

## Use of Free and Open-Source Software in Policing

This brief is about use of open-source software (OSS) within policing, not open source intelligence (OSINT). Open source software means software built from source code which is freely accessible to anyone, this includes open source programming languages (e.g., Python, R, etc.).

### Background

This brief is the result of a scoping exercise conducted by academics at the University of Exeter (in consultation with Sealey Associates).



Q-Step

The project impetus was to better understand how Q-Step could approach, engage and support public services organisations. Policing was chosen as the first area of inquiry.

In-depth interviews and a focus group was held with a total of 13 police officers and staff participants from a single English police force. A review of the grey literature and scoping conversations with seven individuals from other police forces, universities, volunteer organisations, and professional bodies (e.g. College of Policing) also informed the project findings.

Whilst the project focused on both free and open source software and digital skills, this briefing outlines findings on the former only. A separate briefing on digital skills is available. Individuals who had experience and could speak to the topics of data analytics, business change, information management, and information communication and technology (ICT) were sought to contribute.

### Policy recommendations for Policing

National-level recommendations:

A centralised authority needs to provide:

- a clear steer on the pros and cons of using OSS in policing;

- advice on how OSS might be exploited, as a complement to proprietary software, within a policing context; and
- a roadmap for how to incorporate OSS into policing systems securely and responsibly.



Organisational-level recommendations:

Individual police forces:

- cannot wait for national guidance to be given to seek out expertise about OSS and how it might be used within their force;
- should collaborate across relevant departments to work through assessing the viability of using OSS within force;
- partner with those who can help the force take first steps (i.e., localised use of OSS) to showcase capabilities and build business cases for using OSS within force; and
- those forces who are farther on the path of using OSS must find a way to share learning quickly, widely, and freely with other forces. The lessons learned should relate to the process of implementing and using OSS, not just outcomes of the projects relying on OSS.

Individual-level recommendations:

- Individuals with interest in OSS should feel confident it is worthwhile to explore its use within a policing context.
- Support individuals to access peer-to-peer conversations about OSS and its capabilities (e.g., through communities of practice within or outside their force).

## Context

The status quo for police forces in England and Wales is basic data analytic capability and lack of access to free and open source programming languages and software.

The *National Policing Digital Strategy: 2020-2030*<sup>1</sup> lists some of the challenges to modernising police data and technology: legacy technology, supplier lock-in, organisational structures, underinvestment in key areas, conservative risk appetite, and inconsistent understanding of existing data. Precisely because of these challenges and the fast pace of digital change, the Strategy includes a call to action:

*'The time is right for us to make fundamental and transformational choices: the way we work, harness data, exploit technologies, collaborate with partners, and organise ourselves.'*

At some point in the future, analytic power will be seen as integral to frontline policing. A mental shift is required, *'an understanding that technology is not just equipment, it entails new ways of working and thinking'*.<sup>2</sup>

The recent (March 2022) *Strategic Review of Policing in England and Wales*<sup>3</sup> publication notes that much like Operaton Uplift, whereby the Home Office committed to fund 20,000 new police officers by 2023, policing requires a similar 'technology uplift.'

There are police forces who have been able to invest in their data analytic capabilities and some have begun to venture into using open-source programming languages and software. Most notably, the Home Office funded the National Data Analytics Solution (NDAS) project which aims to create machine learning systems for policing in England and Wales. In addition to programmes such as NDAS, individuals in forces across the country are actively seeking to incorporate open-source analytics tools to improve their practice and seeking advice from others with similar interests.

Using programming languages, such as Python, not only facilitates collaboration on advanced statistical analysis and modelling, but promotes easier partnering and problem solving of how to make day-to-day technical processes more efficient and accurate through things like automation and and natural language processing. None of that relies on expensive licensing packages or renewals.



## Key findings

Broadly speaking, within a digital and technology context, police forces in England and Wales find themselves focusing on 'here and now' issues as they race to address high levels of demand within the constraints of their current capacity and largely outdated systems.

Well-trodden paths or paths mapped out by others get followed, while exploring new paths is less common. Financial austerity, bureaucratic structures, high stakes, and severe consequences contribute to the slow pace of change.

National-level barriers:

- Inoperability of data systems within and between forces as well as with oversight agencies.
- Police Digital Service (PDS), the delivery vehicle for the National Policing Digital Strategy, is focused on the use of Microsoft 365 to increase interoperability between

forces, which reinforces unease about taking on software infrastructure that doesn't come with support.

- Lack of guidance on OSS for use in policing.

Organisational-level barriers:

- Need to follow existing national guidance and legislation that does not include OSS guidance.
- Obligation to exploit current legacy systems.
- A preexisting lack of consolidation between a proliferation of systems.
- ICT and Information Management seen as gatekeepers rather than part of the development and solutions team.

Individual-level barriers to pursuing open-source software (OSS):

- Lack of knowledge of what OSS is or its potential risks and benefits to policing.
- Fear (of change, of being wrong, of the consequences, etc.).
- 'Command and control' approach and hierarchical structure do not easily align to the collaboration and transparency ethos of OSS.

### Further information

<sup>1</sup><https://pds.police.uk/wp-content/uploads/2020/01/National-Policing-Digital-Strategy-2020-2030.pdf>

<sup>2</sup>[https://reform.uk/sites/default/files/2018-10/Reform\\_Bobbies\\_on\\_the\\_net.pdf](https://reform.uk/sites/default/files/2018-10/Reform_Bobbies_on_the_net.pdf)

<sup>3</sup>[https://www.policingreview.org.uk/wp-content/uploads/srpew\\_final\\_report.pdf](https://www.policingreview.org.uk/wp-content/uploads/srpew_final_report.pdf)

### About this project

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