Using simulation software to plan for demand, resource and business processes

Using visual models to plan how to respond to different demand, resourcing and process scenarios in policing.

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Key details

Does it work?	Promising
Focus	Prevention Organisational
Topic	Organisation including workforce Operational policing
Organisation	South Yorkshire Police
HMICFRS inspection report	**Police effectiveness, efficiency and legitimacy (PEEL) 2021/22 inspection spotlight report**
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Region	North East

Key details

Partners	Police Private sector
Stage of practice	The practice is implemented.
Start date	December 2020
Scale of initiative	Local
Target group	Adults Communities General public Offenders Victims Workforce

Aim

The Business Change and Innovation department uses simulation software to:

- support delivery of the force demand strategy
- make use of advanced tools and techniques alongside analytical principles and ethical considerations
- make use of analytical good practice identified in other organisations (public, private and third sector)
- continuously improve analysis of work and subsequent outputs from it

Intended outcome

- Improved efficiency and effectiveness of processes using technology and data.
- Improved understanding of demand and resource usage.
- Alignment of resources to demand.
- Evidence-based decision making.

- Support for the force demand strategy.

Description

The South Yorkshire Police (SYP) demand strategy coordinates and directs the force's analytical work examining demand and business processes. The strategy seeks to:

- provide a comprehensive understanding of current and future demand
- optimise resources
- work in partnership with external agencies
- predict future implications

The force Business Change and Innovation department saw commercially available software successfully used by local NHS trusts. They identified the opportunity to use this software to support the demand strategy, by improving the efficiency and effectiveness of their processes using technology and data.

How it works

The software builds a visual model or 'digital twin' of a real-life system or process (similar to a flowchart).

Users can add specific details to their model, such as the key resources and tasks involved. Using inputted data, the software can model the effect of various 'what if' scenarios – for example changes to demand, backlogs, resources or process flow.

Around six to eight business analysts in the Business Change and Innovation department have the software installed on their computers. Three of these users are able to use the software at any one time.

Costs and training

The force found internal funding to pay for an initial one-year subscription to the software. This was at a cost of £12,000 including in-house training over three days for key users.

The force pays £3,000 annually for an ongoing network licence for the software.

In addition to the initial in-person training, the software provider offers online training and provides webinars on particular topics (for example, how to overcome specific challenges). This enables any additional staff members to be trained to use the software and continuous learning.

How it's being used

SYP has used the software to apply modelling on several projects, including for:

- court processes
- understanding 999 and 101 calls coming into the force control room

The software is currently being used to model custody processes and understand resource requirements for varying cell occupancy. It's anticipated that this custody project will enable the force to better use custody resources and take key lessons and apply them to other areas of the force.

A working group has been created within the Business Change and Innovation department to ensure the software is used effectively and to promote the upskilling of users and encourage continuous learning.

The force continues to scope out areas and processes where they can next apply this simulation software, to continue informing decisions regarding resourcing and process design.

Overall impact

Continuous monitoring of impact has started and is ongoing. This includes end-user feedback and comparison with other established applications, tools and techniques.

It will also involve feedback to internal stakeholders (for example, senior leaders and decision-makers) about the insights, value and contribution to decision-making provided by the software.

The force has been able to review the progress and outputs of their modelling work against the demand strategy areas. This has helped the force to identify where they might need to commission and deliver further work.

The use of simulation software to understand demand and inform resource planning has been identified by His Majesty's Inspectorate of Constabulary and Fire & Rescue Services (HMICFRS) as promising practice. See the police effectiveness, efficiency and legitimacy (PEEL) 2021/22

inspection spotlight report.

Learning

- Continuous reflection is key to ensuring the required knowledge and insights for evidence-based planning and decision making. In SYP, the working group within the Business Change and Innovation department has helped with the ethos of continuous reflection and learning with the simulation software.
- Working closely with academic and public sector partners such as local authorities helps bring in new ideas and ways of working. It was through collaboration with the NHS that SYP was able to identify and subsequently implement the simulation software.
- Investing time and effort at the start of any analysis work (large or small) is key to correct definition of the business problem or initiative that you are seeking to inform and design.
- The simulation software is technically complicated. Users taking advantage of the training opportunities and webinars provided by the software provider is key.
- For the simulation software to be effective, organisations must have high-quality data available to input and skilled users to navigate the system.
- The simulation has supported the force's understanding of the various challenges that arise with incorporating complex data such as arrival rates. This has led SYP to consider what alternative data formats they might need to use in future iterations of the model. However, the force were able to include the outputs from the model in a range of options for changing ways of working under consideration but there were practical resourcing challenges preventing the modelled option being.

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Tags

Information communication technology (ICT) Force control rooms