



Data mining for Possible OC

BUILDING A SAFE AND RESILIENT CANADA

A method of data mining regular police records to identify possible criminal organizations has been developed. Between 2001 and 2006, offending related to 236 possible criminal organizations was reported to RCMP “E” Division, with 39 of the groups being particularly serious.

This study combined computational mathematical analysis, social network analysis methods, and data mining techniques in a unique way to automatically identify traces of possible criminal organizations in operational police records.

Under Canadian law organized crime groups, such as gangs, are termed “criminal organizations.” The minimum requirements characterizing a criminal organization are that it consists of three or more people; that there is the commission of a serious criminal offence that can result in a material benefit; and that group offending happen more than once.

The dataset that was used in the study was extracted from the Police Information and Retrieval System of RCMP “E” Division. (RCMP “E” Division covers most of British Columbia, not including some urban areas in the Lower Mainland like Vancouver and the Victoria area.) The massive dataset of more than 4 million records covered all reported offences and all persons associated with a crime, from complaint to charge, from mid-2001 to mid-2006, for the policing jurisdiction.

Using social network analysis methods, the researchers first identified groups of people that the police-reported data indicated had co-offended with one another. (A “co-offence” is when one or more offenders are associated with a crime incident.) The level of activity, seriousness of criminality, and material benefit associated with the offending for these co-offending groups was then calculated and compared between years. Two different methods were used to determine the level of criminality for a co-offending

group. This identified which co-offending groups demonstrated the minimum characteristics of a possible criminal organization and which demonstrated the characteristics of a particularly serious criminal organization. The researchers then examined how group membership and the structure of these groups changed over time.

The researchers found more than 18,000 groupings of co-offenders in the crimes that came to police attention. Of these 18,000 groupings, approximately 300 groups were active over a period of time. Of the 300 groups active over a period of time, 236 committed at least one serious offence. These 236 groups represent possible criminal organizations, as they met the minimum quantitative criteria under law for a criminal organization. When the researchers only considered co-offending groups that were active over a period of time which consistently committed crimes that were of above average seriousness, 39 possible criminal organizations of particular seriousness were identified.

Most of the more serious criminal organizations that were identified were also very active over a number of years, indicating their greater stability and intensity of offending compared to the other possible criminal organizations. Similarly, if a group was more criminally active, its members were more likely to have committed serious crimes.

Most of the possible criminal organizations were quite small, with an average core group’s size being between six and seven individuals. The particularly serious possible criminal organizations had an even smaller average size, of just less than five. The less serious possible criminal organizations tended to have more peripheral members and a less tightly connected core group.

This type of analysis may eventually provide a useful tool for operational policing in the real-time



identification of individuals possibly associated with a criminal organization, as well as serve as an alternative source of information in intelligence gathering and verification.

Intelligence and further criminal analysis is required to properly use this type of information in the investigation of, and reporting on, organized crime because there are a number of caveats regarding these possible criminal organizations that have been identified. Further work would be required to determine if the possible criminal organizations identified were component parts of larger organized crime groups. It is possible that not all individuals in a criminal organization are included in the identified networks because only police-reported crime information was analyzed. Individuals operating in the background or who are more able to escape police interventions, who may be more likely to direct the activities of others, would not be captured with this type of methodology.

Glässer, Uwe, Mohammad A. Tayebi, Patricia L. Brantingham, and Paul J. Brantingham. (2012) *Estimating Possible Criminal Organizations from Co-offending Data*. Ottawa, ON: Public Safety Canada.

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