West Midlands Police, Transtekniq Ltd and the University of Kent

ANPR Convoy Analysis; A data Science Proposal to detect and predict crimes involving Vehicles

Project Management Proposal

1. Project Charter

1.1 This Section Describes

- The Business Need
- The Project Proposal
- The Project Sponsor
- The Agreements Between the Parties
- Enterprise Environmental Factors
- Organisational Process Assets

1.2 Business Need

1.2.1 West Midlands Police (WMP) record more than 10,000 vehicle thefts a year. Around 90% of these vehicles are not recovered. This compares with a recovery rate nationally of over 40%.

1.2.2 This low recovery rate may suggest that there is a higher degree of organisation by serious crime groups in this crime in WMP area than elsewhere than in the UK.

1.2.3 WMP want to explore opportunities to improve their response to vehicle crime by making best use of data resources that they have at their disposal.

1.3 The Project Proposal

1.3.1 Conventional investigative techniques to detect and prevent vehicle theft could be enhanced by large scale data mining of the WMP crime data set of 10,000 relevant crimes and the WMP ANPR data set of 900 million vehicle reads a year.

1.3.2 Data mining, using an algorithm designed by the Universities of Surrey and Kent will seek to identify vehicle clones and vehicle convoys which are related to one or more vehicle crimes. This will increase opportunities for WMP to prevent the theft of vehicles, recover

them when they are stolen offer investigative opportunities enabling WMP to bring more offenders to justice.

1.4 Project Sponsor

1.4.1 This project is sponsored by The Data Driven Insights team at WMP. The senior responsible officer is Detective Chief Superintendent Todd.

1.5 Short Term Inter Party Agreements

1.5.1 West Midland Police agree to make available to Transtekniq 12 months of historic vehicle crime data (including crimes classified as burglary, robbery and fraud where a vehicle has been stolen) and 12 months of ANPR read data for the same period.

1.5.2 This is to validate the effectiveness in an operational setting of data mining techniques developed by Surrey University and now managed by Kent University and Transtekniq, which in 2011, using model data, demonstrated how such data mining could be effective in preventing and detecting car theft.

1.5.3 Transtekniq agree to use their best endeavours at no cost to WMP (save for the reasonable requirements of the project manager to call upon WMP staff and officer time, knowledge and expertise), to use data mining on the provided WMP crime and ANPR data sets to provide WMP with investigative and preventative opportunities in relation to vehicle crime by identifying

- Vehicle clones.
- Suspicious vehicle convoys that may be involved in vehicle crime.

1.5.4 The way that WMP use the information supplied to it will be wholly a matter for WMP.

1.6 Enterprise Environmental Factors (EEF)

1.6.1 These are factors over which the Project has little or no control. In this project, the following issues are EEFs.

- Public disquiet over the creeping Police use of ANPR data
- The Requirements of the Data Protection Act

1.6.2 Public Disquiet

The way that the Police use of ANPR data is frequently subject to critical scrutiny. This Project will be submitted to the WMP Ethics Committee to ensure that it has the right level of external scrutiny.

1.6.3 The Data Protection Act

1.6.4 This a research project and the strictures of the Data Protection Act 2018 (The Act) are less severe for research activity than they are in an operational situation.

1.6.5 The Legal gateway for using ANPR data in this project is described at section 7.3 of the WMP / Transtekniq Project Proposal.

1.7 Organisational Process Assets

1.7.1 This project will adhere to and be governed by

- The Data Protection Act 2018.
- The National ANPR Standards for policing and law enforcement[1]

1.7.2 It will also be guided by the Framework known as AlgoCare[2] , which is an acronym that describes how the police use of algorithms can be used in a proportionate and fair way.

1.7.3 The efficacy of the proposal (of using data mining to prevent and predict vehicle crime) is not yet established and so the Project will

[1] Accessed at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/806674/NASPLE_- January_2019_.pdf
[2] Accessed at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3029345

also be able to rely on the Supreme Court Case of Catt[3], which gives to a public sector body the benefit of the doubt in cases where it is not yet possible to determine with any certainty the balance or imbalance of benefits and disadvantages in relation to the use of new algorithmic technology.

2. The Project Management Plan.

2.1 This Section Covers

- communications
- human resources
- deliverables
- business requirements
- risks
- project scope
- stakeholders

2.2 Communications

2.2.1 The Communication Plan

Communication	Frequency	Goal	Owner	Audience
Email				
Project Status Report	Fortnightly	Review Project Progress and highlight any significant issues	Project Manager	Project Team and Project Sponsor

[3] *R (on the application of Catt) (Respondent) v Commissioner of Police of the Metropolis and another (Appellants)* [2015] UKSC 9.

Meeting				
Project Team	Weekly	Discuss Project Progress	Project manager	Project Team
Project Review	Monthly	To Present project deliverables, discuss next steps and gather feedback	Project Manager	Project Team and Project Sponsor (to Chair)
Post Project review	End of Project	Assess lessons learned	Project manager	Project Team and Project sponsor (Chair)

2.3 Human Resources.

2.3.1 The following roles and individuals have been identified by Transtekniq as being required to deliver this project

Role	**Individual Identified**	**Function**	**Vetting**
Project Manager	Chris Miller	To oversee the efficient management of the project and to act as a communication conduit with the project sponsor.	Required
Communications and Logistics Management	Raghbir Sandhu	To oversee communications between the team and the project sponsor and to arrange for the provision of resources as and when required	Required
Algorithm Consultant	Shujun Li (University of Kent)	To advise on the development of the algorithm	Required

Algorithm Researcher	Haiyue Yuan (University of Surrey)	To assist with algorithm development	Required
Police Vehicle Crime Domain Expert	Jon Chapman	To provide consultancy and expertise on translating police requirements to the data science team	Required
Data Scientist	Manoj Appan	To develop and apply appropriate data science rules to the ANPR and Vehicle Crime data sets.	Required
Technical Infrastructure Architect	Andrew Black (Employee of CDW)	To facilitate data integration with appropriate technical infrastructure	Required

2.3.2 The project team, being guests to WMP and having access to police data will be subjected to such vetting as WMP require and direct.

2.3.3 WMP Police will provide a police manager, an ANPR domain expert, a crime IT systems expert and appropriate data protection resource at such time and for such duration as is reasonably required to ensure the progress of the project and this provision will be agreed between the project sponsor and the project manager.

2.4 Deliverables

2.4.1 The Project will seek to enhance the ability of the WMP to prevent and predict vehicle crime and to recover stolen vehicles by developing a set of data science rules which will enable deep data mining of the ANPR and Vehicle crime data sets for 12 months.

2.4.2 The deliverable will be

- A list of likely vehicle clones.
- Notification of suspicious vehicle convoys linked to vehicle theft.
- Ongoing access to data mining techniques which will assist with real time policing of vehicle crime.

2.5 Business Requirements

2.5.1 The business need for this project has been described in the Project document (ANPR Convoy Analysis, A data Science Proposal (dated February 2020)). To meet this need the Project requires WMP to make available to Transtekniq one year's worth of ANPR read data and one year's worth of vehicle crime data.

2.6 Risk Management

2.6.1 The assessment and ownership of risk issues, and the means of mitigating them will be captured in an excel format, will be managed by the project manager and will be reviewed at the monthly Project Review Meeting. (See Appendix 1)

2.7 Project Scope

2.7.1 This is a research project in the first instance. Its aim is to assess whether data mining can assist WMP in their task of preventing and detecting vehicle crime and recovering stolen property.

2.7.2 Although it is a research project it may nonetheless provide WMP with opportunities to recover stolen property, prevent crime or prevent risk to life. In such instances, it will be wholly a matter for WMP to determine what operational action to take.

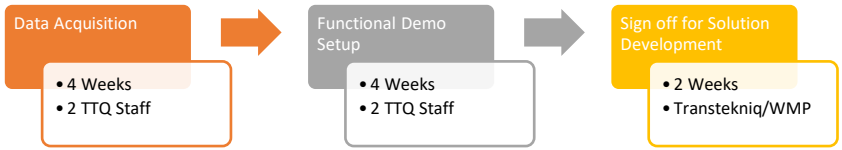
2.8 Stakeholder Management

2.8.1 The project sponsor will work with the project manager to identify key stakeholders. Communication with them will be through the use of bulletins, based on the monthly Project Review meetings and or the weekly project updates.

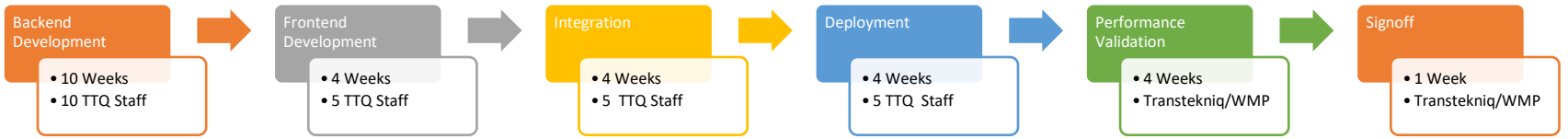
3. Work breakdown structure (WBS)

3.1 Below is an extract from the TTQ Project technical implementation plan which describes the timeline and resource requirement for each stage of the project

3.1.1 Proof of Concept (Phase 1)



3.1.2 Solution Development (Phase 2)



3.1.3 Training Police Personnel (Phase 3)

4. Project Updates

2.9.1 These are described in the Communications Plan.

5. Change request log

4.1 It is not expected that there will significant requests for changes to the project scope but the project manager will maintain a project change request log (Appendix 2)