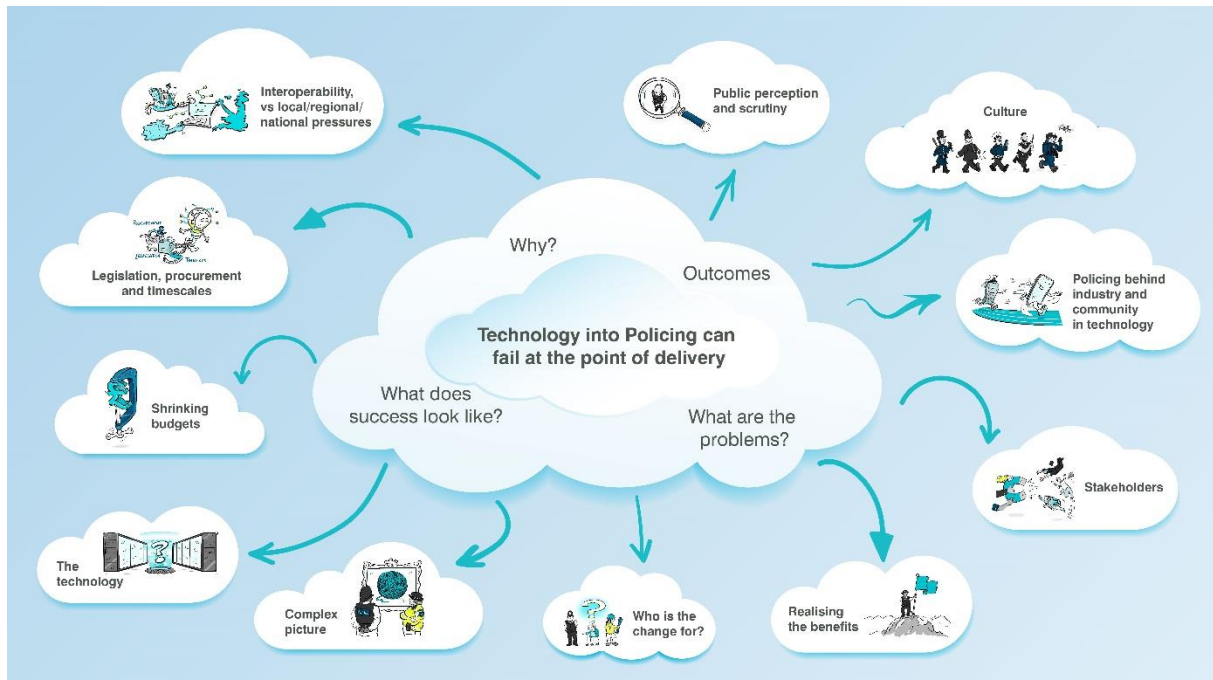


Top 10 Challenges Facing Technology Adoption in Frontline Policing



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In today's policing landscape, integrating new technologies isn't just about upgrading systems. It's a complex process that involves synchronising culture, technology, policy, and wider governmental pressures, at an ever-increasing pace.

This paper delves into the top 10 challenges and interdependencies involved in selecting and adopting from the plethora of technological developments and then embedding multiple new technologies in frontline UK policing, highlighting the multifaceted nature of this undertaking.

The content stems from interviewing officers and staff at various levels within policing, from different forces, Governmental published documents, and Keren's first-hand experience.

1. Policing behind Industry and Community in Technology



Policing often lags behind the adoption and implementation of cutting-edge technology, compared to the private sector, wider community, and even criminality (which often exploits emerging tech developments). Bridging this gap requires extensive funding, collaborative efforts with industry leaders and community groups, requiring more agility across the Policing and legislative landscapes.

However, this collaboration is influenced by technological compatibility, stakeholder engagement, and legislative frameworks. The lag in technology adoption highlights the need for a cultural shift within policing to embrace new technologies and engage with external partners effectively. Financial constraints also mean that often only today's problems can be addressed, not tomorrow's, leading to local workarounds that impact the pace and quality of further development.

Addressing the Challenge: Joint initiatives with technology firms can enhance policing capabilities, which is now beginning to happen through the Police Digital Service (PDS). This effort is part of the broader National Policing Digital Strategy 2020-2030 (NPDS) which highlights *"We cannot continue as we have been doing – impeded by complex decision-making structures and hampered by the challenges of modernising a legacy infrastructure"*¹. Developing Nationwide solutions, which enable consistency of processes, data analytics and timely updates, will increase efficiency of development, implementation, training and maintenance. Whilst ensuring uniformity across the country to the end users and customers of the service.

¹ [National Policing Digital Strategy 2020-2030 – Police Digital Service \(pds.police.uk\)](#) (October 2024)

2. Interoperability vs Local/Regional/National Pressures

Achieving interoperability in modern policing is a significant challenge, especially while accommodating local and regional pressures. 43 territorial forces operate across England and Wales, plus Police Scotland. They are responsible for local policing across geographic areas. In addition, there are numerous national, regional and specialised police forces, such as The British Transport Police (BTP), the Civil Nuclear Constabulary, and the Ministry of Defence Police, which operate alongside the territorial forces.



Each Police force is its own legal entity, and as such often operate with different systems, or different versions of the same systems, making seamless data sharing difficult. Balancing unique and bespoke local needs with national standards and requirements, further complicates this.

For example, forces may resist perceived central control, leading to discrepancies in technology adoption. This tension is illustrated by the struggle to implement standardised national data management systems, such as crime and intelligence databases (Niche vs Athena), whilst still addressing local needs. The establishment of a National IT system for sharing intelligence and vetting for those working with children (a recommendation from the Bichard enquiry in 2004²) took many years to establish, but challenges with local police IT systems and data accuracy remain.

The issue is compounded by technological differences, stakeholder needs, and legislative requirements, showcasing the intertwined nature of interoperability challenges.

Addressing the Challenge: Establishing a unified framework for technology standards and encouraging collaboration between the different bodies across the country should help to mitigate some of the issues.

The establishment of the NPDS mentioned in section 1 above, outlines the 10-year roadmap for modernising UK policing. One of its core focuses is to achieve interoperability of IT structures. The Emergency Services Networks (ESN) aims to have a nationwide communications system to enable whole scale interoperability between emergency services during incidents.

² [Bichard Inquiry Report \(Hansard, 22 June 2004\)](#)

Within the National Police Chiefs' Council (NPCC) there is a Digital Policing Portfolio (DPP), which focuses on advancing digital capabilities across the 43 forces in line with the NPDS. It is responsible for managing and delivering key projects aimed at improving digital services, data management and technology interoperability across the country.

3. Public Perception and Scrutiny



Public perception and scrutiny are crucial in adopting new technologies. It is not only the spending of public monies in its development and implementation, but moreover, that this money is spent on increasing productivity, crime reduction, crime detection and transparency to build trust and confidence in policing activities and outcomes.

Society outside of policing often sees it as a single national 'Police Force', rather than 43 different legal entities across England and Wales. They expect that access to information, standards of crime recording and investigation, and the management of data to be the same. Therefore, internal differences of process, databases and policies can create confusion and mistrust.

A lack of interoperability can result in best practices and key learnings not being shared across force boundaries, which results in varying levels of efficiency and crime detection and prevention across the country³.

Handling Freedom of Information (Fol) and Subject Access Requests (SAR) requests, which are complex and resource-intensive, adds another layer of difficulty. Balancing the public's desire for traditional policing with the need for modern solutions is delicate. UK Policing requires the consent of the public. Therefore, if new technologies such as Body Worn Videos, facial recognition or other AI based tools are perceived as invasive, it could erode public trust in law enforcement. Whereas a positive public perception and benefits of these technologies can ensure that the police retain their legitimacy and therefore operate effectively within communities.

The storage and handling of data obtained via new technologies must be accurate, compliant and robust, with accountability when standards are not met. Where the public perceive that policing has overstepped its boundaries, there is a high chance that there will not only be a backlash, but the confidence in technological innovations and wider policing is impacted too.

³ [Relationship between big tech and policing is shielded behind commercial confidentiality | Blog | University of Essex](#)

“It is estimated that more than 90% of reported crime now has a digital element”⁴, therefore the methods of policing must adapt to this too. Managing the expectations of the public, who expect traditional policing methodologies to remain, is a balancing act. Whereby new technologies require public adoption and understanding. With effective communication and education on how these new tools can enhance safety, privacy and efficiency, the public can move with the advances in technology in a more positive way.

Negative media coverage on policing activities (local through to international), can shape public opinion and scepticism towards new technologies. This issue intertwines with cultural resistance within the force, stakeholder engagement, and the need to demonstrate clear benefits to gain public support.

Addressing the Challenge: Transparent communication and active public engagement strategies to address their concerns can help build trust and support for new technologies. UK policing is working with the College of Policing (CoP) and other bodies, to ensure that police officers and staff are trained in both the technical and ethical aspects of new digital tools. Whilst Legislation is being updated to keep pace with technological advancements, more should be done to ensure this legislative process is streamlined to keep pace with the changes.

Examples of such outdated legislation include:

- Data Protection Act (DPA) 1998/2018, was brought in, to align with the EU’s General Data Protection Regulation (GDPR), however it can be argued that this legislation now lags behind when addressing emerging technologies such as AI, and large data analytics capabilities.
- Computer Misuse Act (CMA) 1990 – has arguably not evolved sufficiently to deal with modern cybercrime, and its subsequent investigative activities. This law inadvertently criminalised ethical hacking and the use of modern cybersecurity techniques, which in turn make it harder to prevent ever increasing sophistication of these cyber-attacks.

Whilst The Home Office and Crown Prosecution Service (CPS) have issued guidance to police, the laws themselves remain unchanged.

Working with civil liberties groups is essential, and issues addressed transparently to maintain this trust in policing. This is discussed in more detail in section 5 – Stakeholders.

4. Culture

⁴ [national-policing-digital-strategy-2020-2030.pdf](#)

Internal culture within police forces significantly influences the adoption of new technologies.



At the frontline of policing, there is often a mixed reaction to new technologies coming into place. Whilst some are keen to embrace tools such as body-worn videos (BWV), mobile devices and real-time data access, others have a more cautious approach and wish to see the benefits and sometimes more importantly the disbenefits before they are prepared to fully accept the change.

A recurring issue can be the lack (or perceived lack) of timely and comprehensive training, or the poor usability of new systems. Therefore, leading to frontline staff feeling that there is inadequate support and leading to the feeling that the technology does not work as expected in 'real life scenarios' or has been rushed through to meet an arbitrary timeline. These previous difficulties or failures of change projects can leave busy frontline staff sceptical of further change or lead to 'localised' work arounds' deviating from the desired end state.

Within the middle management of forces, there is often a stronger commitment of adopting new technologies, due to a different perspective of the wider organisation, and the external impacts. They often service as the link between senior management and frontline staff, navigating the challenges of change management, often without any direct training in this arena.

However this middle management level is often faced with further constraints such as budget limitations or staffing shortages, which impact further on the adoption of technology – balanced against reluctance of frontline staff to change from the comfort of established ways of working.

Senior management both at force and national level are often more enthusiastic about the strategic benefits for digital transformation but need to balance this against funding the day-to-day activities of policing. There can be some risk aversion from senior managers, when considering the cost and potential reputational damage of failure, when being drivers or early implementers of new technologies.

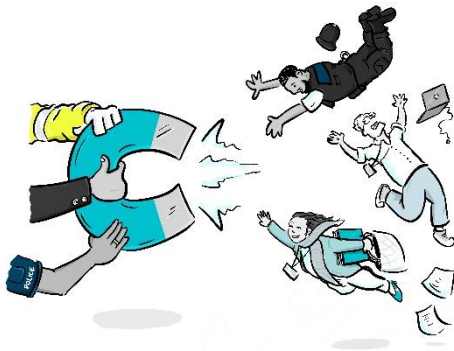
Additionally, public perception and stakeholder engagement are crucial, as building trust through transparent and successful technology adoption is necessary for cultural change.

Despite the challenges, there are success stories where technology has been well-received, even if this has taken several years to be fully embedded as business as usual:

- **Body-worn video (cameras)** is an example of a technology that has significantly improved transparency, accountability, and officer safety. In part, building public trust and confidence in UK policing.
- **Mobile devices** that give officers and control room staff access to real-time information in the field have also been highlighted for improving efficiency and more robust decision-making capabilities.

Addressing the challenge: Resistance to change is complex and varies by rank and region. It can be due to fear of failure and reputational damage, which is a definite barrier at all levels within policing. Ensuring that appropriate training and alignment of technological tools against the reality of front-line policing is fundamental to successful adoption of new technologies. Creating an environment that embraces innovation is essential. This resistance is linked with the need for interoperability, as adapting to new systems requires cultural readiness.

5. Stakeholders



Engaging all relevant stakeholders is critical in the technology development, implementation and adoption process. Thorough stakeholder mapping ensures that diverse interests are considered, which is crucial for successful implementation. Drawing ideas, best practice and challenges from various perspectives, especially the end user, or those affected by the technology is likely to achieve greater outcomes, trust and legitimacy from the change.

Engaging civil liberty groups, public advisory groups, and privacy campaigners early on in the process can provide valuable feedback and support. As well as building on potentially fragile public trust and confidence (especially if the new technology involves or is perceived to involve privacy, surveillance or data use). The introduction of Facial Recognition Technology (FRT) in South Wales was met with concern and scepticism from both the public and civil liberty groups. This made its use and implementation very difficult, ultimately resulting in its temporary suspension and legal challenges. In a ruling by the Court of Appeal in 2020 (*R (Bridges) v Chief Constable of South Wales Police* EWCA Civ 1058) that under the European Convention of Human Rights (ECHR) *"We conclude that the current legal regime does not adequately regulate who can be placed on a watchlist, the criteria for inclusion on a watchlist, or the circumstances in which it is permissible for a watchlist to be compiled. Furthermore, we are concerned about the absence of sufficient safeguards in the use of AFR to ensure that it does not have a disproportionate impact on members of protected groups, as required under the Equality Act 2010."* (Paragraph 199)⁵

⁵ <https://www.bailii.org/ew/cases/EWCA/Civ/2020/1058.html>

Addressing the Challenge: Regular consultations and feedback mechanisms with stakeholders, such as legal experts, ethics committees and human rights groups can ensure that new technology comply with existing laws and ethical guidelines, to make sure their needs and concerns are addressed, whilst still enabling effective policing. This has been done successfully in other forces and includes technologies that civil liberty groups are not willing to publicly support, but they have not raised ethical or legal challenges.

Through national collaboration and oversight, with the addition of engagement with government bodies and policy makers – it ensures that new technologies align with national policies and strategies, resulting in a greater prospect of successful implementation, natural efficiencies and increased service delivery (such as the UK governments Digital Policy Strategy, which aims to modernise law enforcement through technology)⁶.

The interconnectedness of this issue with interoperability, cultural readiness, and legislative compliance highlights the importance of comprehensive stakeholder engagement in overcoming technological adoption barriers.

6. Realising the Benefits

Understanding, assessing, realising and then promoting the benefits of new technologies is essential for gaining support and justifying investments. The changes can have significant benefits for public/officer safety, operational efficiency, officer effectiveness and subsequently community trust.



This has historically been a problem within policing and embedding the new technology as Business as Usual. As an example, following the Bichard enquiry in 2004⁷, police forces across England and Wales were charged with implementing a single, integrated national system for recording and sharing intelligence and crime information. But it took until 2010 for the Police National Database (PND) to be introduced, but there have been challenges in its implementation – leaving practitioners frustrated, and not always trusting the outcomes. But there was a need for regional and force specific solutions to manage the day-to-day records efficiently. Hence the development of Niche and Athena, but Niche wasn't embedded in multiple forces until 2008 and Athena 'went live' in the first forces (Norfolk, Suffolk and Essex) in 2015 – some 11 years after the Bichard enquiry. But Niche and Athena are different databases, with different focus, and more

⁶ <https://pds.police.uk>

⁷ [Bichard Inquiry Report \(Hansard, 22 June 2004\)](#)

importantly don't naturally communicate with one another, which impacts on real-time data sharing across forces, who are on the other system. This lack of interoperability remains a significant issue, and the benefits that one national product or two different products that seamlessly shared and blended information has not been realised. This has led to officers, staff and wider stakeholders (including communities), having a lack of trust in the systems and impacts on policing in general. Some smaller, force wide technological changes have not realised the full benefits, which has then led to avoidance, or local work arounds and variations – leading to a lack of consistency, and reduced efficiencies.

Addressing the Challenge: Highlighting positive outcomes helps build support for continued innovation. This process is intertwined with public perception, as effectively communicating the benefits to the public can enhance acceptance. Stakeholder engagement is also crucial, as demonstrating value to partners and aligning with their needs is necessary for realising the benefits. Additionally, proving return on investment (ROI) is vital in the context of shrinking budgets.

7. Who is the Change For?



Understanding who benefits from technological changes is essential for targeted implementation. There have been cases where the initial focus on primary stakeholders is lost during the development phase. This can be for a number of reasons including:

- As systems are developed, the focus is on what is technologically possible, rather than what the end user actually needs. This can then result in cumbersome systems, which frustrate users, or local work arounds which result in inconsistent use and outputs.
- Failure to ensure that stakeholders are clearly identified and re-checked throughout the development phases. These same stakeholders are engaged with appropriately and their needs are fully understood and recorded. If this is not done adequately, then the output is that the system doesn't meet the needs of the user, the system is not able to be utilised by the end user or the systems themselves are underutilised or improperly used.
- During development the focus can be on cost and local needs and less on national/regional as well. When costs are a limiting factor, there can be a push for cross departmental involvement to see where else this technological development can be utilised. Whilst this may seem an efficient use of development, other business areas can push their own agendas, leading to compromises in the systems design. This means that instead of being optimised for the end user (say frontline police officers), the final product tries

to address too many needs at once, therefore diluting the overall effectiveness and losing sight of who the development was for in the first place.

Addressing the Challenge: This issue is interconnected with stakeholder engagement, as defining clear end-users for new technologies is essential. Meeting public expectations and tailoring solutions to specific needs for maximum impact also highlights the importance of understanding the beneficiaries of technological change. Ensuring that solutions meet the needs of law enforcement, the public, and other stakeholders is crucial. Frontline officers, IT specialists, the public, and advisory groups are key beneficiaries. Cost and local adaptations should not drive the solution to the extent that the primary goals are compromised.

Tailoring solutions to specific needs and clearly communicating the benefits to all stakeholders can enhance acceptance and support.

8. The Technology

The introduction of key innovations, such as AI and data analytics, presents both opportunities and challenges in policing. As technological advancements evolve at a pace that outstrips the ability of police forces to adapt – these challenges affect multiple areas of police work, from operational efficiency to legal frameworks and public trust.



Technology is rapidly evolving, but police forces can become stuck with systems that fail to keep up with advancements. Some examples of this include:

- Systems that are built in way that ties the force to a particular vendor, which ensures that making upgrades is costly and complicated. This can lead to forces continuing to use systems that are outdated, rather than evolving with modern policing needs.
- Other systems have not been future proofed, they can quickly become obsolete. One example is forces who invested early in Mobile Data Terminals (MDT) saw rapid advancements in mobile technologies, which left the original devices outdated within a few years.

Integrating new and more complex technologies across different systems is fraught with difficulties, and ensuring user-friendliness is critical for successful adoption. Technologies like AI facial recognition and digital evidence management systems must be intuitive and easy to use.

Data management systems such as Niche and Athena are designed to handle large volumes of information, but their complexity has led to complaints about usability, and

time consuming processes⁸, which frustrate users including front line officers.⁹ Society, which includes police officers are now used to intuitive technology – when a person upgrades their mobile phone, they do not need to read instruction manuals or go on user courses. Therefore, if new technology in policing is not intuitive, officers and frontline staff may struggle to adopt it fully or revert to manual workarounds, which has happened in at least one Athena using force.

There is the equally rapid changing crime landscape, whereby Cybercrime, cryptocurrency, and dark web marketplaces means it is not possible to use traditional policing techniques to prevent and detect these crimes. It is not only the technology that needs to adapt, but the skills of those policing this new ‘frontline’ need to change bringing the expectations of the external partners (including the public) along too. “55% of citizens agreed with the following statement: *[Police] will need to keep up and be able to stay one step ahead of the online criminals*” (Crowdsourced Citizen Research – Deloitte 2019)¹⁰

As technology evolves, frontline staff have required regular and ongoing training to understand and use the technology effectively. This diverts resources and time away from frontline duties, which equally is not an efficient use of frontline staff time when these resources are already being squeezed to near capacity.

Addressing the Challenge: This issue is interconnected with interoperability, as ensuring compatibility across different systems is necessary. Shrinking budgets also impact the ability to develop and adopt advanced technologies, while legislative requirements must be met for compliance and public support and trust.

Investing in user training and ensuring technological compatibility can facilitate smoother integration of new technologies. Through the NPDS, PDS and NPCC DPP there is a conscious effort to address some of these challenges moving forward.

9. Shrinking Budgets & procurement challenges



Whilst technology can enhance the capabilities of Policing, staying up to date with its rapid development is expensive, both investment in current cutting-edge technologies (such as artificial intelligence, predictive policing or biometrics), but upgrades and maintenance costs of current systems, ensuring they remain both functional and secure.

⁸ [Police officers criticise Athena IT system | UK Authority](#)

⁹ [national-policing-digital-strategy-2020-2030.pdf](#)

¹⁰ [References – Police Digital Service](#)

The real time shrinking of Policing budgets and financial constraints significantly impact the ability to innovate and implement new technologies. Limited resources necessitate prioritisation, requiring effective allocation to essential functions amidst budget cuts. Cost-effective solutions and internal development of technologies are often necessary. This issue is intertwined with technological development in section 8 above, affordable solutions must be found without compromising quality, have interoperability with other areas of the business, be intuitive and applicable. Demonstrating benefits and ROI is crucial to justify expenses, while navigating funding regulations and constraints highlights the importance of legislative compliance.

Procurement in policing is fraught with difficulties when applied to the rapid pace of technology. This can significantly impact the currency and relevance when implementing technology into frontline policing.

- The public sector is spending public money therefore all public sector procurement is governed by strict rules and regulations. This is to ensure transparency, fairness and value for money. Whilst these safeguards are important, by default they result in lengthy and bureaucratic procurement cycles. Therefore, by the time the change is actually delivered and implemented, the technology itself is outdated, or incompatible with other advancements. This leads to policing lagging behind both the private sector and criminality increasing future victims and the reduction of crime prevention and detection.
- Historically, scoping new technologies against the requirements of front-line policing has not been done by a blended team of end users and technology subject matter experts. Teams have involved users with a keen interest in technology, securing buy in from senior leaders, and inviting technology company sales teams in to tender. The end user has not necessarily been involved in the preparation of detailed requirements, so external companies who do not understand the intricacies of policing have made their 'best guess' of what is required.
- As mentioned in section 8 above, when police forces get tied into long vendor contracts, which are expensive and cumbersome to update during the procurement process, adopting cutting-edge technologies can become out of reach if they do not interact with the outdated technology currently in place.
- Addressing the Challenge: The long procurement processes, high cost of future-proof systems, and the need to balance vastly different requirements across the 43 police forces is extremely challenging. Ensuring that new systems can communicate with outdated ones, while adhering to shrinking budgets and tight legislative requirements, adds to the complexity. Developing an interoperability-first procurement strategy, investing in scalable and flexible technologies, and fostering technological literacy among decision-makers can help overcome these challenges. Engaging with industry for insights and collaboration on best practices is also crucial.

10. Complex Picture

Policing involves navigating a web of technical, societal, political, legal and economic complexities. Multiple factors simultaneously affect decision-making and implementation processes, creating a complex landscape which can range from community safety to Counter Terrorism, and its associated support functions.



Implementing technology into this setting requires tools that can cater to the various needs (i.e. data management, intelligence and timely information sharing), whilst being agile, and up to date to meet the changing needs.

This leads to inconsistent adoption, and fragmentation across the country, hindering further national developments and their integration and interoperability of systems. As already mentioned, the speed at which technology is evolving is much faster than the legal frameworks surrounding and enabling the maximisation of its use and onward developments.

Bringing society along with the changing face of policing, and the technological impacts it has made, has resulted in concern and legal challenges from civil liberty groups – which adds to the financial burden, in an environment of extremely limited funds.

Implementing new technologies requires significant cultural shifts within policing itself. Good officers, accustomed to traditional methods can be reluctant to adopt new systems or ways of working. Especially if these new systems are perceived to be time consuming, difficult to use, and less efficient and effective than the previous status quo.

The interplay of different systems, stakeholder needs, and external pressures illustrates the multifaceted nature of the problem. Addressing these complexities requires comprehensive solutions that consider the interconnected challenges across all sections.

Addressing the Challenge: A holistic approach that considers all interconnected challenges is essential for successful technology adoption. The creation of National level strategic and working groups enable a country wide view of requirements vs differences.

Synchronising culture and technology in frontline policing is a complex task that involves navigating a web of interconnected challenges. Each of the ten challenges outlined in this paper illustrates the multifaceted nature of the problem, highlighting the importance of a comprehensive and holistic approach. Addressing the

interdependencies and influences across various factors is essential for successful technology adoption. By understanding and managing these complexities, policing can effectively integrate new technologies to enhance efficiency, effectiveness, and public trust. BMT has a strong history of supporting these transformation activities and has been instrumental in addressing some of these challenges across government sectors, showcasing our commitment to innovation and effective technology adoption.