



Keeping the streets safer with crime forecasting

Industry case study: public sector

Challenges

- Ever-evolving criminal behaviours calling for different police support
- No existing insight regarding future crime levels
- Funding challenges requiring increasingly effective allocation of manpower

Solutions

- Amadeus supported the in-house team in the production of a bespoke forecasting model that utilises past crime data to forecast future crime types and rates
- Development of bespoke graphical presentations to validate forecasting
- Extensive support and training throughout the project to enable team self-sufficiency

Benefits

- Predictions of future crimes by type
- Insights to inform force actions to proactively tackle future crimes through effective resource allocation
- Ongoing self-sufficiency and model refinement enabled



Providing essential insight to empower police forces to optimise resource allocation in the ongoing fight against crime.

Background

Our customer is a UK-based police force, working 24/7 to keep the streets safe for the public they serve. Data has played a pivotal role in this for many years, informing analysis of historic trends. However, there was no capability to produce forward-looking insight to support the prevention of future crimes.

Organisational issue

The customer sought to maximise the value of its existing data by using it to generate forecasts of future crime rates within its own area of jurisdiction. This step would ensure the Force adhered to the developing requirements of Her Majesty's Inspectorate of Constabulary (HMIC), the centralised governing body within the UK. However, the organisation's internal team of analysts didn't have the experience to complete the project without external support.

Why was this required?

The customer sought to optimise its data usage to improve the Force's ability to tackle crime. Faced with ever-evolving crime behaviours and changing crime types, coupled with funding challenges, it was more essential than ever that resources were fully utilised.

Vision

The customer wanted access to sophisticated forecasting models to enable them to make well-informed decisions regarding the allocation of manpower at any given time within the region. The customer sought

to extend the in-house skills and expertise they had available to create these models by bringing in third-party support.

Amadeus solution delivered

In response to the customer's challenges, Amadeus provided data science expertise and knowledge to guide the Force in the production of its own crime forecasting models. These models delivered time series forecasting insight around crime groups at an agreed frequency to provide decision makers in the Force with the information



they needed to make the best decisions regarding staff deployment. This ensures the right officers can be in the right place at the right time to prevent crime from happening.

In addition, Amadeus' data scientists produced a bespoke graphical presentation – these graphs provide an easy-to-interpret format to allow the customer to validate the forecast and identify any deviations.

Amadeus' approach was to provide expert guidance, whilst the customer's own analysts built the models. This was to enable these users to benefit from hands-on experience, putting them in a strong position to be much more self-sufficient in the long-term for refinement of these models. This self-sufficiency has been further encouraged through extensive support and staff training throughout the project.

Results

The initial results from this forecasting project offered valuable insight for the customer, enabling them to meet their goal of better foresight regarding what calls on the force's resources would be made at any given time. Prior to this work, such predictions were difficult to achieve.

- Since the implementation of this sophisticated forecasting modelling, the Force has reliable insight founded upon historic data to inform predictions for the types of crimes that may occur in the future. This enables the Force to be confident in the proactive decisions they make regarding resource allocation in the fight to reduce crime within the region.
- Forecasting models see the inclusion of additional factors, such as the impact of cultural or sports events, which may have big implications for the level of police support required. This provides the foresight needed to be prepared for these extraordinary calls on resource.
- Bespoke graphical visualisations to validate the forecast and highlight any deviations
- Due to the success of this preliminary work, the Force continues to test their understanding of the methodology and apply it to other areas, such as incidents and 999 call volumes.

Looking to further the insights available, the customer is keen to extend its usage of time series forecasting into even more advanced methods, whilst continuing to refine the existing models. Meanwhile, the project is being presented to the rest of the organisation to benefit the wider force.

Amadeus' **forecasting** solution has improved insights and enabled a more proactive approach to police resource allocation within the region.

About Amadeus Software – trusted analytics experts

Founded in 1989, Amadeus has an impressive history of supporting its customers in maximising their Return on Investment from data through the application of data analytics and data science across its key business services.



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Amadeus partners leading providers within the industry, including SAS, Microsoft and AWS, to ensure our customers receive the best solution to meet their challenges. These solutions can be across any main programming language, such as SAS, Python, R or SQL.

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