An automated approach to crime linkage through administrative records for neighbourhood crimes

Research project aiming to build on the practice of automated crime linkage through data science, for neighbourhood crimes.

Key details

Lead institution	University of Leicester
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Police region	East Midlands
Collaboration and partnership	Thames Valley Police
Level of research	PhD
Project start date	January 2024
Date due for completion	March 2031

Research context

Crime linkage is a method used by investigators to find connections between different crimes. By looking at how crimes are committed and the characteristics of the offenders, investigators can spot similarities that may indicate the same person or group is responsible. This approach helps catch criminals faster and prevents future crimes by understanding patterns and behaviours.

Using tools like forensic databases and data analysis, investigators can sift through evidence more efficiently to find links between crimes. By sharing information across different law enforcement agencies, they can track down serial offenders who operate in multiple areas.

However, crime linkage is a resource intensive process, requiring effort both to collect and prepare the required information, and then to analyse this in a useful way for investigators. This means that in practice it is rarely used fully outside of high threat low volume areas, such as serious sexual assaults or major crime. Previous research on crime linkage has also relied on manually curated datasets with high data integrity, reducing its applicability to real life scenarios where data quality is poor.

This research will see the focus on crime linkage shifted from high risk low volume crime types to neighbourhood crime, where high volumes of offences with poor outcome rates challenge investigators, analysts and support staff to try and link cases across a large force area. By developing and testing a range of tools that give better information to these practitioners, it is hoped that we can more quickly and efficiently investigate emerging series of crime, and ensure that we identify potential suspects early on in an investigation. Crime linkage is vital for tackling crime because it helps police identify, catch and prosecute criminals more effectively. It is like putting together puzzle pieces to see the bigger picture of criminal activity, ultimately making communities safer.

Research methodology

The following outputs will be generated as part of the study, which will be shared with the force ready for further adaptation or use:

- A detailed assessment of our data quality around Modus Operandi (MO) and associated information which is critical for investigation, along with some proposed strategies for improving this.
- A prioritised 'minimum standard' for MO information, identifying the information that is most useful to help link crimes and support analysis.
- Guidance and tooling to support recording high quality MO information from victims, initial attending officers and crime scene investigators (CSIs).
- A series of tools for crime linkage and secondary investigation, which will be available to support those across operational policing.

By supporting this research, the force has the opportunity to improve the way it handles crime series and the investigation of neighbourhood crimes. Using the latest data science and engineering technology, the aim is to provide investigators and those working in support staff roles

with the best possible data to help them make decisions around how crime is investigated.

A rigorous evaluation will be carried out, helping the force to establish the cost/benefit of any change in practice.
Finally, by improving our data around MOs, we will improve our knowledge about offences taking place in our communities, helping us to deliver effective crime prevention activity based on meaningful data and evidence.

Research participation

The researcher is interested in hearing from forces who may be interested in finding out more about the work, or who may be interested in testing any developed solutions in the future. Interested forces or individuals are invited to email the researcher.