

Policing Bitcoin: investigating, evidencing and prosecuting crime involving cryptocurrency.

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Study term: 1st May 2016 – 30th April 2016

Research Objectives

(Extracted from original application)

The objective of this research is ... to bring together interdisciplinary experts from national and local law enforcement, academia, the Crown Prosecution Service, private industry and the financial sector in order to explore and comment upon the various challenges that cryptocurrencies, such as Bitcoins, create for the police.

Led by GMP's Economic Crime Unit, the project will draw upon various information sources to identify a) relevant case studies b) any relevant policing practice c) key academic literature d) any legal comment. It will then simulate two virtual currency investigations which reflect the types of activity currently faced by police forces in the N8 region and also the UK.

- *Case Study 1 - Illegal purchase of a firearm - a pistol has been purchased on the deep web and delivered to a pick up box in Greater Manchester.*
- *Case study 2 - Money laundering investigation - Following the arrest of a suspect for a high value fraud, a Bitcoin wallet code has been located at his home address.*

The research findings will be drawn together in a report/ paper entitled "Policing Cryptocurrencies - Investigative strategies and evidential practice" and the findings delivered in workshops and also publications. The findings will inform future investigations into crimes involving cryptocurrencies.

Progress

- **First meeting - May 2016 - Manchester Town Hall**

The first meeting brought together the project leads. Phil Larratt and Paul Taylor from Greater Manchester Police, Professor David Wall from the University of Leeds, Syed Naqvi from City University Birmingham and Rob Stokes and Matt Shilitto from the University of Liverpool.

This was an introductory meeting where the project parameters were discussed in more detail. It was agreed to have monthly meetings via Skype conferences.

- **Acquisition of finances**

This was more difficult than first anticipated and further consideration should be given to this in the future (specifically in regard to the N8 timescale). GMP's finance department had issues accepting the funding due to other information sharing agreements that are currently in place with other Universities. In short, this had to go to the Chief Constable for authorisation which took the best part of eight weeks.

GMP didn't get the funds until August 2016, resulting in a minor delay in acquisition of technical equipment needed to commence the research and scenarios.

- **Posting on law enforcement forums**

Details of the N8 project were disclosed on various police forums. This generated a significant amount of interest from officers across the UK.

- **Commission of literature review**

Following the initial meetings between the N8 members and Phil Ariss from the EMROCU, it was agreed that a literature review was needed in respect of virtual currencies. This has been commissioned by David Wall and the author will provide an introduction to cryptocurrencies.

- **Training NCA - From FINCEN. N8 project presented to law enforcement across the UK**

Phil Larratt attended a two day training programme at the NCA whereby Sean Evans, a virtual currency expert from the US Department of Justice's Financial Crime Enforcement Network (FINCEN) delivered a comprehensive introduction to bitcoin and other emerging cryptocurrencies. FINCEN work with financial institutions and various law enforcement agencies to analyse and disseminate intelligence to combat money laundering and terrorist financing.

At the end of the training, Phil Larratt delivered a presentation about GMP's research with the N8 project. This subsequently generated interest from various other UK agencies.

- **Home Office working group - ML and Counter Terrorist financing**

Phil Larratt and Paul Taylor were invited to sit on the community of interest group for money laundering and terrorist financing at the Home Office. Various intelligence, law enforcement and regulatory agencies were in attendance and the N8 project was discussed in detail. Both officers were invited back to the group for the next meeting in January 2017 to present the initial findings of the N8 project.

Conference and presentations

- **VC Symposium presentation and training**

Following the presentations given at the NCA and Home Office, Phil Larratt was invited to a Virtual Currency Symposium in the USA. The conference was organised by the National Cybercrime Joint Task Force - Virtual Currency Team and brought together officers from the Department of Justice, FBI, IRS, Secret Service and Homeland Security. Over three days various case studies were discussed and various guest speakers from private companies demonstrated their products in relation to virtual currency investigations, compliance and regulation.

Phil Larratt delivered a presentation in relation to the UK's position in relation to virtual currency investigations. He also outlined the N8 project and the objectives of the project.

The trip was particularly useful as the FBI and DOJ have shared several best practice documents in relation to bitcoin investigation and seizures. These are to be reviewed by officers and considered for use in practical scenario and eventual training guidance / recommendations.

- **September 2016 - Final Skype conference prior to the start of the scenarios**

All project members were present at an N8 Skype conference whereby the final scenarios were discussed in detail.

Adjustment of project scenarios

Following various meetings and advice given from officers who have led bitcoin investigations, the proposed scenarios have been slightly adjusted.

1. Dark web scenario - bitcoin will be purchased from a bitcoin ATM in Manchester city centre. The bitcoin will then be used to make various online purchases from the dark web. The original proposal specified the purchase of blank credit cards and an embossing machine, however two purchases would limit the amount of data available to a digital forensic examiner. Subsequently various illicit goods will now be bought on the dark web.
2. Bitcoin seizure scenario - Bitcoin will be purchased from localbitcoin.com and/or a bitcoin exchange. A mock warrant will take place where officers are faced with the problem of how to legally and practically seize bitcoin from a suspect's bitcoin wallet. This scenario will now draw on expert evidence and guidance

provided by the FBI and will seek to utilise “track and trace” tools developed by private industry.

3. Intelligence led ransomware scenarios - Bitcoin will be purchased in a mock extortion / ransomware scenario. The devices used will again be analysed and both open source and paid software will be used to analyse the blockchain. The CPS will be consulted to discuss how to prosecute a bitcoin investigation.

September 2016 - Commencement of scenario 1

On 27.09.16 bitcoin were bought from the bitcoin ATM in Manchester city centre. £100 (in cash) from the N8 fund was used to purchase bitcoin which was transferred to an address on a “suspect” phone. Officers later signed up for the dark web marketplace, Alphabay and various guides to committing fraud various scams have been purchased. The next stage is to buy blank payment cards and other items from the same marketplace (once our trust level rating on the dark web has improved!)

Once the scenario is finalised the laptop and phone used to surf the dark web and transfer the bitcoins will be analysed by Syed Naqvi (Birmingham City University). The information and data obtained from the device will be then be sent back to GMP and various open source and private analytical tools will be used to determine how to effectively investigate, evidence and prosecute this type of crime.

October 2016 - April 2017 - Plans for the remainder of the timescale

1. Scenario 2 and 3 are to be carried out in November and December 2016 respectively.
2. Once the projects have been completed Rob Stokes and Matt Shiito will be able to provide expert comment and analysis in relation to POCA and other legal considerations.
3. Literature review to be overseen by Professor David Wall.
4. Police working group - Various UK police organisations have investigated virtual currency crimes however there is very little information sharing. The working group, led by GMP, will draw upon investigators experience to better inform practice. This will also be of significant benefit to the final report for the N8 project.
5. Presentation by GMP officers at the national kidnap and extortion working group in November 2016.

As was detailed in the proposal document, the end product will serve as a guide to investigating officers, forensic examiners and prosecutors. The hope is that it will also generate some national interest specifically in relation to national oversight and regulation.