishu County lacks adequate personnel in the IT department, it also lacks a budget to run its activities, the directors in the county government do not support and implement decisions made by the staff in the IT department.

Recommendation

The County Government should enact cyber-crime laws that deal with harmonization and standardization of computer crime, as this would bring the county closer to attaining total justice to cybercrime victims.

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