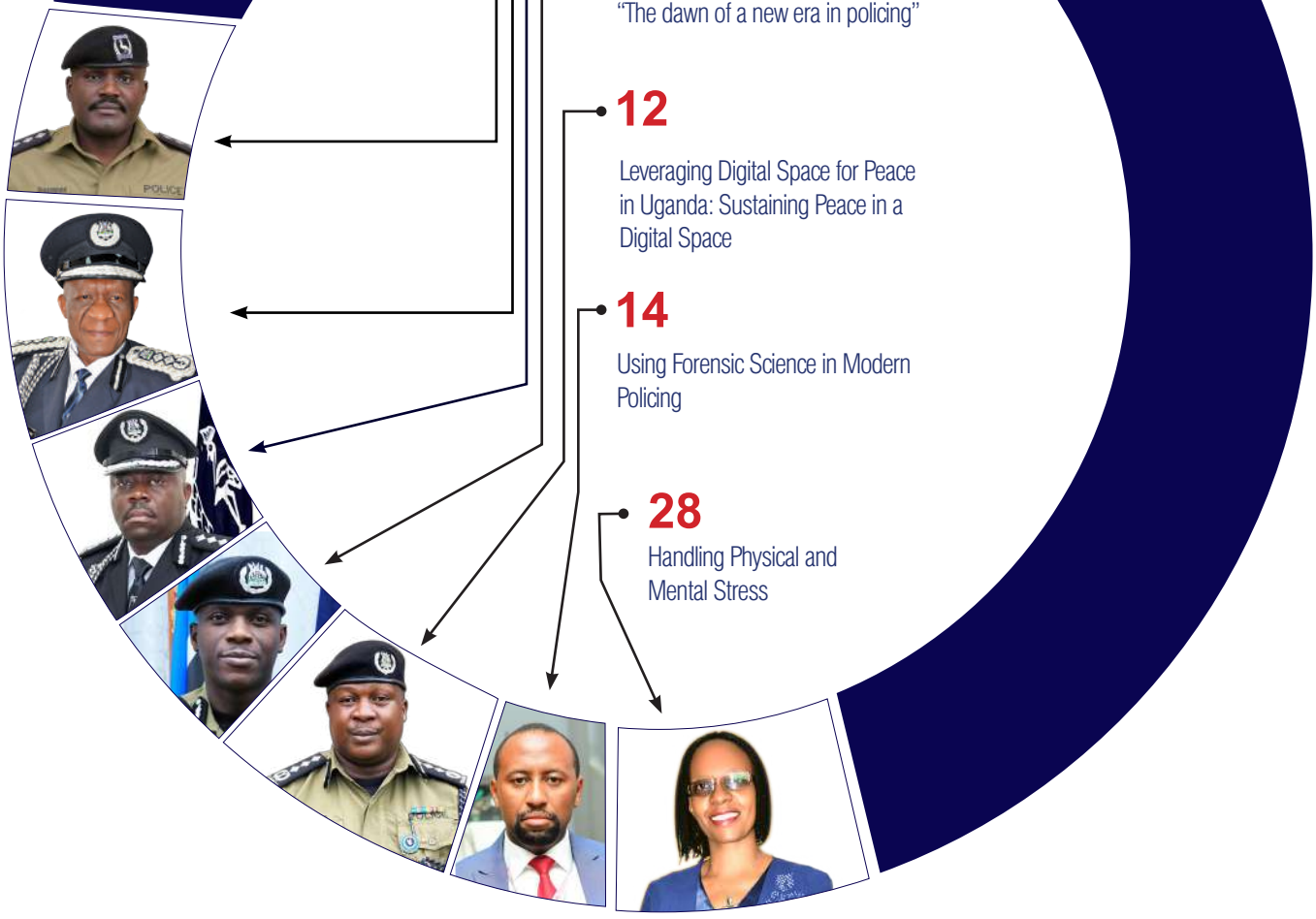
Contents



Editor's Note

The fourth industrial revolution, are we ready to use science and technology?

In Uganda today managing crime is becoming a lot easier. This is all because of technological advancement. There are a number of approaches and efforts, which have been instituted, to support police operations. For instance, forensic science is one form of technology that plays a vital role in investigating crimes or examining evidence presented in courts of law. The Uganda government's vision is to have clear information and data management systems that are able to save time and resources. The Uganda Police Force is investing heavily in streamlining its operation capabilities aimed at safeguarding national order, peace and security. Embracing the use of forensic science has become inevitable. Yes! It is a national approach to strengthening the criminal justice system by using technology.

Forensic science strategy

Information and Communications Technology has given impetus to forensic science. Different directorates in the Uganda Police Force are leveraging on forensic science to manage crime cases. Efforts are stepped up in the force to fight crime by scientifically managing

ASP Rugayampunzi Nshimiye Allan
Ag CP Information and Publications
Managing Editor
allan.rugayampunzi@upf.go.ug
0778412162/0704987669

investigations. Technological advancements are creating a new dawn in policing. The force remains committed and resilient to integrate forensic science in its operations by addressing all the existing impediments, develop better systems and networks within the different directorates to handle the influx of different kinds of data. Without these considerations, benefits will not be as expected. As forensic science continually advances, the Uganda Police appreciates the government of Uganda for the support and resources rendered in putting in place different interventions.

Police personnel capabilities

One of the main reason for promoting forensic science and ICT is for the institution to manage crime cases appropriately and expeditiously maintain public confidence and save taxpayers money at the same time. Equipping the police personnel is key for the success of ICT and forensic science in police operations, having the skills without the tools is meaningless. Training in the use of ICT and forensic science is relevant for the officers to master the processes with speed and accuracy.

Conclusion

From a wider perspective, trends in ICT and science in policing are increasing to support a host of operations, investigations, and intelligence approaches. ICTs are mainly preferred for supporting administrative efficiency, crime reporting, surveillance and intelligence gathering, accountability monitoring, and for reaching out to the members of the public. Embracing ICT-based reporting tools is vital in managing information and data. ICT is, however, no magic bullet, but associated with ethical dilemmas and risks. ICT use requires high degrees of accountability and data privacy. The UPF has put in place protection measures to ensure that ICT does not compromise trust, safety, security or basic freedoms of the population. Fundamentally important is that ICTs cannot build trust by themselves but ought to be used in ways that support face-to-face trust-building processes.

Lastly, great appreciation goes to the Inspector General of Police, J.M Okoth-Ochola (ESQ), Heads of different Directorates, Commissioners at different levels and the serving officers of different ranks and file for embracing forensic science in their operations. Your contributions in this Habari Magazine is highly appreciated. We remain committed to SERVE the public and share interesting ideas in our subsequent publications.

The writer ASP Rugayampunzi Nshimiye Allan is the Ag CP Information and Publications; and the Managing Editor of the Police Habari Magazine

Use **Science** and **Technology** to **Command, Control Coordinate** and **Communicate**

By J.M Okoth-Ochola (ESQ)
Inspector General of Police in Uganda

As societies advance in technological development dealing with crime also becomes complex as the Uganda Police Force must act fervently and swiftly to fulfill its mandate. Technology and policing have been interconnected for ages, right from the laws, the tools or accoutrements used and the methods of detection, prevention and investigation of crime. The advent of the telephone for example made it easier for the community to interact with the police by simply dialing instead of using a whistle or having someone run to call the police, using bicycles, motorcycles and motor vehicles have generally improved the police response mechanism.

There now even district/division and community Security Whatsapp Groups for ease of information flow. Currently science and technology has greatly developed in leaps and bounds and continues to advance at an ever-accelerating rate, as seen through the lenses of information and communication technologies such as use of computers, mobile phones and wireless technology, high-powered computers, visual and audio technology such as CCTV, advanced analysis tools, and other technological advancements.

The science of evidence collection, examination and analysis has greatly changed with the use of forensic science such as Bio-chemistry in DNA (Deoxyrubal Nucleic Acid),gun and ballistics examination, handwriting analysis of questioned documents and the age old practice of forensic pathology commonly known as post mortem in cases involving death. However we must keep in mind that scenes of crime must always be protected to avoid adding of diversionary exhibits or removing of incriminatory exhibits, scenes must not be tampered with and the Directorate of

Chief Political Commissariat (CPC) and all police officers responsible must always embed this in their community policing drives.

His Excellency the President of Uganda Gen. (Rtd) Yoweri Kaguta Museveni has emphasised the need to quickly gravitate towards science and technology for the whole country. As the Uganda Police Force therefore we must comply and follow his guidance by infusing a greater use of science and technology in the prevention, detection and investigation of crime. The current Uganda Police Force is therefore on a good trajectory to achieving complete use of science and technology in our daily work. All major stations now have computers, telephones (mobile and fixed), CCTV, internet and a fully equipped Scene Of Crime Office (SOCO). All these are well supported by a fleet of motorcycles and motor vehicles including ambulances (for many stations) for quick response.

The CCTV must be used more as a preventive tool than a reactionary tool. Those monitoring CCTV throughout the country must always be alert and monitor all activity within the visual reach of the cameras, this way any suspicious characters can be sighted early and thus brought in for questioning. The Directorate of Operations in conjuction with the Directorate of ICT must come up with a schedule of personnel and supervisors to ensure alertness. Early monitoring ensures better prevention as reports must be sent to the Crime Intelligence teams for analysis who then must quickly conclude on the activity under suspicion.

This means therefore that the CCTV operators must be in line of communication with the area police and the 999 emergency response teams which must act very quickly to avert danger and or respond to other incidences such as fire outbreak or accidents. At the National Command and Control Center of CCTV there is presence and practice of joint management together with our sister force the UPDF this further eases the co-ordination of our effort in securing the country.

The Directorate of ICT also gives manpower and technical support to the National Emergency Call Centre commonly known as the 999 system and for ease of receiving calls without delay there has been creation of Regional Call Centers and the provision of a Whatsapp line 0779 999 999 for use when people are unable to call due to safety concerns or impairment. The community is advised to use the Emergency Call numbers immediately in case of an incidence of criminal or accident in nature, for quick response.

The Directorate of Traffic is also on a good path of using the Intelligent Traffic Management System to monitor and control traffic. In addition there is now the use of Express Penalty System for offenders of the traffic code. This has reduced incidents of corruption as traffic officers themselves are being monitored by the very system

they use to monitor traffic. The blacklisting of vehicles has led to ease of recovery of stolen and or traffic offending vehicles as the Automatic Number Plate Recognition (ANPR) cameras sight and alert the officers in the monitoring room who then inform those on ground to put up snap checkpoint to apprehend the same. All vehicles with concealed or removed number plates must be impounded on spot. The Directorate of Traffic must liaise with the CPC so that traffic officers are part of community policing barazas to inculcate discipline among the road users.

There exists a gold mine of data from our station dairies, the Directorate of Research and Planning should embark on digital storage of the past data recorded for ease of access and analysis. The sheer amount of data from the dairies, the fact that it is continuous and from various parts of the country qualifies it to be big data. The concept of using big data to predict possible future trends should be well studied and conceptualised to fit within helping the police to achieve its mandate in especially prediction of possible crime and thus preventing it from happening. The volume, velocity and variety (3Vs) of big data requires special tools of analysis, therefore the Directorate of ICT should endeavor to support the Directorate of Research and Planning with the adequate tools for big data analysis.

We cannot run away from the looming presence of Artificial Intelligence in policing, the use of machines that learn from the data given and compute possible scenarios. This is increasingly becoming a reality. The Directorate of ICT should formalise the testing of the use of drones or what is known as mobile eyes in the sky. These can be very useful in covering the alleys and ghettos that have congested ways where the police was not technically able to install CCTV. The drones can be used in surveillance and pursuit of criminals who dash and dart into the ghettos and slums. The question as to whether in future the police shall have robots is already answered as the Directorate of Counter Terrorism already has bomb detection robots that are remote operated to move towards suspicious packages. The practice of using

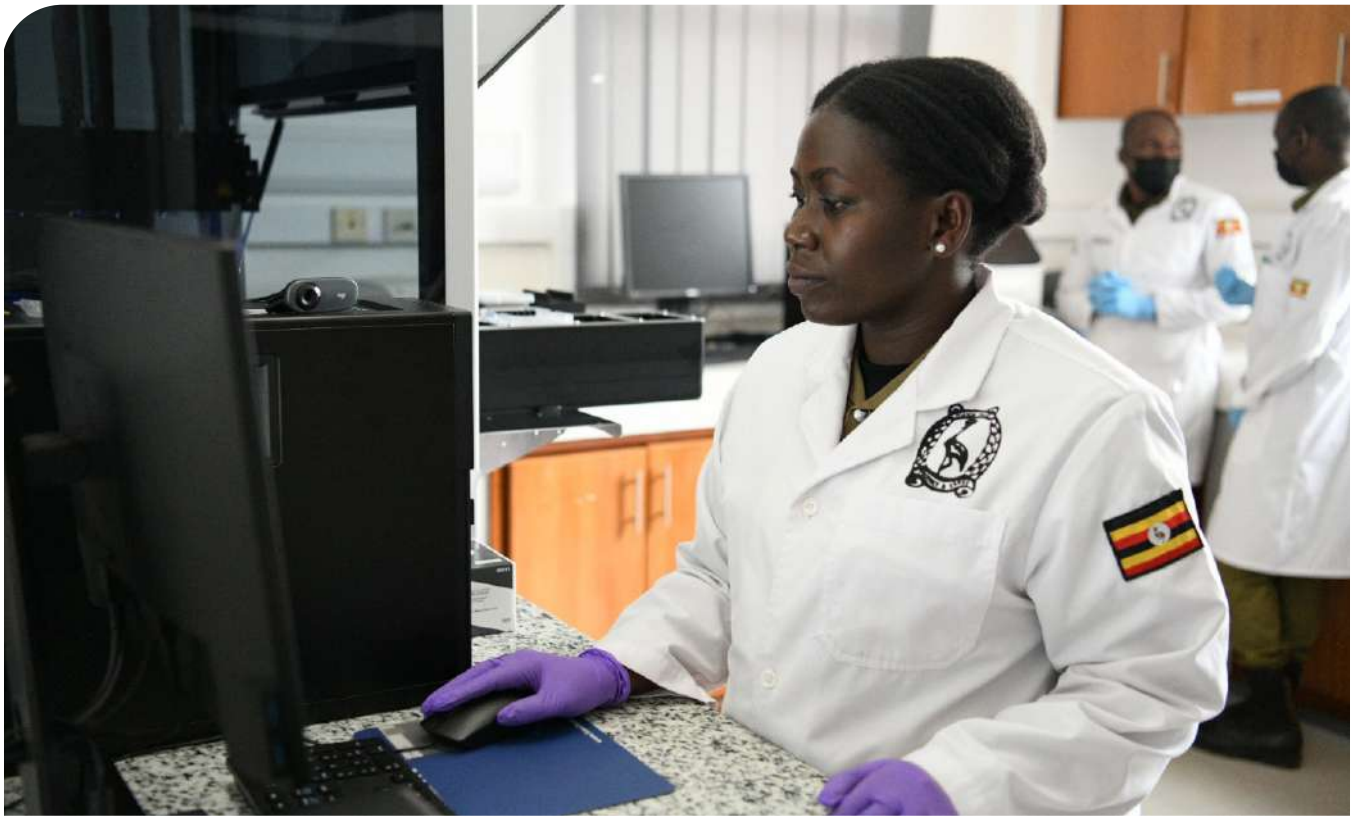
bomb diffusing robots should be analysed and their applicability in our context reported.

The use of technology in policing is of great help. For instance, the use of satellite data can monitor the flow of displaced people at the country's borders, artificial intelligence can assist with image recognition to gather data on criminal history of individuals and the use of forensic technology can reconstruct crime scenes and hold perpetrators undeniably accountable as forensic evidence removes doubt. However, technological developments have equal capacity to undermine efforts in especially protection of human rights; for example, surveillance technologies that can be used to track criminals can be abused by invading the privacy of citizens, the right to information can be seriously hampered by the spread of fake news especially on social media platforms. Therefore, ethical and human rights implications must be taken into consideration with the use of technological innovations in policing. We cannot and should not use the technology to disturb the very safety that we seek to protect.

In light of the above revelation, all police officers must acquaint themselves with the necessary laws Computer Misuse Act and the Evidence Act. As the police force we have zero tolerance for human rights violation and police personnel are reminded that any human rights violations shall be borne by the individual police officers.

As the advance of technology and science cannot be stopped, we must simply conform, therefore; all police personnel are expected to acquaint themselves with the use of technology and science. The average police officer should know how to use a computer/ smartphone and be able to at least send reports via email. The Directorate of ICT developed a police email and all police officers are encouraged to use the police email for all official communication. The Directorate of Human Resource Development should in liaison with the Directorate of ICT and the Directorate of Research and Planning establish the levels of computer literacy within the force and come up with measures to address the gaps if any. At an individual level all personnel should use available opportunity to read and learn about emerging technologies and science and find ways of applying them to ease policing and improve service delivery. You cannot police a computer generation when you are not computer literate. We should be the mirror of the society and be well equipped to prevent crime and or investigate it better. To Protect and Serve, For God and My Country.

The writer is the Inspector General of Police in Uganda & an advocate of the High Court of Uganda.



Police Scorecard

SCP Yusuf Sewanyana ICT Director

The National CCTV Surveillance System was set up in May 2018 to fight crime within Kampala Metropolitan Police (KMP) and beyond. The system is composed of the National Command and Control Center (NCCC) situated at Naguru, 18 divisional monitoring centers within 79 police stations and an assortment of 5,133 cameras spread throughout the country.

During the year under review (2022), the CCTV surveillance was able to monitor, digest and analyse 19,086 incidents and 3,614 requests for analysis from the requesting entities.

Below is a summary of incidents monitored and managed on the CCTV System:

S/N	Case	No. of Incidents monitored
1	Theft	3,924
2	Minor accident	2,789
3	Robbery	2,236
4	Motorists in contact with crime	1,480
5	Serious accident	1,364
6	Fatal accident	1,162
7	Aggravated robbery	967
8	Murder	896
9	Burglary	822
10	Malicious damage	735
11	House breaking	620
12	Shop breaking	575
13	Store breaking	451
14	Assault	344
15	Office Breaking	315
16	Obtaining money by false pretence	212
17	Mob justice	137
18	Demonstrations	57
Total		**19,086**

The ICT Directorate has offered technical support through video analysis derived from the system to the following entities:

Criminal Investigation Directorate	-	2,281
Traffic and Road Safety Directorate	-	870
Uganda Revenue Authority	-	122
State House Anti-Corruption Unit	-	114
Flying Squad	-	109
Professional Standards Unit	-	67
Uganda National Roads Authority	-	29
Private Investigations/Civil Litigation	-	22
Total	**-**	**3,614**

ICT has provided technical support to CCTV investigations to a total number of 3,614 cases with formal written requests from various investigating entities/ law enforcement agencies:

Case categories handled by CCTV Support

S/N	Case Category	Period of 2022
1	General crime	1,296
2	Gender Based Violence	157
3	Economic crime	718
4	Homicide	526
5	Traffic accidents and violation	917
Total		**3,614**

Below is the case status for 2022 upon Analysis

Status of Reports	Requests Received	Reports Handed Over to Entities	Cases Under-Trial	Convictions
No. of Reports	3,614	3,314	3,152	162

▶ Stealing Cattle

Using actionable intelligence, CCTV cameras were able to identify thieves of goats in Kibuli. Motor vehicle registration number UBG 001S as the means of transporting the stolen goats was monitored and impounded. Suspects were arrested and prosecuted and the vice has reduced.

▶ Reduction in Street Crimes

Using actionable intelligence provided by CCTV centers, pick pocketing, phone snatching and thefts have been dealt with. Many suspects have been identified and brought to book.

A Systematic Approach to E-Policing "The Dawn of a new Era in Policing"

By ACP Andrew K. Mubiru

The use of technology in policing is now at the core of police operations. Today police are using CCTV surveillance cameras, body cameras, drones, and numerous databases to prevent, respond and investigate crimes. This is against the backdrop of us starting to wrap our minds around Industry 4.0 and its evolutionary implications. Industry 4.0, or the fourth industrial revolution, is the latest and hottest trend in industrial transformation today.

These new investments will provide policing with a great opportunity to address major crime and safety challenges that are prevalent in society. On the other hand, the policing leadership has to be prepared to make difficult choices on what to prioritise whilst building the capabilities needed to police the Uganda of the future.

Recently, the police management resolved to pursue a digital transformation strategy towards transforming all underlying manual business processes to their digital equivalent in a phased manner. In order to usher in a comprehensive e-policing transformation, a citizen-centric approach ought to be adopted through a deliberate process of design thinking.

Design thinking is a process that seeks to redefine problems in an attempt to identify alternative solutions. This process of transforming entities has been long adopted in the private sector and it is about time the public sector embraced it as well. At its core the design thinking process comprises of five steps: empathize, define, ideate, prototype, and deploy.

"Design thinking is a human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success" (Brown, 2009, pg. 17)

Although these steps may not be pursued necessarily in a linear format, they will provide a blend of tools for problem-solving and changing the orientation of the public.

Design-thinking steps to realising our e-policing transformation

Empathy as the first step will open the door for the duty bearers to walk in the citizen's shoes, and to think on behalf of the citizen.

The next step will involve us defining the existing policing gaps in the current business process. This will give us an opportunity to postulate as many options as possible and convergence on a selection of appropriate options.

The ideation step will provide an opportunity to link the identified policing gaps to the proposed technological solutions. These solutions will undergo various reviews to develop feasible prototypes that will be tested.

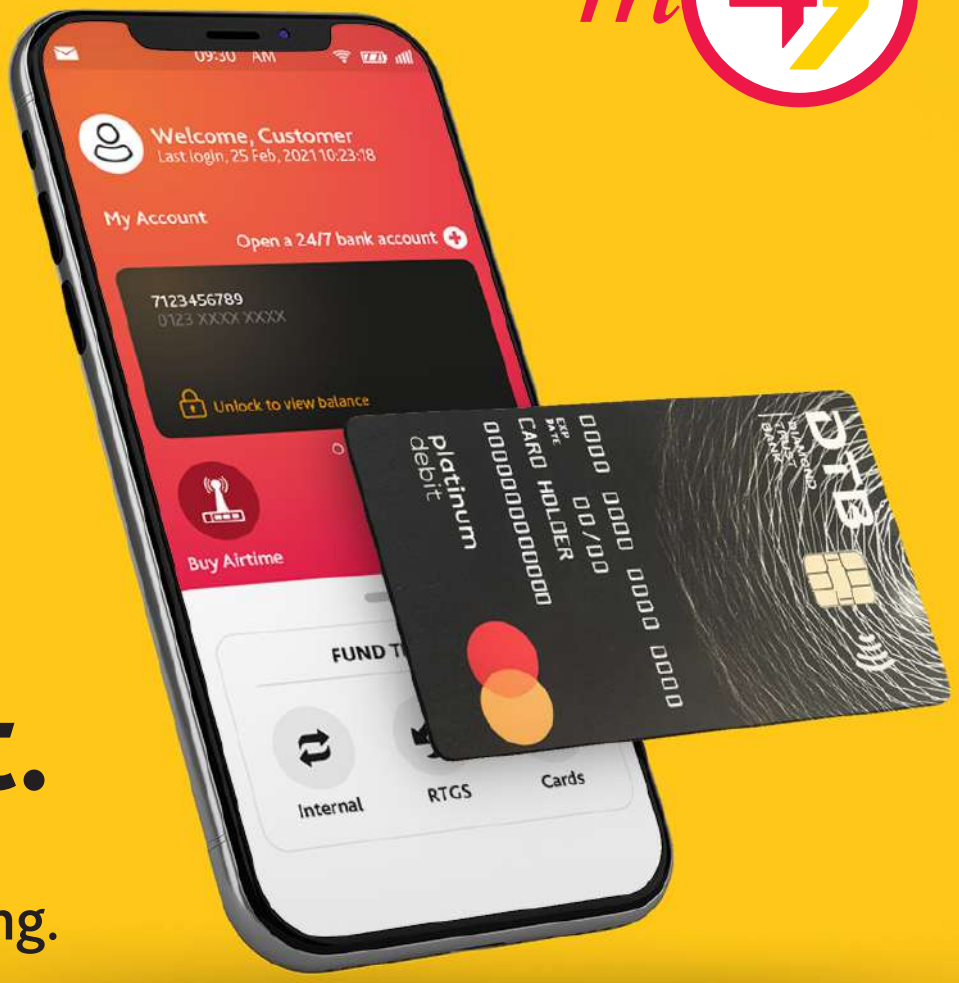
Using this approach supported by new technologies, new methods, and new ideas the Uganda Police Force will be able to adapt to the changing context of crime and incorporate insights from serving officers and community partners. This e-policing transformation will shape the future of law enforcement in Uganda supported by emerging technologies that will enable the required interventions and relationships to keep our communities safe.

The writer is the Director Police Forensic Services

DTB

DIAMOND TRUST BANK

m24/7



DTB Digital Savings account.

Affordable and convenient Banking.

Features

DTB Digital savings account

- No opening charges
- No Monthly charges
- No Minimum balance requirements
- No internal transfer fees
- Free DTB Platinum Debit Mastercard*

Access your money at;

- All DTB branches
- ATMs
- DTB agents countrywide
- DTB m24/7 Mobile banking
- DTB Platinum Debit Mastercard

Requirements

- National ID
- Registered Mobile Phone number
- Passport Photographs (get free photos from DTB)

To open a DTB Digital savings account

- Visit any DTB branch
- Call 0800 242 242 (toll free)
- WhatsApp 0786 242 242
- Social media pages (Facebook, Twitter & Instagram)
- Email us at info@dtbuganda.co.ug

Download DTB m24/7 app from Appstore and google play

Download on the App Store

ANDROID APP ON Google play

DTB is regulated by Bank of Uganda. Deposits are protected by Deposit Protection Fund of Uganda.

info@dtbuganda.co.ug | 0800 242 242 (toll free) | @DTBUganda

@dtb_uganda | @dtbuganda | www.dtbafrica.com

Leveraging Digital Space for Peace in Uganda: Sustaining Peace in a Digital Space

By SCP Kafeero Moses Kabugo 'Psc' (R)

The world is experiencing a youth bulge. In 2019, according to the UN International Youth Day Journal of 2019, there were about 1.2 billion youth aged 15 to 24 years in the world. Uganda has the second youngest population globally with 78% of its citizens below 30 years.

Youths across the globe represent the largest demographic group online and this is particularly true in Africa, the Middle East and Asia where they are connecting in record numbers.

According to researches there were 10.67 million internet users in Uganda in January, 2020. The number of internet users in Uganda increased by 357 thousand (+3.5%) between 2019 and 2020. Internet use in Uganda stood at 24% in January 2020 and there were 2.5 million social media users in Uganda by January, 2020.

With the emergence of the Internet and social media, the world has entered a new era. Various technologies and platforms offer tremendous potential to promote peace and resolve pressing problems but also give rise to complex risks and vulnerabilities with potential to create conflict and lawlessness.

EMOTIONAL VULNERABILITY OF THE YOUTHS

According to Lyndsay McLean Hilker, (2014): Violence, peace and stability: The "scholar". warned that a "surging" youth population or "youth bulge"-combined with high unemployment and rapid urbanisation-is leading to increased violence and insecurity, especially in Africa and the Middle East. Indeed, most recent analyses of violent conflict identify some form of "youth factor" in the generation or perpetuation of violence/lawlessness.

BENEFITS OF DIGITAL SPACE IN THE CONTEXT OF PEACE

Access to social media and other forms of cyber-enabled communications facilitates new avenues for civic participation and engagement. Millions of youths have taken to the Internet to promote peace and help construct a new future for

themselves and their countries. Today, there are hundreds of 'Peacetech' initiatives with millions of active users in some of the most complex and challenging contexts. These initiatives include; crisis mapping, crowd sourcing platforms, peace gaming, blogs and WhatsApp groups.

There are effective online platforms being used to analyse, report on, warn of, and prevent violence. The youths are also being mobilised to build communities of peace, promote alternative non-violent narratives, and facilitate virtual exchanges between youths all around the world. This can help foster dialogue and positive interactions among communities in conflict.

The youths can get many other benefits from using social media. Digital media literacy can help youths build knowledge and skills to enjoy online activities and avoid online risks.

Collaborative learning is possible when the youths can use social media to share educational content, either informally or in formal school settings.

Mental health and wellbeing is enhanced by connecting with extended family and friends plus taking part in local and global online communities can give youths a sense of connection and belonging.

DANGERS OF DIGITALLY ACTIVE SPACE ON YOUTHS

Young people are technology-addict. According to Jessica Taylor Piotrowski, (2017): *How Media Attract and Affect Youth*: Although estimates vary by country, current data suggests that teens spend about six hours a day interacting with screens.

The Internet and social media create vulnerabilities for youths who can be exposed to predatory actors. The list of potential risks faced by youths online is long and includes; cyber bullying, blackmail, organised crime and violent extremism. This can cause recruitment into a life of crime and violence.

The Internet and social media can pose risks for youths in particular. Information stored on cell phones, laptops and social media accounts can – if stolen, lost or unintentionally leaked – expose sensitive and extremely private information to large audiences. In larger part because they are the dominant users, youths are on the front lines of being exposed to these breaches in privacy.

Violent extremists, organised crime groups and gangs are often early adopters of online technology to perpetrate crime, spread hatred, violence, propaganda and terrorism. Such organisations have an active online presence that has grown increasingly sophisticated ranging from text-based discussion forums to interactive websites. They use these media to recruit, spread their narratives, plan and even execute operations.

INTERVENTIONS TO FOSTER PEACE WITHIN THE DIGITALLY ACTIVE SPACE

To guard against this inherent vulnerability of the Internet, an in-depth understanding of online risks posed to youths online is essential. Also important are e-literacy campaigns that educate youths to enhance their awareness of and defence against predatory threats online.

Social media can help spread peace by encouraging dialogue among people from different ethnic backgrounds and nationalities. This can positively affect perception, attitudes and hence promote tolerance and mutual understanding.

According to the Cisco Visual Networking Index on Global Mobile Data, eleven million youths are expected to enter the labour market in Africa alone every year for the next decade. Growth in the digital economy represents a great opportunity to harness the talents of some of these youths through e-entrepreneurship, e-commerce and e-education. Research proves that the Internet can potentially add about $300 billion a year to Africa's GDP. For this potential to be realised, specific policies and investments that prioritise ICT need to be promoted. This will keep the youths engaged and will minimise crime.

The threats of predatory behaviour of violent extremist groups online can be mitigated by building the capacity of youths to enhance their digital literacy on peace courses and promotion of norms, rules and responsibilities of digital participation. Scholarly literature is in agreement that education and e-initiatives would be effective mechanisms to prevent radicalisation.

Building young people's skills and confidence to manage conflict, cope with peer pressure and make the right choices. Counseling at Institutions of learning, religious and other social gatherings, proper parenting, and inclusion of positive cultural approaches.

Fostering peace in a youthful, emotive and digitally active space in Uganda and beyond requires collective effort at all levels of society. This is possible and will greatly reduce crimes in this perspective.

The writer is the Commandant Police Senior Command and Staff College, Bwebajja

Using Forensic Science in Modern Policing

By SP Isaiah Igumira

The world today is evolving at a fast rate when it comes to the evolution of technology. Technology is simplifying human day-to-day activities including crime prevention. Entities responsible for detecting and preventing crime are harnessing the affordances of technology. It is thus an important venture to analyse how best forensics and technology can be utilised in preventing, investigating and prosecuting of crimes.

Forensic denotes a relationship between science and law. Data developed by forensic crime laboratories are called forensic data, and are typically collected, analysed, and reported on a case-by-case basis for criminal investigations and for presentation in criminal court proceedings. As the world evolves, the field of forensics also kept evolving and advancing in respect to forensic techniques and advancements in forensic technologies that are making a difference every day in criminal courts. Promising successes in the implementation of these forensic technologies, as well as software and storage capabilities for large datasets and intelligence-led policing, show equal promise for improvements when it comes to development of pertinent investigations at the state and local levels.

Forensic intelligence involves gathering and using data earlier in the criminal inquiry cycle and across cases to help detect, prevent, investigate, and prosecute crime, concentrating mainly on serial and violent crime. Incorporating forensic data into crime analysis can also help identify links, patterns, and trends or correlate other information pertinent to the criminal activity; resulting actionable intelligence can then be used to disrupt and prevent crime, particularly serial and violent crime. Harnessing relevant technological developments in this field makes it relative to have a well-balanced and developed affair for these aspects respectively.

In this essence, as crime become more sophisticated, investigators who are mandated by law to detect and prevent crime need to swiftly move to counter thus adopting scientific mechanisms of carrying out investigations to wit ICT and forensics. The integration of technology in development and application of these forensics will help the forensic services experts with more advanced scientific techniques in prevention, investigation and detection of crime in support of administration of justice.

Embracing and supporting the Electronic Policing Information System (ePIS) Project in Uganda by different stakeholders and particularly the CID officers will help them to be empowered with the right digital tools and critical information required to investigate crimes in record time, detect and prevent criminal actions before they occur thereby protecting persons and property in our communities.

The Uganda Police top leadership led by the IGP and all heads of directorates have endorsed the ePIS project that will significantly transform policing in Uganda. From CID's perspective, the Director CID AIGP Tom Magambo is championing reforms that also include digitalisation of criminal case management through the ePIS project. The

Forensics Directorate led by ACP Andrew Mubiru has over the years embraced digital reforms in forensic science that have a big role to play in the overall architecture and implementation of the ePIS Project.

Case law

Case law shows how important it is to adhere to the evidence tendered in through use of forensics during criminal investigations. It is thus therefore important to understand how important it is to consider and evaluate the role forensics play during criminal investigations.

Case law in the field of fingerprints has no well-established foundation in Uganda. It is clear that such evidence as fingerprint or foot impressions is regarded to be circumstantial in nature. The most popular case in this field is that of the murder of an American national one Cecilia Marie, Goetz in 1998 by Richard Arinaitwe (unreported). In this case finger print impressions played a very important role in reaching a logical legal conclusion in the matter.

In the case of **Mutesasira Musoke vs. Uganda** the Supreme Court held that expert evidence (such as evidence by forensic experts) must be carefully scrutinised and not be taken as undisputable truth.

In the case of **Godi v Uganda** The evidence of Ochom J. Mike, the Government Analyst, was used to place the appellant at the scene of crime because his report in effect showed that the soil found on the sole of the exhibited shoe matched both mineral and chemistry profile of the soil got from the scene of crime and that both the trial Court and the Court of Appeal wrongly assumed that size 39 and size 42 are in the same range. Court also considered the evidence of the ballistic expert.

There are several aspects that still need to be considered in as far as the development of forensics is concerned, for example, the states should require that all forensic science laboratory analysts receive more advanced training and certification especially with the evolution of technological advancements in this field of operation.

It is true that Uganda has some forensic laboratories, that need more materials for work , and still emphasises more trained staff to support those already in criminal investigations on behalf of the government.

The state should take care of these people who have the capacity and the education necessary to be forensics scientists, send them abroad, so that they can be well informed of the trending technological developments in this field in the world today.

The author is the Head of Legal Department at the Directorate of Criminal Investigations, Uganda Police Force.

Exodus SACCO keeps the growth curve high

Dr SCP Omoding Wilson Otuna Chairman Exodus SACCO, *(Returned un opposed)*

2022 Performance Highlights

Exodus Business Review 2022

Financial Highlights

Total Assets
UGX 57.36Bn
2021: **UGX 46.03Bn**

Other Income
UGX 1.85Bn
2021: **UGX 3.06Bn**

Interest Income
UGX 3.89Bn
2021: **UGX 2.95Bn**

Share Capital
UGX 9.44Bn
2021: **UGX 6.4Bn**

Loans to Members
UGX 30.92Bn
2021: **UGX 16.4Bn**

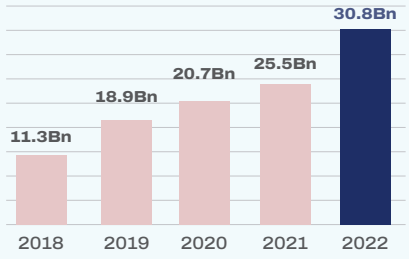
Member Savings
UGX 30.76Bn
2021: **UGX 25.5Bn**

Non-Financial Highlights

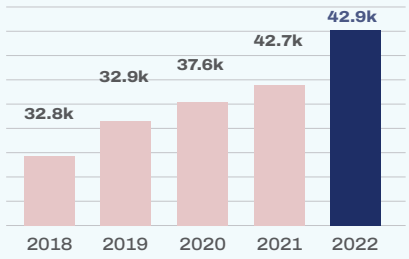
Membership
42,990
2021: **42,719 members**

Loan Turnaround Time
~ 4 days
2021: **~ 7days**

Member Savings



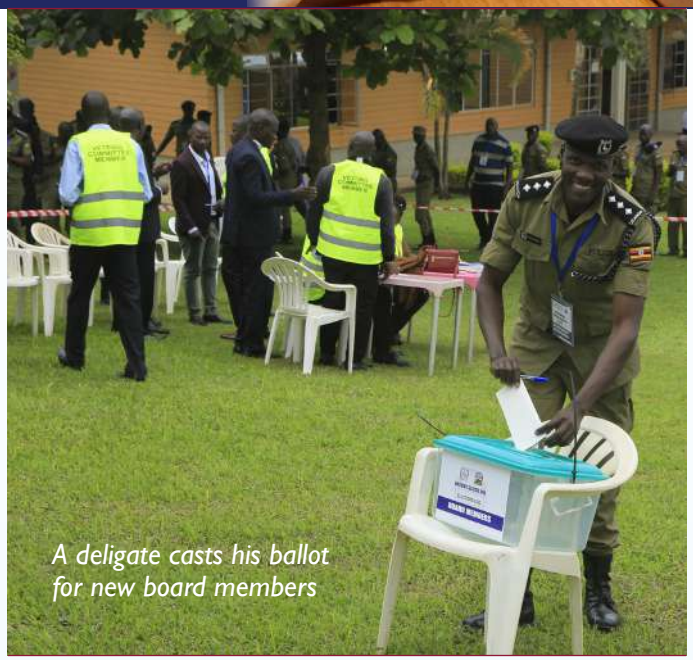
Membership



A new Era of Transparency-The new Board

In need of a loan?
Call 0707 600431

The IGP addresses the 10th AGM



A deligate casts his ballot for new board members

DIG and Board Chairman Launch motorcycles for Exodus SACCO regional offices

The UPF's Perspective on Information Technology Governance

By SP Mworozi Byaruhanga

The Information Technology (IT) industry is one of the fastest growing sectors driving operations in organisations. Law enforcement agencies such as the Uganda Police Force have also embraced IT operations in their work. The UPF remains committed to fulfill its mandate of protecting life and property, preventing and detecting crime, and maintaining overall security and public safety in Uganda. Thus, adopting the IT governance framework is critical in guiding the direction of the institution. IT governance can be considered to refer to the responsibility of the Board of Directors and the executive management to ensure that IT systems sustain and extend the organisation's strategy and objectives. It is an integral part of enterprise governance and consists of the leadership, structures and processes which aim to support IT investment. The UPF coordinates various processes, including operations, investigations, and intelligence.

Implementing the IT governance structure can bring about significant benefits to the UPF, including improved culture, managed resource capacity, and optimised operations. The UPF's digital transformation is underway, with numerous information systems being designed, developed, and deployed alongside the requisite IT infrastructure. However, behind these information systems and IT assets are human resources that need to be trained, skilled, and adequately placed to deliver on the UPF's mandate. IT governance is crucial in ensuring that investment in human resources and IT assets does not become a "white elephant" and suffer from the "productivity paradox."

In the UPF's context, IT governance should be a priority and not an afterthought as the use and application of IT continues to grow. The UPF should have in place IT metrics and indicators that measure and evaluate IT performance in terms of delivering value and resource optimisation. It is essential to determine whether IT genuinely contributes to the achievement of the organisation's strategic and tactical objectives, and whether there is a robust IT risk management framework in place, including IT projects, cyber security, and ICT continuity. Compliance with data protection and privacy regulations should also be a top priority.

The UPF can take advantage of several widely recognised, vendor-neutral, third-party frameworks that provide guidelines and measures to effectively utilise IT resources and processes within an organisation. These frameworks include COBIT, ITIL, ISO/IEC 38500:2015, AS8015-2005, COSO, CMMI, FAIR, and others. These frameworks provide a structure for organisations to ensure that IT investments support business objectives, and by following a formal framework, organisations can produce measurable results towards achieving their strategies and goals.

In conclusion, IT governance should be a priority for the Uganda Police Force as it embarks on its digital transformation journey. Implementing an IT governance structure will enhance the UPF's oversight over IT operations and processes and ensure that IT investments support the organisation's strategy and objectives. By adopting IT governance, the UPF can foster an IT culture that is adopted by the whole organisation and ensure that all IT activities are streamlined to provide maximum benefits and value to the organisation.

The writer is PA to the CJS

KITENDE MODERN NUR & PRI. SCH.

"Preparing for the future"

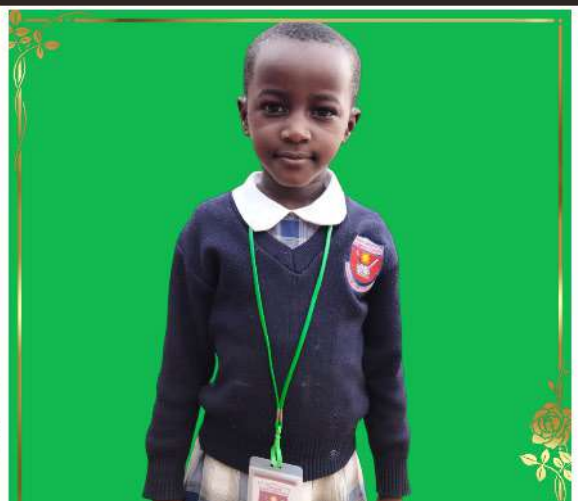
WE PREPARE YOUR CHILD FOR A BRIGHT FUTURE

CALL US

0772440114/0703834408/0782848588

www.kitendemodernschools.com

www.facebook.com/kitendemodern



Using **Laboratory Evidence** in **Investigations**

By SP Aweco Evelyn Atim and ASP Isooba Franco

Chemical, Biological, Radiological, and Nuclear Explosives-Analysis (CBRNe-A) is as straight forward yet intriguingly complex concept of scientific analysis. The department of CBRNe-A, under the Directorate of Forensics has got four fully operational sections which include; DNA & Serology Section, Toxicology Section, Foods, Drugs, Water & Environment Section and Explosives & Residues Section.

The DNA & Serology Section was commissioned in January 2020 with state of the art equipment that provides platforms for DNA Extraction, Quantification, Amplification, Separation & Detection as well as Next Generation Sequencing.

The Chemistry laboratory that houses the three sections of CBRNe-A department that is, Toxicology section, foods, drugs water & environment section and explosives & residue section was commissioned in July 2021 and has since been operational with the most recent state-of-the-art equipment for forensic chemistry analyses.

Among the state-of-the-art equipment include a platform that allows for the analysis of dried spots for blood, urine, vitreous humor, food, and almost all samples that can be prepared in a liquid form. Other equipment include chromatographic systems for volatile substances, non-volatile substances, polar substances, non-polar substances, trace analysis, semi-quantitative preliminary screening, and confirmatory analysis.

The services offered by the department of CBRNe-A include but not limited to the following;

- DNA Profiling
- Human Identification
- Disasater Victim Identification
- Human Genealogy Testing
- Toxicological Analysis
- Fire and Explosive Residue Analysis
- Food, Drugs, Water & Environment Analysis.

ID STARlet Extraction Robotic

The role of DNA Analysis in Investigations

Deoxyribonucleic acid, or DNA, is the fundamental building block for an individual's entire genetic makeup. DNA is a powerful tool for law enforcement investigations because each person's DNA is different from that of every other individual. By analysing selected DNA sequences (called loci), a crime laboratory can develop a profile to be used in identifying a suspect.

DNA can be extracted from many sources, such as hair, bone, teeth, saliva, and blood. Because there is DNA in most cells in the human


QUANT Studio 5

body, even a minuscule amount of bodily fluid or tissue can yield useful information. Thus, obtaining a DNA sample is not complicated; it can be as simple as a swab of the inside of the mouth to obtain cheek cells and white blood cells in saliva.

DNA analyses have proved instrumental in solving crimes, reducing the risk of wrongful convictions, and establishing the innocence of those who were wrongly convicted. DNA evidence is used to solve crimes in two ways:

- If a suspect is known, a sample of that person's DNA can be compared to biological evidence found at a crime scene. The results of this comparison may then help establish whether the suspect was at the crime scene or whether he or she committed the crime.
- If a suspect is not known, biological evidence from the crime scene can be analysed and compared to offender profiles in existing DNA databases to assist in identifying a suspect. Through the use of DNA databases, biological evidence found at one crime scene can also be connected to other crime scenes, linking them to the same perpetrator or perpetrators.

The DNA & serology section in the department of CBRNe-A has since handled a number of cases from the time it was commissioned in January 2020.

The chemistry laboratory of the department of CBRNe-A in the Directorate of Forensic Services has aided investigations of a range of cases involving suspected poisoning of humans and animals, death inquiry, food adulteration & analysis, the identification of explosive materials and ignitable liquids to mention but a few.

Worth pointing out some detail include; the Masaka murders of September 2021, the Kampala bombings of November 2021, the Busunjju murder of police officers in December 2021, the Arua & Madi-Okollo alcohol poisonings of August 2022, the Arua&Pakwach cassava poisonings of September 2022, the Queen Elizabeth National Park Cottage fires of March 2022, the St.Andrews S.S dormitory fires of July 2022, the murder of Police officers at Kiwumpa check-point in Luwero in July 2022, fire investigation at Hilder Nursery & Primary School dormitory in October 2022, fire investigation at Salama School of the deaf in Mukono in October 2022.

With the state of the art equipment, the chemistry laboratory is also able to carry out analysis, identification and categorisation of the various ignitable liquid traces/molecular compounds in fire debris samples of arson related cases.

After field sampling by the Scene of Crime Officers (SOCOs), proper chain of custody is maintained to preserve the integrity of samples up to the laboratory. Laboratory specimens are generated for each exhibit sample and proper documentation done. Proper sample preparations and extraction procedures for the analyte of interest from the complex matrices, followed by the UPF developed analytical methods and systems have enabled the instruments to ably detect and give results with accuracy to aid investigation. These results are availed to court as collaborative evidence.

The department of CBRNe-A of the directorate of forensic services strives to provide services to the public in a professional manner but also in a trend commensurate with the happenings within the public space.

The writers are Forensic Scientists at the Directorate of Forensic Services.

Embracing a Scientific Outlook in Policing

By D/ASP Kabinga Ramadhan Saad

Technological advancement in the field of policing is rapidly progressing. Globally, police has incorporated the art of technology and forensic science in its law enforcement infrastructure to improve its operations. This has been as a result of rapid growth in technology where criminals are now committing crimes with the help of high-tech devices mostly in cybercrimes and other organised crimes then hide their criminal traces to defeat justice. Primary duties of law enforcement include detection, prevention, investigations and apprehension of individuals suspected to have been involved in criminal activities on evidence.

Forensic science is a critical element in the criminal justice system. It helps to examine and analyse evidence from crime scenes and elsewhere to develop objective findings which can assist in the investigation and prosecution of perpetrators of crime or absolve an innocent person from suspicion.

Building and testing a scientific knowledge for policing is a high priority matter that will pay huge dividends in increased effectiveness and better public service. Stakeholders need to recognise that police operations are inevitably influenced by law and public opinion.

ICT and forensic science can be introduced in the doctrine of policing in the following ways:

The use of facial recognition technology is instrumental in fighting crime. Law enforcement agencies in countries with developed ICT policing systems use facial recognition at large events, for example to identify individuals who are on wanted lists by comparing the captured faces with the crime database of hundreds of thousands of the offenders or wanted persons.

Robots are part of the best ICT tools used by the law enforcement agencies Robotic cameras can be used to deliver visual and audio surveillance of potential crime scenes that may be too dangerous or too hard for officers to reach as it is done mostly in China, and USA among others. This has led to less loss of life and injuries while in operations.

Video doorbells have been installed by thousands of persons in various premises as a way of enhancing security, in case of any crime committed; the cameras help the law enforcement officers to retrieve footages for analysis and identifying the offender.

The thermal imaging technology has become vital as a tool police and other law enforcement agencies use especially in dark conditions. The cameras utilise infrared imaging to detect heat emitted by such objects as humans and animals and deliver heat picture or heat map of the environment in question, so it can be used to track the motion of suspects in a dark building and it is mostly used in rescue operations.

The Automatic License Plate Recognition (ALPR), system scans the registration numbers and letters on license. It is currently used by police for a variety of law enforcement purposes; identifying stolen motor vehicles, wanted motor vehicles suspected to have involved in criminal activities. Law

enforcement officers have made several recoveries and arrests using this technology.

Body-worn cameras are also vital in today's law enforcement. Officers put on such camera while operating in challenging situations where records and notes are taken without writings this is mostly used in high-profile incidents.

Surveillance drones (unmanned aerial vehicles) are also globally increasingly being used by police and other law enforcement agents to gain aerial vantage point for crime scene work, search and rescue efforts, accident reconstruction, crowd monitoring among others, many of those drones are equipped with zoom cameras, making them incredibly for delivering actionable, real-time intel in high risk and dangerous situations.

Use of DNA as a science tool used in policing globally is vital. Generally it is used to solve crime mostly in cases where a suspect is identified, a sample of that person's DNA can be compared to evidence obtained from the crime scene; the results of the comparison help to establish whether the suspect committed the crime. This has helped the law enforcement officers globally investigate complicated crimes like murder, and rape among others.

A successful working relationship between the police and the media is vital working with the media to communicate to the public can help solve crimes, bring offenders to justice and keep communities safe. It can also give the public insight into

what the police are doing and why are doing it and social media has been used to identify wanted persons, film criminal trials proceedings in Courts of Law, have press release on certain cases of public interest captured, send out alerts among others.

The media spotlight can shape the public's view on crime. The police and the wider criminal justice system can address the fears of the public on crime through communication. This can enhance public trust in the police and other law enforcement officers or agencies.

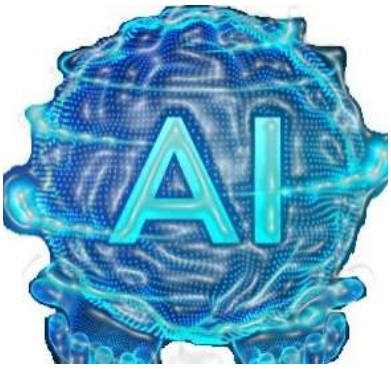
However, policing using ICT and forensic science has globally faced some barriers like;

Lack of genuine software, low speed internet, proper training skills, expert technical staff, unavailability of latest ICT and forensic science equipment, electronic data and evidence obtained during investigations may be easily be modified, deleted or lost.

In order to fully embrace ICT and forensic science as tools in policing, governments should focus on training their law enforcement officers in all modern ICT and forensic science equipment's, research on modern ICT tools on market, equip the law enforcement officers with modern tools, develop an electronic case reporting and tracking system with a secure communication link to field stations and digitalise all records to ease storage and support investigations to conclusive levels.

The writer holds a Masters in Conflict Resolution and Peace Building and is an Investigator in the Directorate of CT.
mailto:kabingarajab@gmail.com

Understanding **Artificial Intelligence** in **Law Enforcement**



By ASP Musasizi Andrew

Present encounters in warranting public safety necessitate the utilisation of ICT-enhanced solutions, incorporating artificial intelligence (AI) and correlated tools and applications. Nevertheless, irrespective of the efficacy of police procedures carried out with the use of such type of ICT-based tools, uncertainties arise in regard to the execution of the Uganda Police Force's (UPF's) mandate. Two facets of this posterity exist with tremendous efforts towards the adoption of effective tools of police surveillance, e.g., control of electronic correspondence, use of information databases on citizens, and the readiness to adopt the SMART City policy which aims to implement the application of Information Technology to facilitate efficient and effective administration of the city in the provision of services.

These efforts empower the effective detection of crime and its perpetrators. Accusations of the criminal justice system are nothing new from the war on drugs to the use of force in policing to the sentencing process, Studies show that people of colour and low-income residents are disproportionately impacted so why not leave the tough decisions to an algorithm that knows no race or income? It may sound like something straight out of a minority report but artificial intelligence is already being used by police organisations in the global northern countries and amongst a number of Asian tigers to provide a legalistic drawback to pre-crime methodology to increase objectivity and unravel biases and adduce police evidence.

Due huge datasets of crime data that can be transformed to support the development of a number of security policies for combat organisations to solve the most East African security question and more so elsewhere in the world through the application of machine learning to figure out the highest risks, locations for specific crime types daily by using the Naïve Bayes algorithms such as the one depicted in Figure 1 trained to use crime data to process the probability in supporting crime evidence.

$$P(A/B) = \frac{P(B/A)\,P(A)}{P(B)}$$

$$\text{Posterior} = \frac{\text{prior x likehood}}{\text{Evidence}}$$

AI experts can use the Naïve Bayes Classifier algorithm based on Bayesian probability to calculate the posterior probability in processing new crime evidence.

Figure 1: Naïve Bayes Classifier algorithm

Artificial Intelligence is slowly but surely becoming a professional tool to punish criminals and crumble unlawful actions. AI is no more a concept to be speculated upon as a number of law enforcement agencies across the world are using the most updated solutions to track and prevent the occurrence of crime. One such solution is facial recognition supported by the UPF CABIS solution developed by Thales Gemalto. Artificial intelligence in policing is a framework that is evaluated with the help of computing technology which can support making decisions for reaching a final verdict for the criminal justice system. AI in policing operations is a technology that promises a great future in crime detection as many law enforcement agencies across the world are taking the help of AI to enhance the workability of their officers.

AI has become an indispensable part of law enforcement like the police to support them in various ways such as surveillance in monitoring the crowd for the anomaly, evaluating video footage for crime, and applying artificial intelligence for optimum decision-making and support. Artificial intelligence if adopted and utilised can bring changes

in security and assurance to the citizenry with most recent developments where it has enhanced service delivery across various sectors such as healthcare, transport especially on the road, water and air, finance, energy and much more with numerous countries in the most recent times, many police agencies are taking advantage of AI in crime detection though across many countries in the global south are still in a progressive stage with promising results. AI is proven to have the capacity to deal with almost all genera of crime by bestowing the earliest prospect to concentrate assets in a particular locality at a given time.

Before marshaling any combat operation it's always vivacious to have rich information about the terrain and such information can be acquired by the use of autonomous drones equipped with sensors. One of the most generic elements of AI is facial recognition, this technology has been harnessed extensively to receive help for identifying criminals which could be realised successfully by using SMART City camouflage cameras that are used to capture human natural behavior footages that can be instrumented in advancing evidence before the courts of law.

AI cameras, for instance, can be used in the surveillance of a country's vital installations like Airports, railway stations, and bus terminals, Aerial AI in policing conveys positive results which enhance the enforcement of the law and surveillance of scenes of crime more especially if the scene of crime proves to be obstruse, assisting in finding clues after occurrence of crime and helping in keeping watch before crime is committed.

Other situations that can espousal AI in policing include autonomous police patrol vehicles equivalent to the size of a small beach buggy supported by AI, machine learning and 360-degree surveillance technology to sniff out suspected criminal activity or road accident. The vehicle has 4D image radar camera integrated with data analysis and facial recognition software.

Figure 2: Autonomous Police Patrol Car

The vehicle in Figure 2 is an AI driverless patrol vehicle with a machine-learning feature, that can support the detection of criminal activity patterns and accidents that happen around it and alert the Police command room. This piece of AI innovation was exhibited at the World Police Summit at Expo 2020 in Dubai.

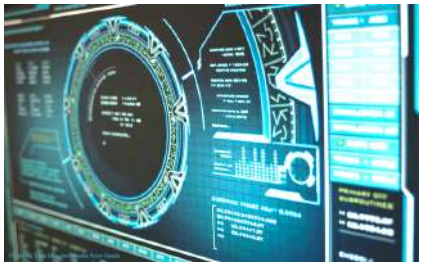
Geospatial AI

Geospatial artificial intelligence (geoAI) is a developing scientific discipline that blends innovations in spatial science, artificial intelligence approaches in machine learning (e.g., deep learning), data mining, and high-performance computing to obtain knowledge from spatial big data that can surpass the capacity of universally used spatial computing systems. Spatial Big Data is collected from many different sources such as satellites, drones, vehicles, geosocial networking services, mobile devices and cameras

Below is a satellite image showing one of the built areas within Kampala Central Business District (CBD). AI can help foot soldiers to appreciate the appearance of the terrain. This information is key in supporting the deployment of troops during times of mayhem.

AI in cybersecurity

Cyber experts can adopt A1 to detect and eradicate undesirable noise or data that they may notice. It empowers them to be aware of any infrequent activity or viruses and to be prepared for any assault. In order to lessen cyber risks, it also analyses large volumes of data and enriches the system accordingly.



The above computer image is a dashboard for monitoring and controlling cyber-related attacks using AI technology

With most recent scenarios, future crime trend is envisaged to register a paradigm shift in the crimes that shall be committed with an advancement from trivial thefts to exceedingly sophisticated computer fueled crimes which calls for incredible foresight that shall demand venturing in AI human resource training and technology for law enforcement agencies across the world as today's challenges are proven to further tomorrow's technology.

The writer is a Systems Administrator ICT Directorate.

Effectively Managing Crime Scenes

ASP Sserunjogi Damiano

It is almost a given that whenever a crime is reported, the supervisors for example the DPC usually asks if the Scene of Crime Officer (SOCO) has visited the scene. The Scene of Crime Officer is therefore an integral part of crime investigation and management as they collect and collate evidence for eventual successful prosecution of the suspects. In 2022 for example there were violent crimes involving deadly use of technology and science (bombs), these crimes are today committed with the application of modern scientific techniques and this vice can in this modern era only be countered by employing the same scientific techniques to detect them.

Crime scene investigation is a collective/teamwork responsibility that requires all the players to be vigilant to ensure that all the scattered puzzle pieces (evidence) are properly pieced together to make a meaning.

For a good investigation to yield positive results, it is more prudent that investigation starts right from the primary level at the initial stage, and that is the crime scene.

Crime scene first responder is one of the most important persons whose actions at the scene determine the success or failure of a case in the courts of law.

The Directorate of Forensic Services today through the invitations from various institutions/security agencies such as UPDF, UWA, ISO, DPP, Judiciary and other private entities has deeply involved itself in creating awareness of the importance of crime scene preservation and the techniques on how to preserve the scene.

For proper management of crime scenes, the Directorate of Forensic Services has managed to deploy well trained Scenes of Crime officers at every Region, District Police Station, and other stations with proper tools relevant for documentation, collection and preservation of forensic evidence.

Scenes of Crime officers are guided by the principles of forensic science and always recover traces deposited or left at the crime scenes by the perpetrators. The officers use different forensic recovery techniques and have always succeeded for as long as scenes are properly preserved.

The evidence collected at the crime scenes ranging from latent prints, DNA related, ballistics and other forms when analysed and examined using the modern forensic tools currently equipped at The Forensic Headquarters, can help in identifying offenders, their modus operandi and subsequently exonerating the innocent persons. However, this will depend on the quality of the evidence collected at crime scenes.

The first responder at any scene of incidence (crime scene) who can be a member of public or enforcement has a role and responsibility in preserving and keeping the integrity of the crime scene. To emphasise on a few but cardinal dos and don'ts;

- The first responder should prevent people, animal, motor vehicles from entering the scene.
- Inform and call for help from the nearby police.
- Ensure that nothing is added, removed, changed or touched at the crime scene.
- In cases of giving first aid or rescuing victims from the crime scene for medical attention, this has to be done in a cautious manner not to distort evidence at that particular crime scene, because at the end of everything, there is a need to know who is responsible.

Our teams have been involved in crime scene investigations of various cases with recovery of vital forensic evidence that has supported their investigations.

With the evidence recovered in various crimes scenes, offenders have been linked to various crime scenes and this has helped in prosecution of criminals. It is therefore a duty of every person to ensure that crime scenes are well preserved and managed professionally.

The writer is the Head Scenes of Crime Management.

WITHDRAW MONEY USING YOUR CENTEVISA CARD FROM ANY CENTEAGENT.

Draw upto 2m using your CenteVisa card and more with Mastercard. Please don't share your PIN with anyone.

For more information call our toll free line
0800 200555/0800 335344

/centenarybank

Regulated by Bank of Uganda A1.033.
Customer deposits are protected by the Deposit Protection Fund.

Centenary Bank
...our bank

Handling **Physical** and **Mental Stress**

By Annette Kirabira

We are all aware that technology has had both positive and negative effects. The use of social media, a component of technology can have both physical psychological effects.

Research studies show that when people over-work in front of a computer, looking at the screen improperly or using a screen of a poor quality; they are likely to have some illnesses like headache, seeing double, eye strain, itching in eyes and bleary eyes. Other physical challenges include poor posture, sleep problems, increased inactivity leading to obesity, cardiovascular disease, type 2 diabetes and difficulty focusing on important tasks.

In order to address some of the physical effects of use of technology, individuals may have to exercise some restrainits: for instance taking regular breaks away from the screen to reduce the likelihood of eyestrain, using the 20-20-20 rule; after every 20 minutes of screen time, take a 20-second break to look at something at least 20 feet away, taking short breaks, such as walking around the office every hour; this helps with keeping the muscles loose, avoiding tension and incorrect posture, stopping the use electronic devices that emit blue light in the hour or two before bedtime, applying gentle winding down activities such as reading a book, stretches, taking a bath and having movement while using technology helps reduce inactivity.

Since children's brains are still developing, they are more likely to experience adverse effects with the use of technology. Children may experience the following: low academic performance, lack of attention, low creativity, delays in language development, delays in social and emotional development, physical inactivity and obesity. poor sleep quality, social issues,

such as social incompatibility and anxiety, aggressive behaviors, addiction to these technologies and higher BMI. It is recommended that children under 18 months old should avoid screen time altogether, while 2–5-year-olds have no more than 1 hour a day of high-quality viewing with an adult.

Psychological effects may include isolation, depression, low self-esteem, unhealthy expectations, concentration issues and loneliness among teens and young adults. It has been found that people aged 19-32 years of age, who tend to have a higher use of social media are more than three times as likely to feel socially isolated than those who do not use social media as often. Reducing use of social media by putting time limits of the apps is helpful to deescalate isolation.

Depression and anxiety are linked to the use of social media as people with more positive interactions on social media are less likely to experience depression and anxiety in comparison to those with negative interactions. People who experience negative interactions on social medi are more likely to experience higher levels of depression and anxiety. To counter depression and anxiety social media users need to filter and exit toxic or negative interactions; develop self-awareness and emotional intelligence which are much needed in handling interactions through technology.

Much as we all appreciate the many positive effects that use of technology has brought, people ought to pay attention to the possible risks. It is critical that a re-evaluation be made on how people feel with and without the use of various devices and take steps to cut back on their use.

The writer is a CounselLing psychologist, teacher and CEO of Rahab (U),a local NGO.

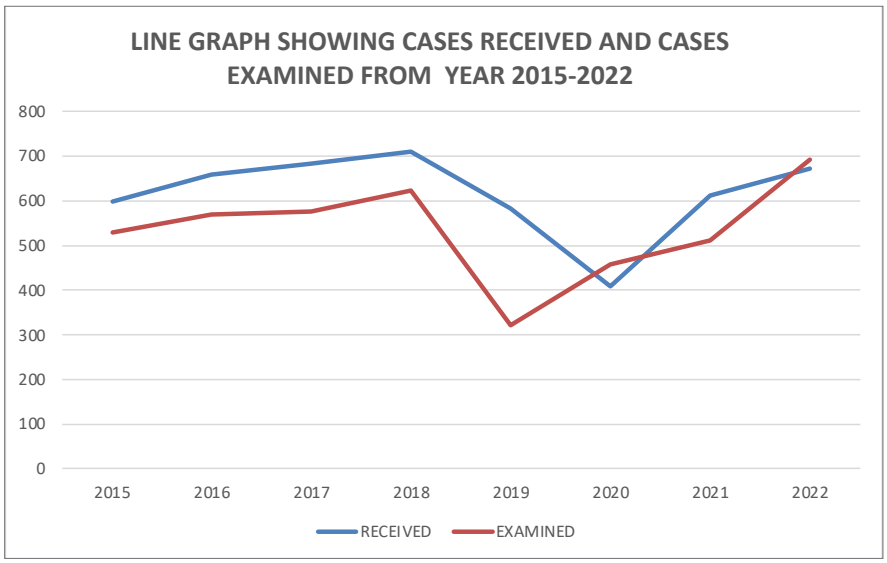
Forensic Document Analysis - in Fighting Fraud and other Crimes

By SSP Ssebuwufu Erisa

A vast majority of crimes that take place either involve paper or are committed on paper. Forensic document analysis is an important discipline that is applied during investigation of cases involving documents.

The recent economic downturn has exponentially contributed to an increase in fraud related cases. The trend in criminal cases has grown from simple forgery to organised crime with more sophisticated means and advancement in technology. The capability of forensic document analysis in fighting crime especially organised criminal groups becomes significant.

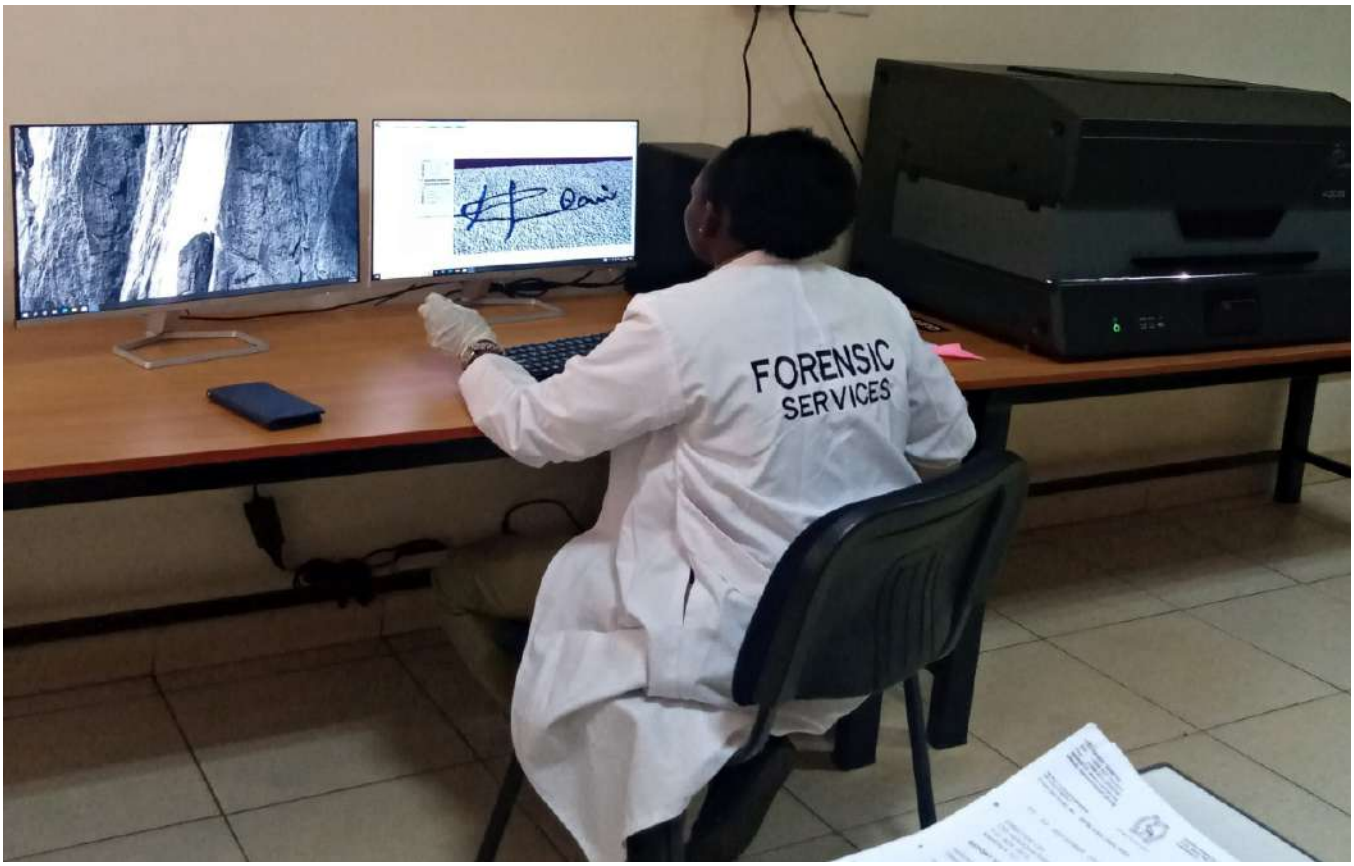
In 2020 there was a decline in the number of cases received and analysed as a result of COVID-19 lockdown. However after the lockdown, there was an increase in the number of cases received and analysed.



Graph showing trend in cases received and analysed over the years (2015–2022)

Over 90% of requests received by the department are based on handwriting analysis to establish authorship in cases of murder, kidnappings, organised crime, forgery and fraud. Forensic document analysis therefore plays a central role during investigation of such cases.

Department of Questioned Documents, Directorate of Forensic Services has capabilities of performing a range of scientific examinations that include among others; examination of handwriting and signatures to establish authorship, deciphering alterations and obliterations,



A forensic document examiner analysisng a disputed signature on a Video Spectral Comparator

detection of counterfeit documents, analysis of ink and paper, reconstruction of shredded documents, document dating, examination of indented impression, examination of office equipment, examination of printing methods, analysis of stamp and seal impressions, examination of typescripts and computer-generated documents.

The Department works closely with key stakeholders like Investigating Officers from the Directorate of Criminal Investigations of Uganda Police Force, State House Anti-Corruption Unit, Inspectorate of Government, judiciary, law firms, other government Institutions and non-government organisations for purposes of providing justice to the public.

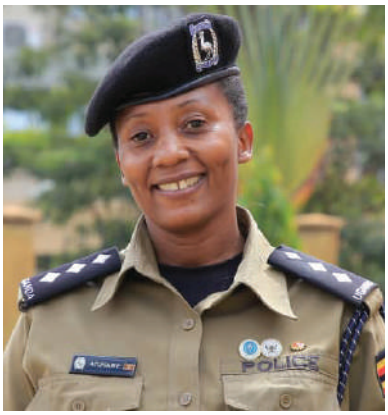
Comparison of the questioned writing with sample writing of an individual writer pivots on the individuality or handwriting habits of the writer which are assessed by the examiner(s) using scientific analytical methods such as sketching method, visual observation method and use of specialised equipment which includes a Video Spectral Comparator (Regula 4308), Electrostatic Detection Apparatus (ESDA), magnifying glasses and microscope which aid the examiners in the analysis of the questioned documents.

The opinions drawn from forensic document analysis impact on the action taken by the investigating officers and the courts of law in solving criminal cases. In some cases, a questioned document might be the only piece of evidence that links the suspect to a crime scene or a crime that can lead to a conviction or prevent false imprisonment or miscarriage of justice. The analysis greatly assists the judicial system to find the truth of the matter before court.

The writer is the Head questioned Documents Department

ARE FORENSIC DATABASES Relevant in Crime Investigation?

By ASP Immaculate I. Atuhaire



The answer is obvious and simple. Absolutely yes! Forensic databases, usually referred to as criminal databases are considered to be specially designed, centralised and computerised systems for keeping records pertaining crimes for later retrieval, analysis and comparison.

Forensic databases have proved to be crucial in solving crimes and saving lives as well. It is for this reason that some international organisations and several countries around the globe have invested in this venture.

The International Police (INTERPOL) has 19 categories of databases about criminals and crimes. They include fingerprints, DNA, facial recognition system, counterfeit documents, stolen property like motor vehicles and works of art, maritime piracy, firearms trafficking, tracing and identification databases.

The INTERPOL also has databases about individuals detailing personal data and criminal history of persons of interest as well as the International Child Sexual Exploitation image database that establishes connections between abusers, victims and places.

If I may delve more into Forensic DNA field, the first Forensic DNA database was established in 1995 in the United Kingdom. Three years later the United States of America under its Federal Bureau of Investigations (FBI) started a nationwide criminal DNA database in 1998 that covers all its 50 states.

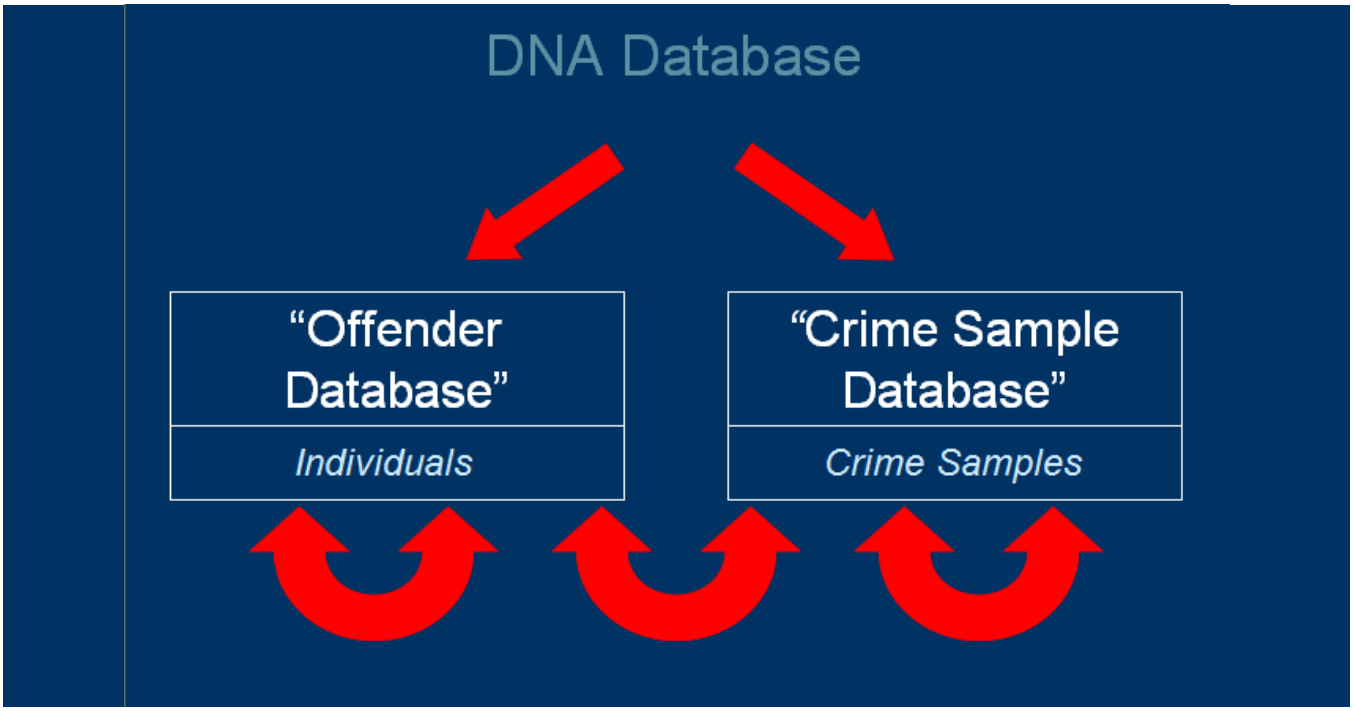
On the African continent, progress has been made, particularly in South Africa where the use of DNA profiling and databasing technology has become the gold standard for criminal investigations. Other African countries like Egypt, Morocco, Namibia, Botswana and Sudan also have Forensic DNA databases. Uganda has not been left behind, it is also setting up criminal databases. In addition to the fingerprints and firearms databases the Uganda Police Force proudly houses the Forensic DNA database that was established in 2021.

In brief, a Forensic DNA database is a digital database that contains records of DNA profiles primarily for the purpose of systematic, automatic comparison, and matching with crime scene samples and/or reference/known profiles. So, how do Forensic DNA databases aid in investigations?

- **Producing matches also called hits between individuals and crime scene stains**: In this way Forensic DNA database plays a big role in investigations by linking individual profiles from suspects, victims to those obtained from crime scene samples, crime scene to crime scene and hence answering some of the cardinal questions in Investigations like What? Who? and Where?
- **Solving cold/unsolved crimes:** Sometimes a criminal may go into a long period of hiding and hence the case file becomes stagnated or in investigation language, cold.

If the particular perpetrator committed a crime(s) before but was still at large, when he/she is arrested on committing another crime and his/her DNA profile obtained and searched in the database, a match will be made between him/her and the DNA profile obtained from crime scene stains of the previous case(s) and hence solving earlier unsolved case(s).

- **Exoneration of the innocent:** Have you ever heard of the innocence project? In 2017, the USA federal DNA database assisted in more than 358,069 investigations. The DNA evidence alone exonerated 350 innocents who when combined had served 4,787 years in prison, sometimes on death row. DNA also enabled law enforcement to identify 149 of the true perpetrators of those crimes, who went on to be convicted of 147 additional violent crimes, including 77 sexual assaults, 35 murders, and 35 other violent crimes while the innocent sat behind bars for their earlier offenses.
- **Identification of repeat offenders:** Forensic DNA databases play a critical role in investigations by unearthing repeat/habitual offenders. This is achieved by getting DNA database hits between a particular suspect and DNA records from several crime scene stains recovered in different cases committed over a period of time.
- **Verification of elusive high profile criminals:** A classic example of this, is how the identity of Saddam Hussein after his capture and killing was verified using the DNA records of his two sons who had been killed earlier on. Saddam Hussein was known to have many "stunt doubles to protect his life from assassins. So when his sons were killed in July 2003 DNA samples were collected from their remains for use as reference samples in verifying the identity of their father if he was ever located. Shortly after Saddam was captured in December 2003 in Iraq, blood and hair samples were flown to the United States where they were immediately examined by DNA scientists. The DNA profile generated matched with the previously generated DNA profiles of Saddam's two sons hence confirming the capture and killing of the right person.
- **Identification of missing persons/ unidentified human remains:** As one of the indices/sub databases considered when establishing a Forensic DNA database, a sub-database of unidentified human remains also aids investigations but most especially of missing persons. In collaboration with the Police Healthy Services and the KCCA city mortuary, blood samples from unknown bodies are collected, DNA profiled and kept in the database. When a relative(s) later shows up to report a case of a missing person, a biological sample of the claiming relative is taken, DNA profile generated and searched against the Forensic DNA database. When a positive match is obtained then the unidentified body through the given mortuary identification number may be exhumed and given to the family to be accorded a decent burial.
- **Disaster victim identification:** When a disaster befalls, various methods are used to identify the victims who are in most cases injured beyond recognition. A number of scientific disciplines that contribute to human identification process include forensic pathology, anthropology and odontology, as well as fingerprinting and DNA profiling. With DNA profiling, ante-mortem samples and bio-data of relatives to the



Likely links when searching a DNA database; Individual to Individual, Individual to Crime scene, Crime scene to Crime scene

missing persons are collected, DNA profiles obtained and stored in a database.

After successful processing of DNA samples from human remains of the disaster victims, the DNA profiles obtained are also put on a centralised database, where an automated direct and kinship comparison is conducted. This search will show matches between the victims and their corresponding biological relatives hence subsequent identification of the victims and giving their remains to their families for proper burial and prudent send off.

- **Forensic intelligence gathering through familial search**: An example is the famous Los Angeles USA Grim Sleeper serial killer. In the mid – 1980's Lonnie Franklin murdered over 10 black women in South Los Angeles. Whereas DNA evidence was found on his victims, the perpetrator remained unknown and hence at large. In 2009 Lonnie Franklin aged 57 years was arrested after his son Christopher Franklin had been arrested on weapon charges and had to give a DNA sample. Christopher's DNA swab was processed, and a DNA profile obtained.

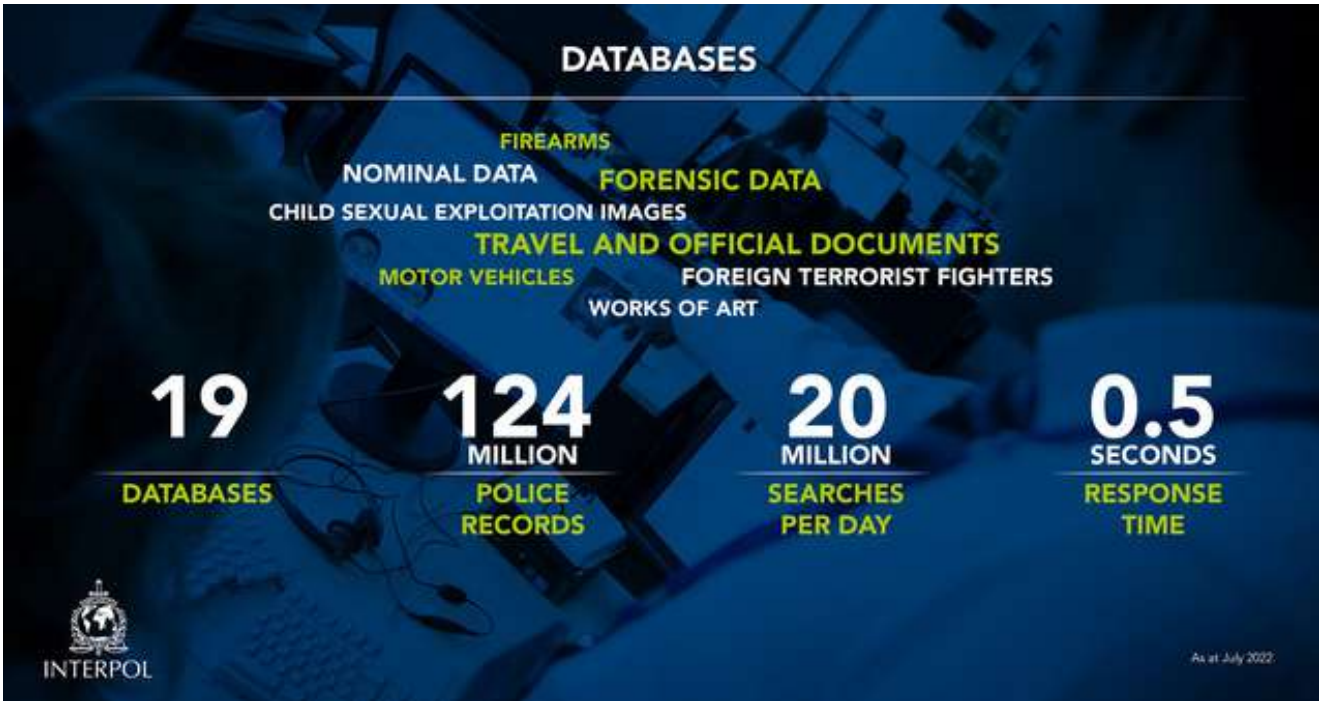
When a familial search was conducted in the Los Angeles Police Department Forensic DNA database it showed a father-son relationship to the DNA records of a serial killer who was not yet arrested. The Police covertly trailed Lonnie Franklin until his DNA profile was obtained from the Pizza Box he discarded after eating. This DNA profile perfectly matched the DNA profile obtained from his murder victims 25 years back. With this solid evidence Lonnie Franklin was arrested and charged with 10 counts of murder and 1 count of attempted murder.

Solving cross border and organised crimes: When forensic DNA records from various countries are kept under one centralised electronic database as already being done by European countries under the Schengen umbrella and other countries around the world under the INTERPOL, they facilitate investigation of trans-border and organised crime. The INTERPOL Forensic DNA database which so far contains about 250,000 DNA records from 84 countries has enabled investigators around the world to link offenders to different types of crimes including rape, murder and armed robberies.

All that said, it is of no doubt how forensic databases are pivotal in crime investigation. The efficiency and effectiveness of any database is highly and positively correlated to its size. The bigger the database, the higher the number of matches/hit and hence the more crimes solved. It is therefore imperative to grow and populate this newly established Forensic DNA database for good return in the near future.

At an appropriate time when East Africa and AFRIPOL have centralised criminal databases, the Uganda Police Forensic databases can be linked to them and then to the INTERPOL databases in a bid to fight crime at all levels; domestic, regional and International.

The writer is a Forensic DNA Specialist and Head Quality Assurance and Research Department.



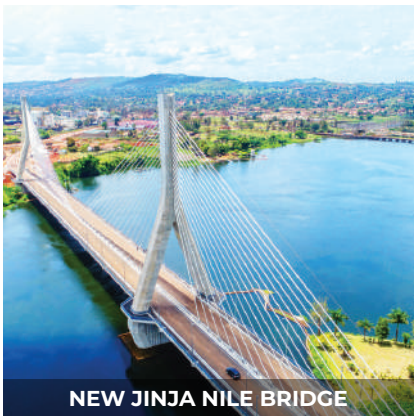
Adopted from INTERPOL website, Dec 2022

INTRODUCING THE ROOFINGS TMX 500C

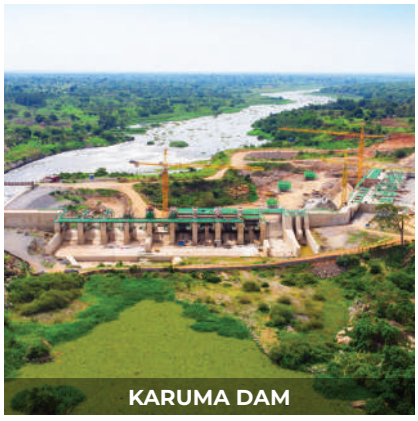
TRUE STRENGTH COMES FROM WITHIN

Cut and Bend services available


TWED TOWERS


NEW JINJA NILE BRIDGE


ENTEBBE EXPRESS WAY


KARUMA DAM


MARIOTT HOTEL


KABIRA COUNTRY CLUB

ROOFINGS TMX 500C

HEAT RESISTANT

CORROSION RESISTANT

EARTHQUAKE RESISTANT

HIGHLY DUCTILE

customer care TOLL FREE 0800 240 100

+256 761 002 607

Customercare@roofingsgroup.com

Roofings Group

www.roofingsgroup.com

SOCIAL MEDIA and Mental Health

By Dr Bashir Niwamanya

All human beings have a desire to belong and to relate! This is made possible with sufficient and strong interpersonal communication. With the development of information technology, the face of interpersonal communication has drastically changed. There has been a shift in the way people communicate and rather than face-to-face interaction, people nowadays tend to prefer mediated communication and social media provides this to the perfect dot.

Social media refers to the means of interactions among people in which they create, share, and/or exchange information and ideas in virtual communities and networks. The main social media platforms in Uganda include Facebook, Twitter, Instagram, LinkedIn, TikTok, WhatsApp and YouTube and many others. These are accessed through a number of medias such as smartphones, tablets and computers (both desktop and laptop).

Young adults tend to be the most affected by social media addiction. It is significantly higher amongst young single women. 90% of people aged 18-29 use social media in some form and 15% of people aged 23-38 admit that they are addicted to social media. For a growing proportion of youths, the global social media platforms and the easy access to the Internet bring about the potential for social media addiction, namely, the irrational and excessive use of social media to the extent that it interferes with other aspects of daily life (Griffiths, 2000, 2012). Social media addiction has been found to be associated with a host of emotional, relational, health, and performance problems.

Dependence on social media starting mainly with a habit distorting into psychological dependence in the next stages over time can lead to a magnitude of mood alternations, negative outcomes, and excessive expenditure of time as many of the users may face loss of productivity and feelings of isolation. Studies have indicated that maladaptive cognition is positively affected by habit, and a perceived ease of use has strong effects on perceived enjoyment, and perceived usefulness.

Individuals with social media addiction are often overly concerned about social media and are driven by an uncontrollable urge to log on to and use social media. Studies have shown that the symptoms of social media addiction can be manifested in mood, cognition, physical and emotional reactions, and interpersonal and psychological problems. It has been reported that social media addiction affects approximately 12% of users across social networking sites.

Many studies on social media usage and mental health have shown that the prolonged use of social media such as Facebook is positively associated with mental health problems such as stress, anxiety, and depression and negatively associated with long-term well-being. For example, the time spent on social media was positively related to depressive symptoms among high school students in Central Serbia and among young adults in the United States (Lin et al., 2016).

When considering treatment for social media addiction, many people wonder if professional treatment is even an option for themselves or their loved one. Although social media addiction has been gaining recognition as a real, diagnosable condition in recent years, it is still not a recognised disorder in the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).

Treatment interventions for social media addiction include therapy options such as cognitive behavioral therapy, dialectical behavior therapy, motivational interviewing, group counseling sessions, and other holistic forms of treatment. Utilising the services of a therapist help with strategies to reduce addictive behaviors such as social media addiction in their area. Without physical symptoms related with social media addiction, those seeking treatment for a social media addiction are usually able to overcome their addiction without entering a residential treatment facility by engaging in activities that reduce isolation.

Social skills training which focuses on teaching necessary skills is an effective strategy for adolescents who suffer from social media addiction. With social skills training comes communication skills which increase and improve problem-solving skills/outcomes and significantly decrease addiction. Generally, it is held that promoting communication skills is effective in psycho-cognitive and mental health status. These skills help the individual in dealing effectively with life stressors instead of engaging in addictive behaviors.

Social skills help individuals in starting conversations, listening actively and openly expressing thoughts and emotions. These skills are important in helping individuals to decrease negative feelings and social tensions and constructively/successfully solve problems which lead to preventing the emergence of negative and unconstructive behaviors such as those in Internet addictive.

The other method of reducing social media addiction is CBT. Cognitive behavioral therapy (CBT) has been shown to be an effective treatment for improving social skills as a model to deal with compulsive disorders such as Internet addiction. CBT is a familiar treatment based on the premise that thoughts determine feelings. Individual are taught to monitor their thoughts and identify those that trigger addictive feelings and actions while learning new coping skills and ways to prevent a return to depression, anxiety, or addiction-based behavior patterns.

The writer is a psychiatrist at Kampala Youth Recovery Centre, Bugolobi

Relevance of the Uganda Police National Data Centre

By PC Turyatemba M. Achilles

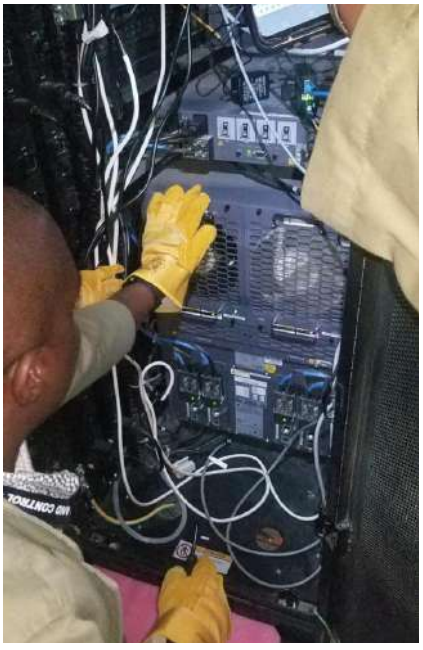
'The most powerful asset of the digital age is data.'

A data centre is an advanced technological development solution for applications that require cloud computing services, running the computer power to run applications, the storage capabilities to process data, and the networking to connect employees with the resources needed to do their jobs.

Data centres have been undergoing growth and advancement as the demands for applications surge. They provide data services to end users with a minimal level of latency. Due to the recent surge in the use of Internet of Things (IoT) devices and their associated applications, the level of latency required to maintain a smooth and harmonious speed of data has become noteworthy.

The Uganda Police like other institutions generates extra data daily, from different sources; CCtv, criminal investigation and intelligence, IoT data, website data, employment data, forensic data, etc. All this data is analysed and processed for decision making, either at the edge, on premise, in the cloud, or in a hybrid model. Uganda Police did not just physically build brand new, centralised data centers, but also modernised its existing data center facilities and expanded their capacity to edge locations in order to handle the large amount of generated data.

Traditionally, the data centre was seen as a separate collection of equipment aiding explicit applications. Applications required more resources, equipment was procured, and downtime was required to deploy it, along with ever-increasing use of physical space, power, and cooling. The current data centre enables the institution to make appropriate decisions at the right time. There is no downtime and all stakeholders are able to access services in real time.



Above is the Head Data centre Unit ASP Kamanyire (Centre), left is AIP Okello and PC Turyatemba (right) troubleshooting network.

With the development of virtualisation technologies, data centre outlook progressed and today, the UPF data centre is a pool of resources, partitioned logically and, used more efficiently and effectively to serve multiple applications. Low-power servers and modular design servers are deployed with an energy-efficient design to store data and are advocated for, to achieve better power consumption targets, environmental protection and reduce operational costs.

The writer is an Engineer at the Police Data Center.

TMR International Hospital
Every Second Counts

Every Second Counts!

TMR International Hospital is a modern healthcare facility located in Naalya Housing Estate. It is meticulously designed to provide a homely and healing ambiance with well-streamlined processes and practices which are all geared towards creating a pleasant experience for our patients.

Our services:

- **Out-patient services**
- **In-patient services**
- **Laboratory services**
- **Radiology services** (CT Scan, Ultrasound, X-ray)
- **Specialists** (Pediatrics, Cardiologist, ENT, Maternity, Neurosurgery)
- **Theatre services**
- **Dialysis**
- **Dental** Coming Soon
- **NICU & ICU**

Location: Kira Lane, Naalya Housing EstateP.O. BOX 110439 Kampala,Uganda
www.tmrinternational.org
info@tmrinternational.org
+ 256 (0) 200 777 850
+256 (0) 755 897 657

Cross Border Transfer of Data: Lessons for Uganda

By Kenneth Muhangi

In the Fourth Industrial Revolution (4IR), it would be wholly impractical for any organisation, irrespective of sector, to do business, let alone cross border business, without the ability to transfer data. In Uganda, transfer of data across borders is in most instances a necessity owed to the relatively limited infrastructure required to store or process data.

The transfer of data is regulated by Section 19 of Uganda's Data Protection & Privacy Act (DPPA) that provides that where a data processor based in Uganda processes or stores personal data outside Uganda, the processing shall only be lawful with consent of the data subject; further that the processor shall ensure that the receiving country has an equivalent level of protection to that in Uganda.

Section 19 is analogous to Article 46 of the General Data Protection Regulation (GDPR) that offers wider considerations when dealing with cross border transfer of data. The GDPR has congealed the importance of observance of best practice when dealing with cross border transfer of data. Article 3 in particular, extends the scope of the GDPR to cover data processed outside the EU, as long as the data relates to a data subject who is a citizen of any of the EU countries.

Article 46 provides that any transfer of personal data to a third country can only take place if certain conditions are met by the data exporter and the data importer. For an entity to lawfully transfer or process personal data outside of the EU, that entity must identify a valid transfer mechanism to legally transfer that personal data.

Consequently, entities domiciled or operating in Europe and which carry out business whether directly or indirectly with markets out of Europe (such as the United States of America or Uganda) must ensure that the receiving country is possessed of adequate data protection laws that will protect EU citizens. In the absence of adequate regulation, the GDPR allows a data controller to transfer/process personal data outside the EEA using appropriate safeguards such as EU adopted or approved Standard Contractual Clauses (SCC's), Codes of Conduct and/or Binding Corporate Rules. In addition, the company in question must ensure that data subjects have enforceable rights and effective legal remedies in the third country.

Key under such SCC's is consent and right to be forgotten, which was first introduced by the European Court of Justice (ECJ) in a case involving Google Spain, where the ECJ affirmed that data subjects have a "right to be forgotten" and held that Google must delete "inadequate, irrelevant or no longer relevant" data from its results when a member of the public requests it.

The European Commission also has the power under Article 45, to review a third country's legal system, domestic law and international commitments to determine whether it ensures an adequate level of protection for personal data. On 12th July 2016, the EU did utilise such power in (EU) 2016/1250 and ruled that the US had adequate protection to enable data transfers under EU law pursuant to the EU/US Privacy Shield Framework. The EU/US Privacy Shield provided guidance on the secure sharing/transfer of personal data between the EU and US and was revered as a valid mechanism to aid companies comply with EU data protection requirements.

Schrems II, Surveillance and Standard Contractual Clauses (SCCs)

On 16 July 2020, the Court of Justice of the European Union (CJEU) in C-311/18 (Schrems II) invalidated the Safe Harbor/Privacy shield framework between the European Union (EU) and the United States (US).

On invalidating the shield framework, the CJEU held that US surveillance laws were incongruent with Article 45(1) of the GDPR, read in light of Articles 7, 8 and 47 of the Charter of Fundamental Rights of the European Union (CFREU).

On interpreting whether the EU Commission in its earlier decision had succinctly addressed the issue of the US having an adequate level of protection, the CJEU held that in Implementing Decision (EU) 2016/1250, the Commission failed to consider Article 7 on respect for private and family life, Article 8 on protection of personal data and Article 47 on the right to an effective remedy and to a fair trial of the CFREU. The provisions would in essence act as a sort of SI indicator for what amounts to an adequate level of protection in a third country.

The decision reinforces/ supplements decisions from other jurisdictions that have underpinned the importance of data and privacy as human rights. In 2017, the Supreme Court of India in Justice K.S. Puttaswamy (Retd.) & Anor. v Union of India & Ors, WP (Civil) 492 of 2012, declared that privacy is a fundamental right protected under the country's constitution for each of its over 1.3 billion citizens.

Using the same stare-decisis, and in light of the court's concerns around the US surveillance activities and lack of redress mechanisms for data subjects, it is likely that the CJEU would reach the same conclusion for Uganda whose surveillance laws such as the Regulation of Interception Act (RICA) do not surmise the safeguards envisioned by the DPPA and the GDPR.

Standard Contractual Clauses (SCCs)

The CJEU in its decision did not invalidate SCCs and BCRs but emphasised that even when using such standard contractual clauses, organisations must assess the level of personal data protection offered in the US, taking into account the circumstances of each particular transfer and any supplementary protection measures they take themselves.

In particular, Section 128 of the CJEU judgment states that;

"Article 46(1) of the GDPR provides that, in the absence of an adequacy decision, a controller or processor may transfer personal data to a third country only if the controller or processor has provided appropriate safeguards, and on condition that enforceable data subject rights and effective legal remedies for data subjects are available.

According to Article 46(2)(C) of the GDPR, those safeguards may be provided by standard data protection clauses drawn up by the Commission."

Further, according to sections 131 and 132 of the CJEU ruling, it is incumbent upon the controller or processor established in the European Union to provide adequate safeguards in the form of SCCs which may be adopted and/or supplemented by the Commission.

Uganda's DPPA does not specifically provide for SCCs but under Section 7 (2) (C) personal data may be collected and/ or processed in furtherance of a contract to which the data subject is party and under 17 (2) (e) of the DPPA, 2019 a person who processes personal data shall take into account the contractual rights and obligations between the data subject and processor.

To conclude, the CJEU judgment inter-alia re-emphasises the power/importance of data oversight authorities and the effect a single decision can have on entire industries that depend on cross border transfer of data. This is the second time the CJEU has negated a data transfer framework with the US and in both instances citing trepidations over the US's surveillance activities and lack of an adequate level of protection for personal data. Uganda's own DPPA should take cognisance of such decisions and work towards bringing her laws in line with international best practice.

Kenneth Muhangi is an expert of Intellectual Property and ICT Law, Partner at KTA Advocates

Managing Crime in a Modern Society

By ASP Dr. J.M. Okwadi Tukei

Information Communication Technology (ICT) is a generic name used to describe a range of technologies for gathering, storing, retrieving, processing, analysing, and transmitting information and its use is immense in the field of law both in the enforcement of the laws and the prosecution of the offenders.

One of the basic functions of every government is the protection of lives and properties. Without this priority, the hope of today and the future living would not be guaranteed. Hence, it is the sole responsibility of the formal police structures to see to this objective.

In a developing democracy, the police force plays a creative role that no other agency of government is so critically able to assume. Thus the nature of the police force represents the character of the state.

Police work involves a variety of tasks and responsibilities. Police Officers are expected to prevent crime, protect life and property, enforce the laws, maintain peace and public order and provide a wide range of services to citizens such as maintaining peaceful co-existence among communities.

A common trend unifying these diverse activities however, are that potential for violence and the need and right to use coercive means in order to establish social control. Understanding that the police act as the representatives of the coercive potential of the state and the legitimate users of force help explain a number of their attitudes and characteristics.

In the face of globalising and advancing technological world of 21st century, the trend of ICT has come to be a major issue of discourse among many people especially scholars within various disciplines.

There has been increased expectations that the use of ICT would facilitate ease in various activities of human beings of which, the security of lives and property is not exemption.

ICT is concerned with the storage, retrieval, manipulation, transmission or receipt of digital data. This in no small measure has to do with the sharing of information through the internet.

In this direction, there are various ICT gadgets and channels which people and groups manipulate to achieve their interests such as the mobile phones, the internet, digital cameras, iPods, etc.

A good way to think of ICT is to consider all the uses of digital technology that already exist to

help individuals, businesses and organisations access information. The most crucial aspect of ICT is the use of the Internet which has to do with wireless communications to the World Wide Web.

ICT in terms of policing has to do with the digital tools and methods of detecting criminal activities especially with regards to property crimes such as digital burglar alarm systems, finger print detectors, closed circuit televisions, car plate number identifying systems etc.

ICT has facilitated the prevention, detection, investigation, prosecution, adjudication and punishment of crime. Examples include the use of encryption to ensure that data are held securely, neural networks to detect financial crime, biometric systems to identify suspects, hard drive imaging to secure data from alteration or destruction, sharing of data held in official data bases to identify suspects and risks, electronic courtrooms to present evidence clearly, and electronic monitoring of offenders to enhance surveillance during periods of home detention.

In most developed economies like USA, Canada, Japan and United Kingdom among others surveillance cameras are used to capture people or criminal activities without their knowledge.

Also, the use of Closed Circuit Television (CCTV) in banks, airports, hotels, supermarkets etc. seems to have discouraged theft and other criminal activities and has also eased or curtailed security threat.

The use of ICT in policing has been evident in the detection and control of property crimes which is one of the most committed crimes in every society.

Home invasions, property vandalism, auto theft, shoplifting and other types of property crimes in the technologically advanced world, require systematic and technologically enhanced alternatives to the manual methods of detecting crime perpetrators. This is because; criminals have utilised the advantage of ICT to perpetrate crimes.

They use communication systems such as mobile phones to interact and communicate with each other; hack through peoples' credit cards and bank accounts to steal money more and more criminals are exploiting the speed, convenience and anonymity that modern technologies offer in order to commit a diverse range of criminal activities. The situation becomes more problematic when the police lack the basic ICT knowledge required to detect such criminals. Thus, the importance of ICT in crime detection and control in the modern technologically enhanced crime society cannot be overemphasised.

This is because, major issues like: fast growth of population, rapid process of urbanisation, increasing disparities between the rich and poor, illiteracy, human rights abuses, armed robbery, right to information, natural and unnatural calamities, human trafficking, corruption in public life, cybercrime, terrorism are issues which have increased the pressure on the police.

Using ICT, the police can manage crime scenes, relate with the public in terms of crime reporting and maintain accurate crime statistics.

Appreciating that the police force is bound to face increasing heavy pressure from all the stakeholders, including the public and media for detection, investigation and prevention of crimes but also from its employees, for the efficient working and service conditions; ICT is therefore, the best solution for enhancing effectiveness in the police duty.

ICT improves effectiveness and efficiency, capacity to store and process large volumes of data. It also improves intelligence and investigative capabilities and makes ready access to criminal records and other kinds of relevant data.

Also, ICT helps to render the police officers accountable through documentation and control of actions, provide a sense of security through connecting to control rooms and colleagues, support officers with awareness of current state of affairs, such as other incidents, the active queue of incidents and remote access to police databases as they innovate police operations.

However, crime detection and control may be difficult in situations where the police are faced with difficulties that may either arise from police organisational structure, level of public readiness to report crime cases as a result of public distrust in the police, lack of police willingness to change strategies to the changing dimensions of crime, low level of education to manipulate computer systems, lack of governmental support to the provision of basic ICT requirements, ethnic differences among police officers and struggle for authority.

Also, in a political system whereby the police exist to protect the interest of the ruling class, the possibility of adequately protecting the masses through information systems is scarce. Information is the key word in property crime detection and control. How the police access information and manage it go a long way to determining the level of efficiency they are likely to achieve in their roles as security agents. Thus, ICT becomes the best tool for the formal police organisation to achieve this efficiency in property crime detection and control.

The writer is the Head Research Innovation and Policy in Directorate of Police Health Services

The Evolution of Forensic Science

By Mbonye Alex Sabiiti

Forensic Science in Policing: The past, present and future of forensic science in Policing Born in 1877, Dr. Edmond Locard brought to life a priceless principle in Forensic science known as the Locard Exchange principle. This principle holds that a perpetrator of a crime will bring something into crime scene and leave with something from it, and that both can be used as forensic evidence. Paul Leland Kirk, a distinguished professor of Chemistry later alone described this principle as thus:

"Wherever a perpetrator of crime steps, whatever he touches, whatever he leaves, even unconsciously, will serve as a silent witness against him. Not only his fingerprints or his footprints, but his hair, the fibres from his clothes, the glass he breaks, the tool mark he leaves, the paint he scratches, the blood or semen he deposits or collects. All these and more bear mute witness against him. This is evidence that does not forget. It is not confused by the excitement of the moment. It is not absent because human witnesses are. It is factual evidence. Physical evidence cannot be wrong, it cannot perjure itself and it cannot be wholly absent. Only human failure to find it, study and understand it can diminish its value."

The scientific examination and analysis of evidence from crime scenes and elsewhere to develop objective findings are used in the investigation of crime and consequently prosecution of the crime perpetrators. Forensic science is a critical element of any criminal justice system anywhere in the world. The immense application of forensic science in determination of these matters in courtrooms is true to the meaning of the word *"Forensic"* which traces its roots to the Latin word Forensis loosely translated as… Of or before a forum. This was deeply rooted in the traditions of the Romans where the ancient Roman forums were the seats of their courts of law.

In a bid to make a case for the contribution of forensic science in policing, I take a walk through the history of forensic science and its contribution to the solving some of the most complex criminal and civil cases. I equally advance an argument of how application of these logical and scientific deductions can be transferred from modern laboratories and complex equipment to help in our daily policing.

The earliest application of forensic science dates back to the ancient Greek and Roman Societies: these civilisations made important contributions in the field of chemistry, medicine and pharmacology. Notably, their research on the production, use and symptoms of toxins made the study of their application in murders possible.

As early as circa 44 BC, Roman physician, Antistius, examined the body of slain Roman politician and General Julius Caesar and made important deductions as to what exact wound led to his death. Forensic science continued to play an important role in the Roman dynasty. The great Roman Orator and jurist, Quintilian always used basic forensics to acquit the innocent in the 1st century AD.

One of the earliest published ancient literature books about determination of the cause of death is by Song Ci published in the 13th century in China. In his book, Xi Yuan Lu loosely translated as the washing away of wrongs, Ci deeply delved into how one can distinguish an accidental death from a murder by examining the weapon used to cause death.

First forward in the 1880s, the technique of fingerprint analysis to link incidents to suspects was

a major breakthrough in the forensic landscape. This ground breaking theory was advanced by Henry Faulds and William James Herschel and it had its cornerstone on the uniqueness of fingerprints. This study received a huge support from experts all over the world and was later accepted as crucial evidence in the legal system. Finger printing analysis was later to be refined by Sir Edward Henry, the Commissioner of the Metropolitan Police of London, who used the direction, flow, pattern and other characteristics in fingerprints to develop his own system of fingerprint analysis. His classification system was later to be taken as the standard for criminal fingerprint analysis technique worldwide.

In the field of Forensic toxicology, huge credit goes to Swedish chemist, Carl Wilhelm Scheele, the first chemist to develop a chemical test to detect arsenic in corpses in 1773. His work was further elaborated by a German chemist, Valentin Ross, in 1806 to detect poison in stomach walls. In 1836, Scottish chemist, James Marsh, did the first application of this forensic science technique in the analysis and detection of arsenic.

Arsenic was and still remains one of the most lethal and prolific poisons known to have been used since time immemorial. It is a chemical element with an atomic number 33, belonging to group 15 and period 4 of the famous Periodic Table. It was a poison of choice mainly because of its chemical and physical properties inter alia, being odorless and tasteless. It can also be introduced quietly

over time in small unassuming doses, and in the end its symptoms like diarrhoea, vomiting and abdominal pain mimic those of any number of ordinary diseases.

This coupled with lack of a precise, accurate and reliable analytical method of analysis or detection back in the 19th century, made any convictions relating to the criminal administration of this poison. Despite the complexities associated with it, it was so commonly used to the extent that in 1851, the House of Lords tried to pass a law forbidding women from buying Arsenic.

To curtail this looming risk and potent public threat, many scientists in particular chemists were deeply involved to coming up with a robust test method that would detect Arsenic in both macro and micro quantities. This persisted till when the hitherto alluded James Marsh test came to the fore front. This was later to feature at the center of many trials including the trial of Marie Lafarge in 1840, in which the defendant stood accused of poisoning her husband.

The above elaborate account demonstrates the immense contribution of forensic science and techniques in the determination of complex civil and criminal cases which ordinarily never be concluded. In present day policing, the need for robust, accurate and precise scientific techniques cannot be over emphasised.

Strides in the toxicology and pathology arms of forensic sciences have equally been matched with an aggressive front in the digital era with all efforts geared towards prevention of crime or apprehension of the criminals.

The last decade witnessed a sharp rise in airport security to try and thwart those who attempt to smuggle explosives onto planes, either in luggage or about their person. Ideally, every piece of luggage and every passenger should be screened to ensure that they are clean, although not all airports are geared up to achieve this at present.

In the early 21st century, a team of Japanese scientists published details of Atomisation Pressure Chemical Ionisation (APCI).Their system involved wiping objects with a sheet which was inserted into a heating unit for desorption and analysis. With a target throughput of 1200 people per hour, the system was described in Rapid Communications in Mass Spectrometry by Yasuaki Takada and colleagues from Hitachi, Ltd. and WDB Co., Ltd, Tokyo as the future of airport security and a huge deterrent to those planning to take crime to the skies.

Another giant leap in forensic science is chromatography. Dr. Clare Sansom puts it succinctly: chromatography is one of the best weapons needed in the arsenal of a forensic scientist. In her literal works, separating the guilty and the innocent, she labors to explain the key contribution of this ground breaking analytical technique that has shaped the future of forensic analysis.

This separation technique is often lauded for successfully bringing the crime scenes to court of law with the use of impeccable and un-equivocal pieces of well worked evidence. It excels at separating and analysing complex mixtures of substances. It is therefore uniquely suited to applications in the broad area of forensic science. Criminal investigations often involve analysis of complex mixtures, mainly involving soil, water, debris, body fluids among other matrices that are found at crime scenes. Forensic scientists have been using this technique for half a century, and it has now become the "gold standard" technique in forensic chemistry.

With over 60 types of explosive and over 2000 poisons and illicit drugs, establishing which of these present in a sample is taken from a crime scene typically involves separation using gas or liquid chromatography followed by mass spectrometry, and the identification of peaks that are characteristic of particular compounds..

In the recent past, chromatography has been deployed in identifying the chemical constituents in as low as trace amount like the highly unstable explosive, Triacetone Triperoxide (TATP). This compound has since been described as the terrorists' weapon of choice given its non-nitrogenous and therefore difficult to trace, and it has been quite often implicated in the suicide bombings, the most recent being in Paris November 2022 and the March 22nd 2016 bombings in Brussels.

Using a sophisticated lens, forensic science is incomplete without a remark on technical advances in DNA and particularly, the use of the polymerase chain reaction (PCR) to amplify DNA samples. These advances have allowed individuals to be identified using smaller and smaller samples of DNA. This can enable an identification to be made from the tiniest samples of DNA, such as might be extracted from fingerprints at a crime scene. Chemical analysis of the same fingerprints has also been used to identify substances that the suspect had handled.

Having taken the reader through the ages-a memory lane of forensic science- pointing out how forensic science has evolved and equally shaped the landscape of policing and solving complex crimes, the pending matter to be addressed is how Uganda is prepared for the application of modern tools of forensic science in policing.

The words of the Principal Judge, Hon. Dr. Flavian Zeija while commissioning the state-of the art Police laboratory at Naguru Police Headquarters on the 28th of January, 2021 come to mind: "*The facility laboratory will not only support a speedy investigation but also improve the conviction rates (in Courts of law) hence the need to invest more resources in it,"…. Crime is becoming sophisticated and technology advancement keeps changing with time hence more training and investment in such machinery is needed*".

Thankfully, the Commander in Chief of the armed forces, Gen. (Rtd.) Yoweri Kaguta Museveni Tibuhaburwa is a great proponent of a science led economy. The most recent salary enhancement of all science professionals is a true testament to that belief. With a clear strategic leadership and commitment, I have faith that in the near future, Uganda will reap from the sweet fruits of forensic science.

To achieve that prophetic milestone, the Uganda Police and all her sister agencies need a massive goodwill and financial support. An investment in modern tools and equipment like Laser Ablation Inductively Coupled Plasma Mass Spectrometry, High-Speed Ballistics Photography, DNA Sequencer and modern electron microscopes. This is capital intensive but worth the investment given the ever changing terrain of sophistication in crime and its perpetrators.

The writer is a Forensic Science enthusiast and an expert in Drug Quality Analysis.

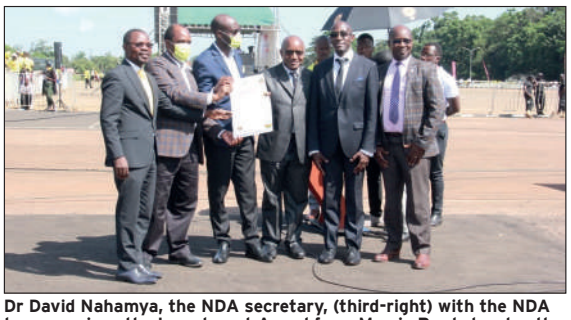
THE BUBU POLICY PROVIDES FOR A COMPETITIVE ADVANTAGE FOR LOCAL PRODUCTS

By Vision Reporter

The NDA team pause with the Visionaries Award during the event at Kampala Serena Hotel

NDA BAGS EXCELLENT PERFORMANCE AWARD

NDA HAS UNRESERVEDLY PROMOTED AND SUPPORTED LOCAL PRODUCTION OF PHARMACEUTICALS THROUGH SEVERAL INITIATIVES INCLUDING; PROVIDING TECHNICAL SUPPORT TO LOCAL MANUFACTURERS.



Dr David Nahamya, the NDA secretary, (third-right) with the NDA team receives the Investment Award from Morris Rwakakamba, the chairperson Uganda Investment Authority

Health minister Dr Jane Ruth Aceng (left) at the Microbiology Laboratory which she commissioned in November

The National Drug Authority (NDA) was recognised for the fifth time as the best visionary – HEALTH GOVERNMENT REGULATORY AGENCY FOR THE YEAR 2022 at the 10th Visionaries of Uganda Awards event held at Kampala Serena Hotel on November 24.

On December 3, NDA was again recognised for the second time as one of the best 2022 UGANDA RESPONSIBLE INVESTMENT MARK OF EXCELLENCE AWARD at Kololo Ceremonial Grounds by Public Opinions in association with the Office of the Minister of State for Investment and Privatisation.

The recognition of NDA for these respective awards is due to the good performance on delivery on our core regulatory functions, among the key functions is the control and promotion of the domestic pharmaceutical industry as a means of ensuring sustainable supply of quality essential medicines to the people of Uganda. The post-market surveillance mechanism that monitors the quality and safety of medical products on the market.

This system ensures that falsified products (which you call fake) and substandard products (those which do not meet prescribed standards) are removed from the market. The enforcement operations held across the country improve compliance levels to licensing requirements by operators of pharmacies and drug shops. The operations confirm that licensed persons maintain high quality standards, apprehend and encourage illegal operators to comply.

Both events are dedicated to recognise and publicise best companies working towards attainment of Uganda Vision 2040 and among the specifics that lead NDA being recognised included the following; NDA has licensed 45 domestic pharmaceutical manufacturers to improve local production, and also notified 250 herbal medicine products.

This growth in the domestic pharmaceutical sector contributes to the sustainable and local supply of affordable and quality essential medicines, thereby ensuring the population has immediate access to these medicines at an affordable price, while at the same time reducing the heavy reliance on importation of pharmaceuticals and the related trade deficit imbalance and outflow of foreign currency

NDA has unreservedly promoted and supported local production of pharmaceuticals through several initiatives including; Providing technical support to local manufacturers.

Routine GMP inspections to drive continual improvement.

Zero taxes on importation of raw materials and equipment.

Quick market authorization of their products.

Implementation of the BUBU policy that provides for a price competitive advantage for locally manufactured products.

NDA support has seen improvement and increase in the number of licensed local manufacturing facilities from 14 in 2016 to 45 in 2022 (19 human products, 4 veterinary products including acaricides and veterinary vaccines, 5 herbal / therapeutic foods and 17 surgical instruments and appliances, such as gloves, medical masks and medical oxygen).

There are also 11 upcoming local manufacturing facilities; one of which will manufacture mRNA vaccines, including Covid-19 vaccines and other complex biologics.

This growth has led to 185 registered locally manufactured conventional (human) products and 250 local traditional medicines (herbal) which will reduce on heavy reliance on foreign imported products.

The facilities have provided jobs to both the skilled and casual labour job market, thereby contributing to the Government's efforts of providing jobs and improving livelihoods of the unemployed youth.

The local manufacturers act as apprentice centres for the skilled professionals such as pharmacists, chemists and industrial engineers, thereby providing hands on skills development for our scientists. Also, importantly several related local industries such as the packaging industry and other service industries also benefit from the establishment of local pharmaceutical manufacturers.

Quality Control Laboratory which is ISO/IEC 17025:2017 accredited by ANAB in the USA, pre-qualified by WHO, Geneva; and is; and is rated at Maturity Level 4 as per the WHO Global Benchmarking 4-tier classification of National Medicines Regulatory Agencies. This means our testing laboratory for medicines and other healthcare products is credible and internationally recognised in providing accurate test results.

Being ISO 9001:2015 re-certified demonstrates NDA's commitment to operate under a reliable quality management system.

NDA stands out as a centre of excellence for Good Manufacturing Practice Inspection in the East African Community. This is an achievement we have maintained in pursuance to the Pharmaceutical Inspection Convention Scheme (PIC/S). This is our vision with respect to strengthening the NDA pharmaceutical inspectorate system.

The laboratory tower under construction will enhance the capacity and range of testing services that NDA will be capable of undertaking including medical devices, impurities, and vaccine testing. All this will directly ensure that Ugandan citizens access good quality medicines.

Together with Government, Ministry of Health, members of the authority, staff, stakeholders and the public, NDA pledges to ensure that the entire human and veterinary population of Uganda have access to safe, efficacious and quality medicines. "Once again, my most heartfelt thanks to all stakeholders for your support towards the mandate of NDA," Dr. David Nahamya, the NDA secretary says.

Integrating Technology in Police Operations

By ASP Daison Kiyombo

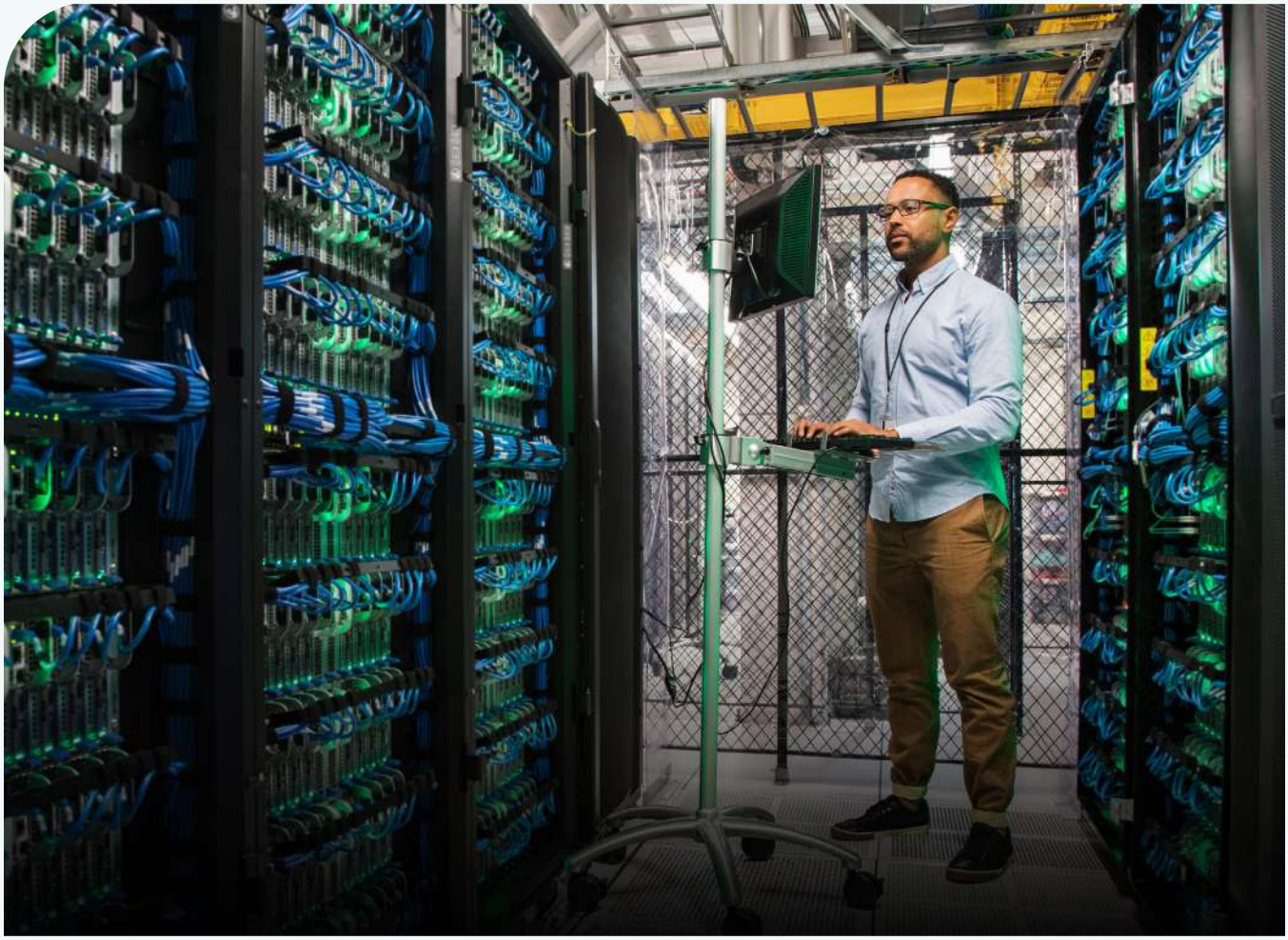
The best way to fight crime is to keep it from happening in the first place, and technology is on the forefront of crime prevention. The department of IT&IM is carrying out various activities to ensure the Uganda Police Force is advancing in technology.

Increasingly, one of the most effective tools for attaining continuing mission success is information technology. Today, many systems are in place to help, including mobile technologies, computer-aided dispatch (CAD), human records management systems (HRMS), and automated number plate recognition (ANPR) systems. The combined data, software, and analysis tools from these systems serve many functions, including the delivery of fast, effective call response times; managing crime reports; and improving the effectiveness of CompStat, intelligence-led, and place-based policing methodologies. The result is that more agencies are benefiting from using technology as a weapon against crime.

The extension of Internet services both wired and wireless to police stations and regions has enabled officers countrywide to access systems hosted at Police Headquarters. The internet is being supported by the Uganda Police CCTV Intranet that is spreading the entire country.

The provision of computers to police stations, units, regions and departments has also helped in advancing technology. With availability of Internet, officers use the computers to send and receive information electronically, which has simplified work within the force. The use of UPF email system has strengthened communication systems while observing the element of information confidentiality. We appeal to all officers to have their own police emails for as long as they serve the force. Directorates, districts, divisions and units are encouraged to have official police emails to ease secure communication. This has helped compliment the traditionally secure means of communication of using radios.

The department is also supporting the Force through GIS applications. Mapping and performing analysis of crime incidents help in making informed decisions about when and where to deploy resources. The GIS analysts use Esri tools to import and manage data, perform analysis, and share the work via interactive information products. The use GIS based UPF Mobile App available on google playstore has provided the public with a lot of information especially contacts of police stations country wide and stations around them. The component of reporting a crime or complaint to the National Command Centre uses the GIS features to locate the victim incase of any danger. We encourage all citizens with smart phones to download the UPF Mobi App so that they can access police services with more ease at the touch of a button. The 999 and 112 emergency callers to the command and control center are supported by GIS Location Based Systems (LBS) to locate the area that require emergency services



for cases of rescue missions or fire outbreak.

We are at the forefront of production and issuance of Police warrant cards to the personnel in consultation with Directorate of Human Resource Administration (HRA). A warrant card is a proof of identification and authority carried by police officers. The new warrant cards that are being tested are smartcards that hold the officers' information and can act as security passes in the biometric door ways, ofcourse such cards can only access the levels of security clearance that the officer has in that particular establishment.

Systems administration is another essential role of IT&IM Department who are responsible for providing a reliable work environment for the force—from servers and network performance to security and all other areas that keep an organisation's IT systems running smoothly. Our system administrators have an in-depth understanding of computer software, hardware, and networks and are highly skilled, valuable staff of Uganda Police Force. The administration of the Express Penalty System (EPS) that manages the traffic fines, the Interpol certificate of good conduct used by Interpol to print the certificates, police website that provides the updates of information happening country wide, the intelligent video surveillance, automatic number plate recognition, UPF mailing system that supports police officers share information among themselves etc.

Technology is, however, no magic bullet, but associated with ethical dilemmas and risks. Technology requires high degrees of accountability and data privacy and protection measures to safeguard that it does not compromise trust, safety, security or basic freedoms of the population.

The writer is Head of IT&IM Department at the Uganda Police Force.

Integrating Science and Technology in Police Training

By SP Jackson Mucunguzi 'Psc' (U)

Police training plays a crucial role in the development of police officers. it involves various educational components based on clear guidelines. Police training is a complex pursuit that necessitates every police officer to pay attention to be able to improve our professional standards. The training considers the evolution of society in relation to technology development and how officers can be involved in using technology to serve better in this 21st century.

The IGP appointed a Police Doctrine Development Task force mandated to put in place a written police doctrine one of its kind since UPF inception in 1906. The world is now a global village with science and technology evolving at a high speed. Police training thereforeought to be redesigned to embrace pertinent issues of the modern society. Using technology becomes key in guiding the strategic police doctrine which involves application of ICT and forensic science across different police directorates.

UPF's vision and mission philosophy of public security and safety uses the Community-Oriented Policing (COP) as a model which is widely accepted throughout the world. Similarly, Information and Communication Technologies (ICTs) have been embraced by many developed countries to augment Community Oriented Policing initiatives. However, a lot more needs to be done about the application of ICTs and forensic science in training schools. UPF has a number of training schools which are; PTS Kabalye, Masindi, PTS Olilim in Katakwi district, PTS Ikafe in Yumbe District CID PTS Kibuli in Kampala, PTS Kikandwa in Wakiso district and the Senior Command and Staff College Bwebajja. It is neccesarry that all these training institutions have adequate computer resources to enable trainees and course participants can learn and appreciate use of technology.

The doctrine being developed shall bring to the limelight the inevitable rise of science and technology and how to benefit police officers in their work. We

should therefore emphasise the use of ICT and forensic science in policing functions especially right from the basic training wing. The Directorate of Human Resource Development considers integrating ICT lessons in the training of the trainees.

Officers need to be oriented in using computers and internet since future training programs shall be online. Officers will benefit from various opportunities and be able to address challenges that arise as a result of using ICTs to enhance Community Oriented Policing efforts which aim at strengthening community-police relations and improving human security in Uganda.

The Uganda Police Force is currently conducting a scientific attitude of police officers towards crime detection, prevention and criminal investigation which has created an increased efficiency in today's modern society management in law enforcement. Police training has to keep pace with changing times as it's done with developed countries. Trainees need to be constantly exposed to technology and science use in the force by visiting the Directorates of ICT and Forensics.

Forensic scientists and Directorate of ICT experts should increase their participation in training programs of the police trainees in all training institutions. Refresher courses and efforts to disseminate information about recent developments and court rulings based on evidence collected by use of ICT and forensic science by investigative officers ought to be highlighted.

In all ways, police training must keep pace with the institutional demands of having police officers who are self-directed and are good problem solves. There is need to bring out adequately trained recruits with abilities to apply ICT skills in the science led policing function. The training methods should encourage more use of science and technology as advanced by the CiC H.E Yoweri Kaguta Museveni. The traditional militaristic approaches are no longer tenable over time as they give rise to counter accusation of unethical behaviors and violation of human rights from the public. We must devise a doctrine of working using the available technology to reduce time lags and the temptation of using unnecessary force; rather than being seen as working physically hard we should be seen as working smart.

The writer is a member of Police Doctrine Development Task Force and a Senior Staff at the Directorate of Human Resource Development /Training.

Best Practices in Investigating SGBV Cases

By D/ASP Nusura Kemigisha

The UN Refugee Agency United Nations High Commissioner for Refugees defines Sexual and Gender Based Violence (SGBV) as any act that is perpetrated against a person's will and is based on gender norms and unequal power relations. SGBV manifests in different forms such as beating, mutilation, acid burns and cutting among others; economic forms such as denial to access financial resources or forms of employment, denial of access to knowledge or any other form of economic empowerment. Psychological forms such as stalking, verbal abuse, infidelity, denial of conjugal rights, controlling tendencies and trauma bonding among others. Sexual forms such as rape, defilement, un natural offence, online sexual abuse materials (OCSEA), sexual harassment among others. Harmful cultural practices such as female genital mutilation/cutting, early marriages and abductions among others.

SGBV is criminalised by national legal instruments namely; Chapter 14 of the Penal Code Act; Domestic Violence Act; Anti-trafficking in Persons Act 2009, and Female Genital Mutilation Act among others. The Uganda Police Force is mandated under the Constitution of Uganda to primarily protect and serve. The provision also specifies the UPF's mandate to prevent and detect crime. It is premised on this, that the UPF established structures to facilitate the implementation of this mandate. The Sexual and Children Offences Department was set up and operationalised to investigate SGBV cases as guided by the aforementioned legal instruments. The department is part and parcel of the Criminal Investigations Directorate, which serves as the main investigative arm of the UPF.

Gender-Based Violence (GBV) is a serious violation of human rights and a life-threatening health and protection issue which refers to harmful acts directed at an individual based on their gender and is rooted in gender inequality, the abuse of power and harmful norms.

Forensic science also known as criminalistics is the application of science to criminal laws during criminal investigations as guided by the legal and institutional framework of admissible evidence and criminal procedure.

The investigations have been achieved with the admissibility of forensic science and ICT in the following ways:

The use of Deoxyribonucleic acid (DNA) as scientific investigation tool with the guidance of the Directorate of Forensic Services Uganda Police and Directorate of Government Analytical Laboratory. This has helped much

in investigating sexual assault cases, identifying the offenders, placing them at the crime scene and holding them accountable to the crime. This is evidenced by the 2021 Uganda Police Annual Crime Report which indicates that the reported sex- related crimes were a total of 16,373, representing 8.2% compared to 16,144 cases reported in 2020 which indicates the increase and 14,436 cases of defilement which were reported and 939 convictions that were secured. This can be attributed to the use of ICT and forensic science.

Forensic evidence is key in investigating sexual offences to logical conclusion and prosecution of a case beyond reasonable doubt. This is because it builds a case on undoubtable human elements that are unique to one person such as DNA. This makes the investigation procedure faster, saves taxpayers money, court's time and provides accurate results pertinent to securing a conviction or exonerating those accused innocently.

The Directorate of ICT analyses CCTV footage which places a victim and perpetrator at the crime scene or their involvement into any matter under investigations. The evidence addresses the prosecution pointers more accurately than other forms of evidence. Forensic science and ICT plays a key role in corroborating with other evidence during investigations.

ICT has been used in enhancing awareness to the public by emphasising the importance of reporting and follow up of cases and training officers on the current trends of SGBV crimes. The information is disseminated by the use of different social media that for, radios, and TVs among others.

For instance, the COVID-19 lockdown contributed to the emergence of a new reporting mechanism due to restrictions in movement: Many survivors and witnesses reported SGBV cases online through the social media platforms. SGBV toll free line 0800199195, child helpline 116 among others were used. The department picked interest in documenting the cases, most of which were followed up; some through opening up general inquiry files and others through complaints initiative or third-party reporting. This mechanism has been adopted in the post lockdown period. An increase in cases reported is indicative of increased awareness and public trust in the investigative abilities of the force.

Tracking and locating perpetrators or missing persons through the Criminal Intelligence Directorate, and CMI among others. This has been achieved with the help of telecommunication services providers who provide call data which places perpetrators and victims at the scenes of crime. Mobile money transactions and phone calls help in proving contact or relationship among involved parties in any matter under investigations.

Sexual and Children Offences Department has also adopted innovative trauma informed Interviewing procedures through the use of audio-visual interviewing equipment that aids in conducting of comprehensive interviews based on cognitive cues. These are stored on multimedia peripheral storage units and with time, Judicial precedence is established to use them as part of the electronic evidence admissible in court in future.

Generally, utilization of ICT mechanisms contributes to investigation of SGBV cases to a logical conclusion. Electronic evidence once authenticated provides the prosecution with a strong case proven beyond reasonable doubt. However some of the challenges foreseen in the utilisation of ICT include enactment of the computer misuse act. The law puts limitations on free sharing of information online. This means that reporting of cases online will gradually reduce with the enforcement of this law since a survivor or third-party reporter may not be in position to seek "consent" from a suspect prior reporting.

There is a challenge of capacity gap since very few officers have skills of investigating online offences especially against children.

Different legislations among countries is another challenge since most online offenders are based in different countries and prosecuting them becomes difficult.

Limited coverage of road side cameras poses a great challenge in collecting evidence based on CCTV footages which would be corroborated with other evidences especially in remote areas.

In conclusion forensic science and ICT provide a new paradigm to investigative procedures based on the accuracy of math and scientific truth. These are key aspects in reaching a logical conclusion, eliminate reasonable doubt and ensure that the right suspect serve their sentence, survivor access justice and tax payers' money is saved in due process.

The writer is the deputy Head Sexual and Children Offences Department at CID Headquarters.

A DATE WITH A **FORENSIC SCIENTIST**

By Keneth Kimuli aka Pablo

> "Are forensics doctors?".

It was love at first sight. She had dark hair, sharp nose, and glowing eyes, making her extremely gorgeous. All this was happening at a wedding I had been commissioned to emcee. The lady in question was the chairperson of the organising committee. I walked up to her, cleared my voice like any other gentleman would do and sweetly introduced myself, "Hi ma'm, my name is Pablo." She looked me straight in the eye and said, "I guess I need to do a forensic test to confirm if that's your real name." I took a sip of soda using a straw and asked her to give me the programme of the day. However, symptoms persisted and I asked to know her name.

She smiled and told me that wasn't part of the programme. I had to rest my case. While in her midst, I received a disturbing call about the arrest of a cousin that had been suspected of killing the neighbor. She eavesdropped our conversation. No sooner had I hung up than she commented, "I hope they haven't tampered with the crime scene?" "Trust Africans to tamper with everything" I responded.

"They have to wait till evidence is collected, taken to the laboratory for analysis." I noticed that she had picked immense interest in the case than me. She continued, "They need to determine the cause of death, injury and wound of the person so that they can know the alleged cause of death or injury." She was speaking with a lot of passion that she didn't even care what was happening at the wedding. I excused myself to make a few announcements.

I thought she was done with the subject till she followed me in the queue for dinner. "So have they collected any evidence found at the crime scene?" She asked. "I haven't followed up since the last call since I'm busy emceeing," came my reply." The

problem with you civilians you take things for granted. You need to ask someone to take some photos before they tamper with evidence, ascertain if there are cameras in the vicinity and any witnesses of the crime." I was in shock. "You must have watched many crime movies," I responded.

She didn't take it and gave it to me straight in the face," I'm a forensic expert not a comedian like you. We take life seriously. I know numerous crime and investigative techniques and I'm an expert at DNA isolation. You didn't even notice that your soda bottle straw was missing." That's when it dawned on me that when I left her to make an announcement, I left her with my soda and upon return I drunk it without a straw. "What else did you put in my soda?" I asked. She laughed and said, "You are safe but I'm afraid the straw is gone. I don't give my heart to strangers."

I told her that I wasn't a stranger since I'm a public figure. "Well, that's very deceptive. I don't know what you do when people are not watching." I allowed her to go before me in the queue. "Thank you for being a gentleman " she complimented. We shared a table having our meal and I shyly asked, "So, what does a forensic scientist do?"

She took a sip of water, wiped her hand with a serviette and responded, "Generalist forensic science technicians, sometimes called criminalists or crime scene investigators, collect evidence at the scene of a crime and perform scientific and technical analysis in laboratories or offices." I pretended to having understood and decided to rephrase the question, "Are forensics doctors?"

"To become a forensic pathologist," she answered, "one has to complete an MD in Forensic Medicine after successfully completing his/her MBBS. A forensic scientist can work as a crime scene investigator, forensic pathologist; trace evidence analyst, and expert analysts in forensic specialisations."

I realised this wasn't making headway to cement our relationship so I decided to use a different approach. "So, if you weren't a forensic expert, what else would you have loved to be?" She took a long pause and thoughtfully responded, "Maybe an ICT expert so that I can help forensics in policing. Forensics have crucial task of solving crimes and technology comes in handy."

I realised that no matter what approach I use we shall end up in a forensic discussion. I excused myself to go and continue with the emceeing programme. She reached out to her bag, pulled out her business card and gave it to me. "Give me a call and we continue with this conversation. Remember I have your straw. I need to know more about you." I wore a mischievous smile and promised to call. Till this day, I'm still gathering guts to make that forensic call!

The writer is a Merchant of happiness.

KIKANDWA: "The Centre of Excellence for ICT Research, Development and Innovation"

By Niringiyimana Gideon

The Uganda Police ICT Research Development and Innovation Centre was established in 2018 under the National CCTV Camera installation project, which was in line with the Presidential directive to build the capacity of scientists to support in-house technology development for Uganda.

The centre is guided by the vision of excelling in the provision of ICT solutions and promoting a crime free society. Strengthening the research component, promoting innovations and capabilities is believed to enhance and sustain the quality of ICT systems to promote national development. Thus, the Uganda Police Force aims to establish a centre for ICT development focusing on training, research and innovations for different stakeholders by building solutions based on international standards. From a wider perspective, the centre is now a hub for all ICT trainings, software (application and systems) developments and analysis, technological researches and innovations.

The centre focuses at digitising police operations and providing technological support to other units hence enabling them in detecting, preventing and investigating crime cases, conducting community policing and giving a quick service to the public. Different stakeholders use the centre to digitise their operations and be able to develop new solutions based on current and emerging technologies. The centre develops in-house solutions and carries out research on current technologies based on international standards. For instance,

- ICT R, D&I is 35km from Kampala along Hoima Rd and it is located in Kakiri Town Council in Wakiso District.
- ICT R, D&I facility has a beautiful scenery and conducive environment that enables the officers to do research without interference.
- The ICT R, D&I is headed by Commissioner of Police with three sections;

Software Development Section

This section is responsible for development of in-house high value technological solutions that automate and streamline police processes in conjunction with all stakeholders. This section has been able to develop different systems that have generated income for the government, and improved service delivery to the public. These systems include;

Express Penalty System (EPS): This is a non-taxable system developed by Police ICT R, D&I and is used by the Directorate of Traffic to penalize traffic offenders and this has reduced accidents on the roads. The system also generates revenue to government.

Certificate of Good Conduct (COGD): The Directorate of Interpol and International Relations use this systewm to vet the conduct people want to work within and outside the country.

UPF Mobi: This is a mobile application downloaded from the google play store. It contains information about lost and found property, helps in checking EPS Tickets, contacts of all policing stations within the country and their locations.

Human Resource management information system (HRMIS): This system specifically manages personnel data within the force right from the time of recruitment until their exit from the force.

SCP Anne Tusiime D/Director HRD awards best trainee at Kikandwa

The magnificent ICT building in Kikandwa that houses computer geniuses supervised by SCP Yusuf Sewanyana

Permanent Secretary Min. Of Internal Affairs Lt.Gen Musanyufu listens as an innovator explains|

Research and Innovation Section

This is responsible for conducting ICT research of intended subject matter according to policing priorities; formulate effective and efficient research processes. The section is equipped with an innovation laboratory.

This laboratory focuses on designing and developing embedded systems basing on current technologies which include; Artificial Intelligence, Robotic Process Automation (RPA), Internet of Things (IoT), Intelligent Apps, Machine Learning, Blockchain, Cognitive Computing and Augmented Reality/Virtual Reality.

Capacity Building and Training Section

This is responsible for enhancing ICT skills of police personnel to handle existing and emerging technologies.

The writer is the Head of ICT Research, Development and Innovations in the Uganda Police Force

An instructor gives pointers to officers attending a coding and programming course at ICT RDIC Kikandwa

Police FC, TB Consults & Media Mora sign pact

By CPL Bakari Mugah Bashir

On Friday 2nd December 2022 Uganda Police football club signed a Memorandum of Understanding (MoU) with TB Consults & Media Mora.

The MoU signed between the two parties at Police headquarters in Naguru is aimed at increasing Police FC's visibility with an aim of rebranding and marketing the club.

TB Consults & Media Mora, is a SuperSport media content provider that will profile and document the club's history as well as future plans for the club.

The move is a digital marketing strategy for the club that will help it attract potential sponsors to support its vision of taking giant strides into African football. The documentaries will be broadcasting on SuperSport's famous "Soccer Africa" Show.

Seasoned sports journalist and CAF Media Expert, Thomas Kwenaite and Ugandan Ex-international Timothy Batabaire will lead the team of TB Consult & Media Mora. The show will broadcast across 49 countries on **SS2**, **SS8** and **SS10**.

According to the club chairman, Senior Commissioner of Police (SCP) Timothy Halango, the platform will enable the club reach a bigger community for an international exposure.

SCP Halango maintained that one of the biggest challenge the club faces is inadequate resourcing and recommended the input that the club will realise with the latest development.

"I hope that the partnership will translate into a resource that will enable the club compete and participate in bigger forums and develop talent of our players." He briefly noted.

The club chairman, Senior Commissioner of Police, expressed readiness to guide the Cops back to the top flight.

News Shots

- Police FC on the path to joining the super league
- Jacob Kiplimo wins Newyork half Marathon gold again

Currently the Cops are five points below table leaders Kitara and are optimistic for elevation to the Uganda Premier League next season.

SCP Halango highlighted that the team is getting all the necessary support irrespective of the meagre resources.

"We are looking for more funding to support our club and this is one of the ways to attract potential sponsors and selling our talent to the outside world,"

remarked Halango after he signed a pact between TB Consults and Media Mora.

Ugandan based Daniel Muwanguzi who represented TB Consults applauded the development and pledged to help the club achieve it's goals through the partnership.

Club CEO Arinaitwe PK, Vice Chairman technical; Rajan Livingston and Assistant Commissioner of Police (ACP) Claire Nabakka all in attendance on behalf of the club.

The use of technology in football is one aspect for consideration.

Video Assistant Referee (VAR) is a system whereby officials view video footage of important incidents during a game so as to advise the referee and correct any mistakes.

The VAR technology can ensure that no contentious penalties or controversial decisions are made during play. It recalls or rescinds incidents whereby a red card, penalty or any other calls can be made or revoked.

But with the advanced technology attached to it and the nature of football pitches, Uganda has a long way to go in adoption of the VAR technology which has not even taken strides in Africa.

In Uganda, St Mary's Stadium, Kitende and the Mandela National stadium which is under renovation are the two venues certified by CAF and FIFA to host international matches.

The government hence needs to prioritise sports, construct more stadiums that are upto the FIFA standard and probably that is when the VAR technology can be installed since it is the way to go.

The writer is a sports enthusiast, a police officer working closely with Police FC.

UGANDA POLICE COUNTER PHONES

REGION	DIVISION	STATION	NUMBER	OUTPOST	NUMBER
KMP EAST	Jinja Road	Jinja Road Main Station	393215424		
		Internal Affairs Police Stn	414671324	Nakumatt Police Post	414671323
		Kitintale Police Stn	393240952	Kyambogo Lower Police post	393241998
		Acholi Quarters Police Stn	393241860	Banda Police Post	393241844
		Kinawataka Police Stn	393241862		
		Kololo Police Stn	393206471		
		MUBS Police Stn	414697974 / 393206470		
		Kyambogo Police Stn			
				Bugolobi Bangalo Police Post	414668598
				Naguru Drive Police Post	414668363
				Mutungo Police Post	393206472
				Industrial Area	414668552
				Nakawa Police Post	414668378
	Kira Road	Mawanda Police Stn		Golf Course Police Post	0414671322
		Kikaya Police Stn	0393241996	Jomayyi Police Post	0414671321
		Kisasi Police Stn	393206476	Mawanda Police Stn	0393241994
		Ntinda Police Stn	393206474	Tuba Police Post	0393241993
		Kira Road Police Stn	393206475	Kisasi Police Stn	0414671325
		Kamwokya Police Stn	393206477		
		Kyebando Police Stn	393206478		
		Kiwatule	393206473		
		Bukoto	393206479		
				Kyanja Police Post	0393241863
	Kira Division	Bweyogerere Police Stn	0414671327	Bukasa Police Post	393206488
		Kireka Police Stn	0393241971	Mbalwa Police Post	393206490
		Kirinya Police Stn	0393241922	Kiganda Police Post	0393241924
		Kiwologoma Police Stn	0393241923		
		Najjera Police Stn	0414671329		
		Nalya Police Stn	0414671326		
		Namugongo Police Stn	393206489		
		Kira Central Police Stn	393206480		
	Mukono	Mukono Police Stn	713253242	Nakisunga Police Post	414668558

UGANDA POLICE COUNTER PHONES

		Seeta Police Stn	414698023	Ntawo Police Post	0414671328
		Mbalala Police Stn	414698027	Kisoga Police Post	0393241925
		UCU Police Stn	393206483	Sonde Police Post	0393241926
		Namagunga Police Stn	414668375	Nantabulirwa Police Post	0393241920
		Katosi Police Stn	414698025	Namanve Police Post	414668556
				Koome Police Post	392178689
				Mukono Taxi Park Police Post	0414671320
				Namataba Police Post	414668557
				Ntenjeru Police Post	393206487
				Wantoni Police Post	414668559
	Nagalama	Kyampisi Police Stn	0393241919	Nagojje Police Post	0393241921
		Nakifuma Police Stn	414698094	Kimenyede Police Post	
		Ntunda Police Stn	0393241918	Nabaale Police Post	
		Nagalama Main Stn	414668370	Nkonge Police Post	393206484
				Mayanga Yanga Police Post	0393241917
				Kalagi Police Post	O414668371
				Kabimbiri Police Post	393206482
				Seeta Namuganga Police Post	393206483
KMP NORTH	Kawempe	Stations		Posts	
				Namere Police Post	393241942
				Kakungulu Police Post	393241991
		Bwaise Police Stn	393241995	Tuula Police Post	393241858
		Maganjo Police Stn	393241978 / 0414671307		
		Kawanda Police Stn	0393241990/ 0414671302		
		Lugoba Police Stn	393241967		
	Nansana	Stations		Posts	
				Nakule Police Post	393241859
				Lubigi Police Posts	393241857
				Kabulengwa Police Post	393241861
				Wamala Police Post	414671301
	Kakiri			Gobero Police Post	393241941
				Rwemende Police Post	393241939
				Bukalango Police Post	393241938
				Kakonge Police Post	393241940
	Old Kampala	Stn		Posts	
		Lugala Police Stn	0393241947 / 0414671300	Working Taxi Park Police Post	393241972
				Musajja-Alumba Police Post	414671306

UGANDA POLICE COUNTER PHONES

				Muzaana Police Post	414671319
				Lubaga Cathedral Police Post	414671316
				Riverside Police Post	414671312
				Masanafu Police Post	414671303
				Kasubi Police Post	414671313
				Namungoona Police Post	393241944
				Wakaliga Police Post	393241945
				Namirembe Cathedral Police Post	414671318
				Lakeside Police Post	393241946
				Kisenyi Police Post	393241979
				Namirembe Road Police Post	393241943
				Bakuli Police Post	393241977
	Kasangati			Kabanyoro Police Post	393241987
				Sekanyonyi Police Post	414671314
				Kiwenda Police Post	414671315
				Canan Estates Police Post	393241985
				Kijabijo Police Post	393241988
				Mairye Police Post	414671317
				Galamba Police Post	393241983
				Jaggala Police Post	393241989
				Namayina Police Post	393241984
				Massoli Police Post	393241986
	Wakiso			Lukwanga Police Post	393241965
				Naluvule Police Post	393241975
				Ssenge Police Post	393241966
				Kisimbiri Police Post	393241982
	Wandegeya			Kimwanyi Police Post	393241981
				Kubiri Police Post	414671974
		Makerere Police Stn	393241980	Wandegeya Market Police Post	393241974
		Kikoni Police Station	393241927	Bugema Police Post	414671303
		Mulago Police Station	414671303	Kavule Police Post	414671304
				LDC Police Post	393241968
				Mulago Casuality Police Post	393241981
				Kibe Police Post	414671304
				Gaddafi R/D Police Post	414671309
KMP SOUTH	Katwe	Katwe Police Stn	713534681	Kibiri Police Post	393206498

UGANDA POLICE COUNTER PHONES

		Ndeeba Police Stn	716002169	Nabisaalu Police Post	393241916
		Natete Police Stn	716002139		
		Salama Police Stn	716002168		
		Ndejje Police Stn	716002156		
		Makindye Police Stn	716002155		
		Mutundwe Police Stn	716002158		
		Bunamwaya Police Stn	716002154		
		Kitebi-Kabowa Police Stn	716002141	Kikumbi Police Post	716002157
		Clock Tower	716002163	Kirimanyanga Police Post	393241929
		Katwe Radio Room	393241963	Busega R/About Police Post	393241936
				Kibumbiro Police Post	393241999
				Madala Police Post	393241932
				Natete Taxi Park Police Post	393241935
				Kabawo Police Post	393241930
				Kikajo Police Post	716002176
				Kabowa	414671334
	Nsangi	Nsangi Police Stn	714662025	Kagugube Police Post	716002179
		Maya Police Stn	393241928	Budo Junior Police Post	
		Nabingo Police Stn	716002207	Budo Kings Police Post	716002086
		Kyengera Police Stn	716002087	Kazinga Police Post	716002201
		Nalumunye Police Stn	716002206	Nabaziza Police Post	414671337
		Nsangi Sub County	716002199	Nkokonjeru Police Post	716002202
				Kaboja Police Post	716002178
				Kikajo Police Post	414671339
				Katale Police Post	393241964
				Kasenge Police Post	393241931
	Kabalagala	Kibuli Police Stn	716002166	Kasawe Police Post	716002210
		Kisugu Police Stn	716002079	Koonge Police Post	716002208 / 414671335
		Gaba Police Stn	716002081		
		Kabalagala Main Stn	714662024	Nsambya Police Post	716002209
		Kansanga Stn	393241915		
				Nabutiti Police Post	716002213
				Buziga Police Post	414671336
				Bukasa -Round Police Post	393241933
				Munyonyo	716002083
	Entebbe	Stations		Posts	

UGANDA POLICE COUNTER PHONES

	Kaberamaido	Kaberamaido CPS	393241879		
		Bululu	393241878		
	Ngora	Ngora CPS	393241877		-
		Kobuku	393241856		
	Kumi	Kumi CPS	414698087		393241962
		Nyero	393241953		
	Katakwi	Katakwi CPS	393242958		
	Kapelabyong	Kapelebyong CPS	393241954		
		Obalanga	393241961		
ALBERTINE	Hoima	Hoima Main Station	393225013		
		Kigorobya	393225014		
	Kikube	Kyangwali	393225004		
		Kiziranfumbi	776333081		
		Kikuube CPS	393225006		
	Masindi	Masindi Main Station	393225017 / 714012594		
		Kinyara	393225018		
	Kagadi	Kagadi Main Station	393225041		
		Isunga	714012630		
		Mabaale	393225042		
	Kibaale	Kibaale Main Station	393225039 / 714012646		
	Kakumiro	Kakumiro Main Station	714012649 / 393225044		
		Igayaza	393225045		
	Kiryandongo	Kiryandongo Main Station	393225022		
		Bweyale	393225030		
	Buliisa	Buliisa Main Station	714012733 / 393225032		
		Biiso	393225034		
BUSOGA NORTH	Kamuli	CPS Kamuli	414671282		
		Namwendwa	414678082		
		Mbulamuti	393241874		
	Buyende	CPS Buyende	393240920		
		Kidera	414698055		
		Irundu	393241872		
	Kaliro	Joc	392178650		
		Kaliro CPS	393240915		
	Luuka	DPC	392000571		
		Luuka CPS	393241871		
ELGON	Mbale				
		Radio Room-Mbale	393241903		
		CPS Counter	393241904		