

WMP Briefing Paper

Assessment of the impact of the presence of forensics, phone data and film footage (FFF) in investigations outcomes

Ethics Committee (4 September 2024)

This project is at the proposal stage and is presented to the committee 'in principle' so that any immediate concerns can be raised.

The finer details of the methodology, exact data to be used and mode of communicating the results will not be determined until after the exploratory data analysis (EDA) phase has been undertaken.

Once the analyses have been completed the project will be presented to the Committee again so that the data used, methodology, findings, intention for deployment and communication plans can be examined in more detail.

Legal opinion has been sought and the Data Protection Impact Assessment (DPIA) is being reviewed by the Force Data Protection Officer (DPO).

Tasking

This project was requested by the Corporate Development Department in June 2024.

The aim of the project is to understand the extent to which the presence of forensic evidence, phone downloads or film footage ('FFF') make a difference to the outcome of an investigation.

Purpose

The purpose of the analysis is to support Operation VANGUARD, the Force's strategy to improve the quality of our investigations and to deliver a better service for victims in the West Midlands.

Context

Operation VANGUARD is the West Midlands Police (WMP) strategy to improve the quality of investigations. This is a wide-ranging strategy encompassing many departments, officers and staff who have an impact on the investigative process. It has included master classes to improve understanding of and adherence to the Victims' Code of Practice, foundations of investigations, investigation plans and supervisor reviews as well as the provision of tools such as VOWSIO¹ to provide frameworks for key lines of enquiry and the development of a bespoke Investigations Dashboard.

¹ Victim, Offender, Witnesses, Scene, Intelligence, Other

This request supports Operation VANGUARD by identifying ways in which the Force can maximise investigative opportunities. Experienced investigators of major crimes suggest that if they do not have either forensic evidence, phone downloads (such as call data, message data, social media) or film footage (such as CCTV or doorbell footage) then it is likely that the crime will not be solved and we will not achieve a positive outcome for the victim². The question posed to the Data Analytics Lab (DAL) is to understand the extent to which this is the case; and the extent to which this may be true for less serious crimes which are being investigated.

Previous work undertaken by the DAL relating to RASSO offences³ found that the presence of various evidential information changed the probability of an investigation achieving a positive outcome. This project seeks to understand how (and the degree to which) the presence of forensic evidence, phone evidence and film footage contributes to the probability of achieving a positive outcome in an investigation.

Other potential factors will also be analysed such as the types and severity of crimes for which some difference is made and the interaction between such factors and whether there is a named suspect or not.

Intended activity resulting from the project

The findings of this analysis will feed into the wider Operation VANGUARD strategy and the development of the new Crime Desk.⁴

Ethical considerations

- Whatever the findings of this analysis, it will be important to ensure that any subsequent decisions about wider strategies for investigations continue to ensure that all victims receive a proportionate investigation in line with the Victims' Code, regardless of whether there is evidence provided by forensics, phone or film footage.
- The analysis will capture whether certain types of evidence (forensics, phone, film) were available to each investigation and possibly the nature of the evidence (for example, is the phone data call data, or are they social media content linking a suspect to a crime?). However, it will not be necessary for any individual item of evidence to be viewed by the DAL in order to undertake the analysis.

² As discussed in previous papers submitted to the Committee, 'positive outcomes' refers to outcomes codes 1 to 9 and 22 as set out in the Outcomes Framework [Crime outcomes in England and Wales 2022 to 2023 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/101447/crime-outcomes-in-england-and-wales-2022-to-2023.pdf)

³ [Ethics Committee Meeting January 2020 - West Midlands Police & Crime Commissioner \(westmidlands-pcc.gov.uk\)](https://www.westmidlands-pcc.gov.uk/ethics-committee-meeting-january-2020) (see RASSO Findings 202001)

⁴ [Ethics Committee- June 2024 - West Midlands Police & Crime Commissioner \(westmidlands-pcc.gov.uk\)](https://www.westmidlands-pcc.gov.uk/ethics-committee-june-2024) (see Crime Desk Question Set)

Data

Data to be used:**Level of analysis:**

- Individual
 - Individuals aggregated?
 - Yes
 - No
- Specific Area:
 - Output Areas
 - Super Output Areas - Lower
 - Super Output Areas - Mid
 - Wards
 - Districts
- West Midlands
- Other (type of crime and outcome)

The data to be used consists of Crime data from the CONNECT source system.

Reliability of data:

An extensive exploratory data analysis (EDA) phase will be undertaken to examine the extent of any data quality issues. The DAL is familiar with CONNECT and the data it generates.

Sample or entirety: Entirety

Type of analysis:

- Exploratory
- Explanatory
- Predictive
- Optimisation

Proposed methodology:

The methodology is not precise at this point due to being at the in-principle stage but is likely to include basic comparisons, assessment of likelihood ratios, some form of logistic regression (most likely lasso, ridge or potentially elastic net) and the development of directed acyclic graphs.

Will the project eventually be automated:

- Yes
- No

The output will be a one-off analysis to understand the impact of the presence of evidence provided by forensics, phone and footage on investigative outcomes in order to inform strategic organisational decisions.

Means of evaluation:

N/A

ALGO-CARE considerations

As this project is at the proposal stage and is presented to the committee 'in principle' in order that any immediate concerns can be raised, the finer details of the methodology will not be determined until after the EDA. Once the analyses have been completed the projects will be presented to the Committee again so that findings and methodology can be examined in more detail.

Advisory	
If applicable, are the outputs from the algorithm to be used in an advisory capacity?	Yes, the analysis will be advisory and will be provided to senior leaders and Operation VANGUARD. The output will not be an algorithm, rather guidance as to the probability of certain types of evidence being more likely to lead a positive outcome.
Does a human officer retain decision-making discretion?	Yes
Lawful	
What is the policing purpose justifying the use of the algorithm (means and ends)?	In December 2023, His Majesty's Inspectorate of Constabulary and Fire & Rescue Service (HMICFRS) published their police efficiency, effectiveness and legitimacy (PEEL) inspection of WMP ⁵ with the recommendation that 'the Force need to make sure it carries out effective investigations which lead to satisfactory results for victims'. This DAL project focuses on the specific recommendation to ensure that 'all investigative opportunities are taken'.
Is the potential interference with the privacy of individuals necessary and proportionate for legitimate policing purposes?	The project will analyse data which has been provided by members of the public when they report a crime. It is proportionate to use this data in aggregated form to identify ways of improving our investigative processes.

⁵ [West Midlands PEEL Assessment 2023–2025 - His Majesty's Inspectorate of Constabulary and Fire & Rescue Services \(justiceinspectorates.gov.uk\)](https://www.justiceinspectorates.gov.uk/west-midlands-peel-assessment-2023-2025/)

In what way will the tool improve the current system and is this demonstrable?	The HMICFRS inspection graded WMP as inadequate in the area of investigating crime. This DAL analysis is proposed in order to quantify the impact (or lack) of certain types of evidence on the outcomes of investigations in order that improvements can be made to our processes.
Are the data processed by the algorithm lawfully obtained, processed and retained, according to a genuine necessity with a rational connection to a policing aim?	The data are from WMP systems and collected as part of normal day-to-day operations.
Is the operation of the tool compliant with national guidance?	The analyses proposed would accord with the Government Digital Service Data Ethics Framework 2020 ⁶
Granularity	
Does the algorithm make suggestions at a sufficient level of detail given its purpose and the nature of the data processed?	It is likely that the analysis will make recommendations at the level of offence type and severity; and by evidence type.
Are data categorised to avoid broad-brush grouping and results and therefore issues of potential bias?	Usual tests will be undertaken as part of the EDA in order to assess for bias within the data in relation to particular characteristics of victims.
Do the potential benefits outweigh any data quality uncertainties or gaps?	The project will include an extensive EDA element which should highlight data quality issues. These can be addressed with subject matter experts (SMEs) in to understand procedures which may result in data issues. Given the potential benefits of improving the service we give to victims when they report a crime it is not anticipated that any data quality issues would be of such a magnitude as to warrant not undertaking the project.
Is the provenance and quality of the data sufficiently sound?	The data will be those that are gathered during the day-to-day work of WMP and will enable analyses of the type envisioned for this project.
If applicable, how often are the data to be refreshed?	The output of this analysis will be a report with recommendations for Operation VANGUARD to consider. It will not result in a tool which requires refreshing.

⁶ <https://www.gov.uk/government/publications/data-ethics-framework>

If the tool takes a precautionary approach in setting trade-offs, what are the justifications for the approach taken?	Not applicable, this is not a predictive model.
Who owns the algorithm and the data analysed?	
	WMP would own the analyses and data.
Does WMP need rights to access, use and amend the source code and data?	No
Are there any contractual or other restrictions which might limit accountability or evaluation?	No
How is the operation of the algorithm kept secure?	The analyses developed would be kept wholly within the secure WMP computing environment.
What are the post-implementation oversight and audit mechanisms, e.g. to identify any bias?	
	If Operation VANGUARD develop any investigative strategies based on recommendations from the DAL analysis, the effectiveness of the new process would be monitored to provide evidence to inform HMICFRS oversight.
If the algorithm is to inform criminal justice disposals, how are individuals notified of its use?	Not applicable
Accuracy	
Does the specification of the algorithm match the policing aim and decision policy?	The request to the DAL aligns with the HMICFRS recommendations to improve the way we investigate crime.
Can the accuracy of the algorithm be validated periodically?	Not applicable – this is not a predictive model.

Can the percentage of false positives / negatives be justified?	Not applicable – this is not a predictive model.
How was the method chosen as opposed to other available methods?	Not applicable – this is not a predictive model.
What are the (potential) consequences of inaccurate forecasts?	Not applicable – this is not a predictive model.
Does this represent an acceptable risk?	Not applicable – this is not a predictive model.
How are the results checked for accuracy and how is historic accuracy fed back into the algorithm for the future?	Not applicable – this is not a predictive model.
How would inaccurate or out-of-date data affect the result?	Not applicable – this is not a predictive model.
Responsible	
Would the operation of the algorithm be considered fair?	Yes, this project is about improving our service to all victims of crime.
Is the use of the algorithm transparent (taking account of the context of its use), accountable and placed under review?	A technical report describing the methodology used will be provided.
Would it be considered to be used in the public interest and to be ethical?	It is in the public interest for WMP to improve its processes in order to achieve positive outcomes for more victims of crime.
Explainable	
Is information available about the algorithm / decision-making rules and the impact of each feature?	A technical report describing the methodology used will be provided.

Appendix 1: Glossary of Terms

WMP / Law Enforcement Terminology	
DAL	Data Analytics Lab
DPIA	Data Protection Impact Assessment
DPO	Data Protection Officer
HMICFRS	His Majesty's Inspectorate of Constabulary and Fire & Rescue Service
PEEL	Police efficiency, effectiveness and legitimacy inspection by HMICFRS
SME	Subject Matter Expert
WMP	West Midlands Police

Data Science Terminology	
ALGO-CARE	All projects have used the ALGO-CARE to consider ethical implications: Advisory, Lawful, Granularity, Ownership, Challenge, Accuracy, Responsible, Explainable
EDA	Exploratory Data Analysis