

1. In this paper, Decoding the ages- technology in policing, I look at the transformations in the nature and use of information in policing over time focussing on the issues of concern to law enforcement including ethical, legal and political factors and issues of concern to the policed such as privacy, data protection and data justice.

The development, adoption and assimilation of information and communications technologies have enhanced quality, standards, capacity building, communication and management of information across various industries including policing.

However, policing has been slower than other areas to transition from paper to analogue systems and thereafter to digital systems due to the complexities of law enforcement itself (which I will touch on) and increased demand for accountability which means that the use of technologies in policing on the continent is ensconced in uniqueness and subject to political, social, cultural and economic influences.

2. At the turn of the 18th century, policing was focused on law and order, built around fundamental policies and laws, and governed and controlled in the main by political influences until the mid-19th century.

In the analogue era, the most pertinent issues were political control, poor accountability, limited scope of information and data collection,

rudimentary investigatory tools and methods, basic information and communication tools and overall low-level technologies.

Over time, political influences have changed, but they remain a key factor in the growth, development and assimilation of new laws and policies that enabled the infusion of technologies and their usability for policing to thrive.

3. From the late 19th century onwards and with more prevalence today, closer scrutiny of the way information and communication technologies are adopted and used for maintaining law and order, particularly, the accuracy, veracity, reliability, usefulness, and sustainability of data and information collection, storage and use have prevailed.

This includes more interest in the exploitation of real time and historical data for policing. Policing has now become infused with much needed attention to issues concerning privacy, data justice, ethics and sustainability with increased public scrutiny; particularly as the problems which prevailed in the analog era are still evident today.

4. Policing has gone from being a local task to becoming regional and then again to becoming continental and global. With this evolution, there has also been a gradual shift in the types of threats, crimes and patterns of crime including threats to safety.

This has created new needs and drawn attention to issues that impact on the prevention and interception of crime such as

- procedural, ethical, legal and political factors
- ease of use, feasibility, usefulness and sustainability of tools
- scrutiny around use of digital tools such as privacy

The need for diversification, innovation and cooperative information and communication technologies is ever greater today than it was 50 years ago.

5. In the new millennium, crime and threats to safety have seen a quantum leap synonymous with the technology boom. Crime is increasingly characterised as being committed by faceless perpetrators who assume their activities are victimless. Opportunistic and sophisticated tools are increasingly used to hide serious and organised crimes. Atrocities are more brazen, prevalent and multifaceted in contemporary society and modern communities spread across physical and digital realms.

6. Across Europe, we see a demonstrable and increased focus on policing to match sophisticated crimes with sophisticated tools from citizens, interest groups and politicians. The pace at which old crimes are perpetrated in new ways and new crimes in innovative ways presents an argument for policing to take a proactive, preventative and innovative approach to surveillance, intensifying the use and acquisition of intelligence and enhancing the usefulness of historical and actual crime information.

7. Crime cartels have migrated to seek lucrative gains on the web, discovering the benefits of 3G, 4G and 5G networks. They have extensive knowledge and access to open geographic and global information systems, maps and tools enabling them to swiftly and covertly conduct crime.

They now have the capability to track and access open information to determine where best to operate. Criminals have expert use of radio and network scanners. There is widespread use of hacking tools and ransomware, keystroke loggers and hijacking of the internet of things to commit crime and evade capture.

8. The same information and communication technology tools we laud innovation for, now make crime more commonplace and easier to carry out because technologies are difficult to police.

At the forefront of this, the most pertinent threats are those that involve or enable or motivate serious crime, some of which have debilitating effects on communities in the developing and global community, impacting on resources, community relations and society at large.

These include human trafficking, peonage/enslavement, terrorism, illegal organs trade, drug trafficking, sexual crimes against children and the vulnerable, illegal migration and human displacement.

9. There is a clear need to identify, and monitor crime using good investigatory tools, cooperation and collaboration in Europe.

The task of crime prediction and management is important, however use of innovative tools that exploit data for this purpose, may also cause bias and or discrimination or skew the direction of resources to disadvantage or victimise groups of people and or lead to miscarriages of justice.

In these cases, prevention of crime, risk and recidivism reduction through data exploitation could be superficial and counterproductive, breaking valuable community relations and alienating groups of people and in some cases entire communities.

10. The new digital narrative has implications for policing. There is a need for more balanced means of knowledge management locally, and continentally to support adoption of appropriate technologies.

Evidence based policing brings promising hope, but there are some issues due to differences in working culture, situational position, dynamism, funding capabilities and unique business cases which mean one size cannot or may not fit all.

In policing, success elsewhere does not predict success everywhere as seen with tools such as the Predictive policing tool. Some of the problems include bias, inexplicable algorithms, discrimination and high cost of adoption.

Questions of power, politics, social justice and rationalisation arise in relation to usability, intended usefulness, perceived usefulness and sustainability of usefulness alongside inequality of access and critical information management issues.

Although there are wins, these remain in place only when and where basic systems are used, and cracks begin to show when interdependencies and bridging gaps between legacy systems and modern systems come into play.

11. Innovative technology should mean better policing, but we do unfortunately have vestiges of commonality with the issues that plagued paper, analogue and early digital systems in a new way.

Information and communication technologies have transformed and revolutionised the scope of data and information that can be recorded and stored and improved the breadth of investigatory methods, scope of accountability and burden of evidence and proof.

Today's information and communication technologies offer ease of scope and ability to store and retrieve data, but present significant issues related to methods, policies and social justice as well as to difficulties in harnessing innovation.

These include

- data discrimination, where information can be used to discriminate against people
- data security, where data about citizens is retained on third party systems and may be exposed or exploited in ways they do not agree with or know about
- data privacy, where the information being gathered and collected is of such nature that notwithstanding arguments supporting the gathering of information for crime prevention or elimination of suspects, the storage and continued exploitation

of the information constitutes a privacy threat that presents safety and security issues for citizens and communities in the long term

- express or implicit bias at the point of collection, storage or management of information
- errors in data collected and stored which may be accidental or deliberate and nevertheless cause miscarriages of justice, and in some cases serious consequences for citizens
- inadequate knowledge and capability to understand what to do and how to do what with data ethically and deciding who decides what is proper use
- malformed use of data aggregates to make decisions that affect individuals and groups
- poor skills and understanding about how to manage large amounts of data during computation, storage and retrieval
- lack of insight and ability to sort and sift and establish the veracity of unstructured data
- problems with the use of historical data to predict the future where in policing, where it can be held, and indeed it is possible to posit that crime that crime occurrence frequency, crime location and recidivism has limited predictability

One could say, therefore, that over the ages, focus has shifted. Policing and the use of technology has gained good ground but within this still

trailing behind the pace of innovation and indeed under threat from what is in many ways justifiable scrutiny. We are in the posture in the age of the double-edged sword.

12. As academics, we have a role, we can support the continued development of policing through intensification of research efforts to promote social and policy change. We must continue to conduct independent and focussed critical research into policing and continue to explore and challenge the imbalances in power and transparency to develop guidance for technology use in policing using qualitative, participatory, real time and focussed methods that enable understanding of the world of policing.

We are aware through research, that Policing works better with good ICTs, but policing cannot work without humans to operate ICTs. As such the need for more policing numbers locally and through cooperation is critical.

The need for continued improvement of working cultures is significant to enable sustained modernisation and adoption of new technologies.

The need for continued legislation to embrace the new social needs for privacy, social justice, equity and fairness while enabling policing to functionally keep our communities safe is paramount.

Political and social justice pressures have awakened interest in critical information management issues and the way this shapes the type of use, access, connectivity and control of information management resources used for policing in Europe, and we must continue to work to identify and bring narratives from alternate perspectives to the fore as this will support continued improvement and development.

We all have a vested interest in preventing crime in the European region. Europe is where we have made our home and livelihoods, we want to know that we are safe, that our streets are secure, that our neighbourhoods are well policed and indeed we want to know that perpetrators of crime can be interrupted, disrupted, dispersed and brought to justice.

We need assurances that crime perpetrators can or will be prevented from recidivism and or developing means of evading detection, disruption and capture.

We can support the realisation of these shared goals by continuing to push for access and enablement of independent and multidisciplinary research and peer reviewed work in and around policing. We need to continue to conduct, deliver and dissipate research of this nature to enhance the understanding of the role of technologies in policing such that advancement continues to include focus on the critical issues.

Above all, in these testing times, there is a need for us as academics in Europe, despite our varying opinions, perspectives and focus to continue to foster ways to work together, network, share and distribute ideas come what may. This is vital and necessary.