Digital transformation in law enforcement
Forces at work driving change in policing

**Business Drivers**
- Local and national funding pressures
  - Changing patterns of crime, offenders, and victims
- Changing population and demographics
  - Public priorities
  - Increasing public demand for a more connected experience
- Strategic policing requirements

**Business Benefits**
- Enabling faster and more effective response
  - Reduction in crime, re-offending, and repeat victims
- Empowered data that may reduce threat, risk, or harm
- Increased community engagement and satisfaction
- Improved collaboration across public safety and policing authorities ecosystem
- Increased percentage of resources allocated to frontline duties
- Reduction in cost per citizen
- Improved victim satisfaction

**Focus Areas for Police Chiefs and Elected Officials**
- Reducing operational costs
- Managing demand
- Building effective collaborations with partners
- Addressing priority crime types
- Improving the efficiency, accessibility, and effectiveness of the criminal justice system
Imagine if you could provide responsive and personalized information and services to victims, witnesses, neighborhood communities, and businesses.

Imagine if information flowed securely, within and across the public safety and justice ecosystem, enabling you to adapt to the needs of individuals and communities.

Imagine if you knew how your services were used so citizens and law enforcement could collaborate to improve existing services and develop new ones.
Citizen experience journey map

**PRE-INCIDENT**
- Obtain information online
- Receive information from authorities and local team
- Meet officers and staff in person

**INCIDENT**
- Report a crime online
- Talk to the contact center
- Receive support from 3rd parties (victim support)
- Track progress of the incident
- Deal with 3rd parties (insurers, etc.)

**POST-INCIDENT**
- Receive updates
- Attend a physical location
- Attend a virtual meeting or hearing
- Citizen survey to provide feedback
- Share experience with others
OFFICER EXPERIENCE JOURNEY MAP

DIGITAL HOTSPOTS

PROACTIVE
- Manage resource requirements, duties, and skills/training
- Provide briefing information to officers
- Citizens book appointments with officers
- Share information at community meetings

RESPONSE
- Task an officer
- Capture physical and digital evidence at a scene
- Provide case and process information to the victim
- Build a rich picture from police and open information sources

POST-INCIDENT
- Seek advice and charging decisions from prosecutors office
- Develop and managing the case and associated file
- Support victims and witnesses, engaging victim support

Gather evidence
Perform initial investigation
Receive tasking to attend incident
Update incident record
Record witness statement
View priorities
Identify scheduled tasks
Identify a suspect
Collaborate in investigation
Seek a charging decision

INVESTIGATE

PROSECUTE

ENGAGE THE LOCAL COMMUNITY

RESPOND TO AN INCIDENT

VIEW PRIORITIES

Prepare the case
Attend trial hearing via video
Provide outcome on social media
Gather citizen feedback & provide advice
Attend “Have your say” event
Response and Patrol Officer

**KEY TASKS**
- Attend in-person or virtual briefing
- Patrol and respond to incidents
- Progress and deal with crime allocations
- Record incident details
- Capture and record statements and evidence
- Prepare case file
- View and progress assigned tasks
- Access information about people, locations, vehicles and events in local and national crime and intelligence systems
- Communicate with control room and other units
- Submit intelligence reports

**WORK ENVIRONMENT**
- Police premises
- In police car
- Duty belt with mobile radio/phone
- At scene
- Out in community
- Offender/victim residence
- Court

**CURRENT CHALLENGES**
- Budget constraints
- Aging CAD and RMS systems
- Duplication of data entry
- Difficult to capture information digitally from outside of police premises
- Difficult to capture digital images and media from the field
- Need to spend time on premises at end of shift to enter data into electronic systems and catch up on administration tasks
- No visibility of incident details and situational information in a mobile environment
- Need to carry lots of paper forms
- Need to scan forms into records management system
- Systems contain unstructured data that can’t be searched
- Need to search for information held in multiple data sources
- Difficult to access existing systems from mobile devices
- Existing systems have poor user interfaces
- Difficult to remember vast amount of information disseminated at briefings
- Awkward devices
- Bad connectivity
- Multiple log-ons

**EXPECTED BENEFITS**

**SEARCH**
- Ability to search and surface relevant information from multiple data sources including local and national crime and intelligence systems

**DATA & INFORMATION**
- Capture data once, use many times
- Structured data capture
- Contextual guidance
- Incident details and situational information from control room available to officers in field
- Warning markers automatically surfaced
- Access to documents (briefings etc.) in the field
- Ability to access and search knowledge base
- Use of voice technology to capture information

**MOBILE DEVICES**
- Ability to capture structured and unstructured data, digital images, and media from the field
- Data automatically associated with incident
- Metadata automatically added to information (user, geolocation, time)

**DIGITAL MEDIA**
- Ability to tag and retrieve digital media quickly for a case

**COMMUNICATION & COLLABORATION**
- Ability to communicate and collaborate on documents and cases, and share information with relevant teams
- Presence capability

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SMARTPHONE  TABLET  COMPANION DEVICE  HEADSET  RADIO  VIDEO
CSI Crime Scene Investigation

KEY TASKS
Check tasks for the day
Book out equipment
Research case before scene attendance
Arrange scene visit
Attend crime scene
Record notes, photos, videos, exhibits from scene
Retrieve and log exhibits
Record information collected from scene in systems back at police premises
Record information in records management systems
Book exhibits into case management and evidence handling systems
Managing photos and other digital media in Digital Asset Management system
Scanning and uploading fingerprints
Produce forensic reports and other material for court
Manage forensics submissions including DNA profiling, toxicology work and glass analysis

WORK ENVIRONMENT
Police premises
CSI vehicle
At scene of crime

CURRENT CHALLENGES
Time spent on police premises preparing for shift
Time spent on police premises at end of shift to update systems and complete admin
Information resides in 2 or more systems
Duplicate data entry
No ability to capture sketches or record annotations digitally
Unable to annotate images with measurements and notes – rely on imaging team
Cannot determine if photos exist for a case in the records management system
Connectivity and access to police systems when away from police premises
Need to remember multiple passwords for different systems
Automatically logged out after a set period (need to restart painful log-on process)
Unable to access systems and information from the scene
Reliant on info provided before attending scene
No real-time access to information
Research is time consuming – information is held in multiple systems and user interfaces are unfriendly
CSIs may need to cover a large geographical area
Many references for a case
Property book in process – can be paper based, slow, same information entered multiple times

EXPECTED BENEFITS
CONNECTIVITY & DEVICE
Single log-on process
More responsive, less cumbersome device
Personal issue laptops and devices
DATA, IMAGE AND VIDEO CAPTURE
Capture crime scene information only once, digitally, as the scene is being investigated
Digitally annotate pictures
Capture 3D models of the scene in order to be able to recreate later using augmented reality software and devices
Create line drawings
Upload photos from scene
Voice recognition for note transcription
Background upload of digital media
Time stamping, geo-location and digital signing will reduce/prevent court challenges to evidence
Free up CSI time to focus on investigation not administration
Reduce/remove double keying of information (e.g. exhibit lists) in different systems
Allow CSIs to access property risk assessments while in the field
Availability of digital content

PROPERTY BOOK IN
Simplify the property/exhibit book in process
Automatic creation of exhibit list from information captured in the field

ACCESS TO RESOURCES
Real time communication and interaction with OIC – can direct/guide via IM and video link
Ability to search and access records management systems and conduct research from field

Devices

SMARTPHONE
TABLET
COMPANION DEVICE
HEADSET
VIDEO
RFID TAG
Jessie Martin, in non-emergency dispatch, uses a real-time deployment map to identify an available community patrol officer to dispatch to the scene of a reported burglary.

As well as knowing where each officer is, Jessie sees whether they are already deployed to a different incident, and an estimate of the travel time to the incident location.

Jessie selects community patrol officer Luia Marr, who is currently patrolling near the incident location.

Luia is on patrol when she receives an alert of the reported burglary on her mobile device. She acknowledges the new task and opens the incident to view further details.

Luia immediately sees whether there are any warnings or markers associated with the incident and any outstanding warrants against people or property. The location of the scene is included in the incident details. The mapping application on her mobile device gives her turn-by-turn directions to the home where the burglary took place.

On her mobile device, Luia sees a map of similar recent incidents reported in the area.
Luia arrives and asks Kelly, the homeowner, if she can use her body-worn video camera to record the scene while she walks around the property.

Luia follows the tailored guidance based on the reported incident type, delivered by her mobile device for examining a crime scene and capturing evidence.

Luia records video of the scene and adds audio commentary to the video. The video and other information captured at the scene is automatically transcribed and associated with the incident record along with the date, time, and location.

Following the incident-specific crime scene guidance, Luia finds items and objects that might contain useful evidence. While recording the details, she is notified that a CSI, Britt Madikane, has been assigned to the case.

Luia sends Britt an instant message asking her to look over the recorded footage. Britt opens the incident record and watches the video.

Britt examines the footage recorded by Luia at the scene for possible items of interest. She asks Luia to switch to live video on her camera.

Britt watches the live video stream and directs Luia to a broken window which shows traces of blood.

Luia mentions a muddy boot print just underneath the broken window, and Britt decides a CSI should visit the property and collect this important evidence.
Luia is waiting at the scene when Steve, the CSI assigned by Britt, arrives.

Luia takes notes and a signed statement from the homeowner about the incident, capturing it all on her mobile device.

The digital evidence captured at the scene is tagged with incident details, date, time, and location.

The information is digitally signed and uploaded to the incident repository.

Luia shows Steve the footprint and the broken window, and Steve takes over the scene.
Evidence Gathering

Burglary

Steve records images of the scene on his 3D camera. Using his mixed reality headset he is able to place virtual markers within the crime scene without disturbing the physical evidence. The information Steve captures is combined into a 3D virtual model of the crime scene.

This model will later be used to reconstruct the crime scene virtually, allowing officers to revisit and explore the scene with mixed reality devices and applications.

Additionally, Steve annotates photographs and the 3D model of the crime scene on his tablet to indicate the location of the footprint.

Steve takes audio notes and makes a sketch on his mobile device of the general room layout.
Evidence Gathering

Burglary

Steve records and collects physical evidence at the scene

Steve takes blood samples from the broken glass and photographs the fingerprints on the windowsill and footprints on the floor. He collects the empty jewelry box to test for fingerprints at the crime lab.

Steve attaches RFID tags to all the physical evidence he gathers at the scene. These are automatically associated with the incident record and GPS location when he scans the RFID tags with his mobile device.

Steve photographs every piece of physical evidence as he scans it. The photos are automatically associated with the physical evidence that has been scanned.

Steve returns to the police station with the physical evidence from the scene and places it in the temporary storage locker. Scanners detect the RFID tags, register the change of location, and automatically update the incident record and evidence logs to show that the physical evidence is now in police custody.
Kelly logs into an automated system to make an appointment to pick up stolen property.

A few days after the incident, Kelly, the homeowner, recalls some of the items that are missing. She clicks the link emailed to her by Jessie and logs in to the crime portal.

She sees a summary of the details of her report and Luia’s name as the case officer. She clicks the link and follows the guided process to record information about the items that are missing, including photographs.

The information that Kelly enters in the portal is captured in a structured manner and flows seamlessly to the back-office crime recording systems, avoiding the need for re-keying. Reference numbers and descriptions of stolen property are checked automatically against inventories of recovered lost and stolen goods to speed item recovery.

Kelly can also view the crime reference number provided earlier in the process, which she can use to make insurance claims for the missing items.

A few days later, Kelly receives an automated alert that her laptop has been recovered and identified by its serial number. She logs in to the crime portal and schedules an appointment to collect it from the police station.

Luia’s office hours status indicator shows that she is available for web chat, voice, and video calls from the portal. When Luia is available, Kelly can chat with her by IM and talk to her by video link over the website or by phone. Kelly can also schedule an appointment to meet with Luia, either virtually or in person.

All communications are routed over a common communications platform and are subject to policy-based recording for auditing and compliance purposes.
A member of the public calls the police to report a fight outside a pub on a busy Saturday night.

Jessie, the Call Taker receives the incoming call, captures call details and information about the caller. She uses information provided by the caller and the contextual map display to determine that this incident has already been reported by another caller. She captures details from the caller and links the call record to the existing incident.

Neil, the control room dispatcher, receives a notification that additional information has been received in relation to an ongoing incident. Neil can see updates to the incident in real-time as Jessie captures information from the caller. Neil notes that the caller has identified one of the involved parties as Mark Dylan. The caller reports that Mr. Dylan has assaulted another individual with a broken bottle.

Neil searches the system for Mark Dylan and links his record to the incident. Information about Mr. Dylan is appended to the contextual network graph of the incident. Neil can see that there is a warning marker associated with Mr. Dylan that indicates that he has a history of violent behavior and has been known to carry a concealed weapon.

Neil is presented with a list of nearby units that can respond the incident. The list order changes based on the type of incident, the type of unit and travel time to the incident location, however Neil is able to dispatch any of the available resources. He is also able to view the locations of nearby units using the contextual map display.

Neil elects to dispatch a response unit to the scene.
Xavier Cantona and his partner are on patrol when they receive an incident alert on the in-car screen: a disturbance at a local pub involving Mark Dylan, a known trouble-maker.

The incident details include linked information about Mr. Dylan from the crime and intel system. Xavier also sees recent custody photographs of the suspect.

Xavier notes a warning about Mr. Dylan’s violent behavior and that he has been known to carry a concealed weapon.

Xavier and his partner drive to the scene.
Identification of Suspects

Assault

Xavier establishes who is involved and how he should deal with them

Xavier and his partner are simultaneously capturing information from people at the scene.

One of those involved, Trey Ferguson, is bleeding from a cut on his head, so Xavier uses the app on his mobile device to request a paramedic.

While the officers take notes and record witness statements, automatic searches are combing through other police records, including crime records and intel systems.

The information provided by these automatic searches, along with process guidance that takes into account other factors, Xavier and his partner are able to make an informed decision about whether to take Mr. Ferguson or Mr. Dylan into custody.

Mr. Ferguson has no criminal record, and there are no aggravating factors, so following the guidance provided via his mobile device, Xavier is able to release him with a caution.

As Mr. Dylan has a previous record for assault, Xavier arrests him. Xavier also notices that Mr. Dylan’s left hand has been recently bandaged. He takes a photograph with his mobile device; it is automatically associated with the incident.
Custody Management

Assault

Xavier returns to the station with Mr. Dylan, who is under arrest.

Using his mobile device, Xavier checks for cell space and selects Central Station. The system automatically notifies Rudy Donovan, the booking officer, that Xavier will be arriving soon with Mr. Dylan.

Having all the necessary information, Rudy immediately begins a risk assessment for Mr. Dylan in advance of his arrival at the holding area, reducing processing time.

When Xavier arrives with Mr. Dylan, Rudy processes Mr. Dylan before taking him to one of the cells.

Rudy takes Mr. Dylan’s fingerprints and arranges for the duty doctor to examine his injured hand. The doctor updates the custody record once he has seen the patient.

Mr. Dylan’s prints match those on the crime system for a John Dylan, so Rudy updates his record to assign Mark Dylan as an alias for John Dylan.

Rudy arranges for the suspect to be processed
Custody Management

Assault

Mr. Dylan’s belongings are bagged and an RFID tag attached. Rudy, the booking officer, scans and associates the RFID with Mr. Dylan’s custody record before placing the items in storage.

Rudy sets a reminder on his mobile device to alert him to observe the prisoner at regular intervals.

Each time Rudy checks on Mr. Dylan, he scans the RFID tag on the cell door to update the log and confirm that he has checked on the prisoner.
Evidence Processing

Assault

Rathi Khan, a forensic investigator, has collected the physical evidence gathered from the burglary at Kelly’s home for analysis. The RFID tag automatically records the movement of the items from temporary storage to the forensic lab.

Rathi has examined the fingerprints, including two usable prints lifted from a jewelry box. She runs the prints through the system and comes up with a match for a John or Mark Dylan.

Rathi updates the burglary incident details to show a suspect match. This information is automatically sent to everyone concerned with incidents involving Mr. Dylan, including Luia (neighborhood patrol officer), Britt (CSI), Xavier (response officer) and Rudy (booking officer).

Rathi matches scene fingerprints and informs all involved with the suspect
As the arresting officer, Xavier arranges to interview Mr. Dylan at the police station where he is being held.

Xavier uses his mobile device to retrieve crime scene details from the system; he has previously collected the CCTV footage from the bar and shows it to Mr. Dylan.

Xavier asks Mr. Dylan how he cut his hand and mentions they have matched his fingerprints and footwear to the scene of a burglary.

Xavier now formally re-arrests Mr. Dylan for burglary and takes a full statement from him.

The statement, along with an audio record of the interview captured on Xavier’s tablet device, are automatically stored, transcribed, and linked to the incident.
Investigation

Assault

Xavier and Luia collaborate on the investigation

Xavier works with Luia and other members of the police team to investigate the related incidents and develop the case against Mr. Dylan.

Instead of exchanging information by email, they work with other team members in a secure virtualized collaboration workspace, with shared documents, conversation threads, and a planner to track activities.

The workspace is accessible from mobile devices, laptops, and PCs, allowing team members to access and update information relating to the investigation without returning to police premises.

The collaboration workspace supports eDiscovery and legal hold capabilities across all documents, structured data, and communications.

Virtual workspace capabilities such as shared document editing, planner, and persistent messaging enable collaboration and allow new teams members to see the historical context while supporting auditing and compliance aspects through eDiscovery and legal hold.
Investigation

Assault

Xavier prepares a digital charging document set for the prosecutor's office in order to get permission to formally charge Mr. Dylan.

Xavier picks the appropriate incident content to include in the file, including bookmarked CCTV collected from the scene.

The system guides him through the process and ensures that all the required information is available for prosecutor's office to make a charging decision.

Xavier shares the case file with the prosecutor, who confirms that he may formally charge Mr. Dylan with burglary and assault. The case file has been updated by the prosecutor’s office to reflect their decision.

Xavier shares details with the prosecutor's office for charging Mr. Dylan
Bail & First Hearing

Assault

Heather Pritchard, a bail officer with the police department, bails Mr. Dylan to appear before the court, having been formally charged with both assault and burglary.

Heather checks the schedules of the relevant teams involved in Mr. Dylan’s case and adds an appointment for the bail hearing.

The relevant officers will receive a calendar reminder to let them know when they should attend the hearing via video-link.

As there is a safeguarding warning against Mr. Dylan, those who may be vulnerable because of his release are notified. Mr. Dylan is then released on bail pending his hearing.
Virtual Bail Hearing

Assault

Heather Pritchard, Mr. Dylan, and the officers attend a virtual bail hearing with attorneys, joining the hearing video conference from home or the office.

The virtual court hearing is hosted online.

This avoids the need for officers to travel to court, reducing costs and improving efficiency.
Once the hearing has been completed, the incident details are updated by the prosecutor’s office to reflect the court’s verdict.

Luia, the neighborhood patrol officer, receives a notification on her mobile device that Mr. Dylan has been sent to prison for three months for burglary.

Kelly, the homeowner, receives a notification that there’s been an update to her case. She logs in to the crime portal to view the outcome.

Alongside the update, Luia’s status indicator shows that she is available, so Kelly sends Luia a web chat message via the portal to thank her for her help.

The officers and burglary victim are informed of the court’s verdict.
Unlocking opportunities at the nexus of crime management, officer productivity, and technology innovation

PUBLIC SAFETY AS A DIGITAL SERVICE

LEADERSHIP
- Lead the Organization
- Develop Strategy, Policy and Plans
- Manage Change
- Manage Partnerships
- Manage Performance
- Maintain Professional Standards
- Manage Compliance
- Manage Risk
- Provide Legal Services

ASSURANCE
- Lead the Organization
- Develop Strategy, Policy and Plans
- Manage Change
- Manage Partnerships
- Manage Performance
- Maintain Professional Standards
- Manage Compliance
- Manage Risk
- Provide Legal Services

PUBLIC ENGAGEMENT & COMMUNICATION
- Lead the Organization
- Develop Strategy, Policy and Plans
- Manage Change
- Manage Partnerships
- Patrol Neighborhoods
- Manage Public Relations
- Manage Citizen Relationships
- Report Performance
- Manage Contact
- Manage High Risk Individuals
- Protect Vulnerable People
- Develop Communities
- Manage Operations
- Licensing
- Disrupt Criminality
- Manage Road Safety
- Respond to Incidents
- Manage Scenes
- Investigate Incidents

PUBLIC PROTECTION
- Lead the Organization
- Develop Strategy, Policy and Plans
- Manage Change
- Manage Partnerships
- Patrol Neighborhoods
- Manage Public Relations
- Manage Citizen Relationships
- Report Performance
- Manage Contact
- Manage High Risk Individuals
- Protect Vulnerable People
- Develop Communities
- Manage Operations
- Licensing
- Disrupt Criminality
- Manage Road Safety
- Respond to Incidents
- Manage Scenes
- Investigate Incidents

INCIDENT MANAGEMENT
- Lead the Organization
- Develop Strategy, Policy and Plans
- Manage Change
- Manage Partnerships
- Patrol Neighborhoods
- Manage Public Relations
- Manage Citizen Relationships
- Report Performance
- Manage Contact
- Manage High Risk Individuals
- Protect Vulnerable People
- Develop Communities
- Manage Operations
- Licensing
- Disrupt Criminality
- Manage Road Safety
- Respond to Incidents
- Manage Scenes
- Investigate Incidents

CRIMINAL JUSTICE
- Investigate Crimes
- Detain Suspects
- Non-Judicial Disposal
- Develop Cases
- Prosecute Cases
- Support Prosecutions
- Manage Duties and Tasking
- Manage Forensics
- Provide Specialists
- Policing Services
- Manage Policing Information
- Manage Property and Evidence
- Manage Intelligence
- Manage Suppliers
- Manage Finances
- Manage People
- Manage IT
- Manage Fleet and Livestock
- Manage Equipment
- Manage Facilities

BUSINESS SUPPORT
- Lead the Organization
- Develop Strategy, Policy and Plans
- Manage Change
- Manage Partnerships
- Patrol Neighborhoods
- Manage Public Relations
- Manage Citizen Relationships
- Report Performance
- Manage Contact
- Manage High Risk Individuals
- Protect Vulnerable People
- Develop Communities
- Manage Operations
- Licensing
- Disrupt Criminality
- Manage Road Safety
- Respond to Incidents
- Manage Scenes
- Investigate Incidents

MICROSOFT CLOUD PLATFORM
Optimal impact happens at the intersection of these dimensions

**Policing**
Make society safe, improve officer productivity

**Technology**
How technology works and enables the how policing gets done and experienced

**Experience**
Researching, synthesizing and creating unique and compelling insights and experiences

**Value Creation**

**Tools & techniques**

- Scenario Planning
- Observational Analysis
- Situational Leadership
- Competitive Analysis
- Applied Anthropology
- Ideation Management
- Service Design
- Ethnographics Studies
Co-creative people centered design-based approach to imagine the art of the possible and re-think how policing can be done

1 Research

Perform quantitative research and analysis using techniques such as anonymous studies, heuristics, scenario planning, and environmental analysis to better understand your organization, employees, industry, and citizens.

Document what your organization has done so far and in what ideas and processes it is currently investing.

Consider every situation from all angles: who the people are, what they want to become, what stories they are telling today, and what they want to be saying in the future.

Engage employees, citizens, and partners in multidisciplinary research.

Evaluate what others in your space are doing. Analyze the marketplace.

Determine relevant trends.

Identify key pain points and value drivers.

Use relevant strategic models, where appropriate, to frame the context, potential tactics, and alternatives.

2 Envision

Envision the potential, generating ideas by asking questions such as “Imagine if...?”, What if...?”, “How could we...?”, and “Wouldn’t it be incredible if...?”

Apply scenario-planning techniques to help build the target state and identify events that are likely to have an impact on your organization, and desired outcomes.

Identify underlying assumptions to develop potential solutions to problems or to unlock new opportunities.

Determine priorities that align to each scenario and key performance indicators (KPI’s).

Validate and compare your capabilities with industry-proven practices. Identify people, process, and technology improvements and anticipated business benefits.

Uncover new opportunities for immediate, near-term, or longer-term value creation.

3 Design

Design the service, solution or product from business, technology, and experience perspectives in parallel.

Designing from all three of these perspectives simultaneously can help realize sustainable breakthroughs.

Formulate strategic direction by determining the right performance levers and key tactics.

Set strategic vision and direction based on your goals and success factors.

Develop the building blocks to get to the desired state: the key people, process, and technology capability changes that are required to achieve the target vision.

Create a structured plan outlining the required activities to execute the strategy, including business-justified investments, key tactics required to implement the improvements, recommendations, and a roadmap.
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