



NETWORK ANALYSIS
FOR CRIME PREVENTION

2013

Summary Report

5th Annual Illicit Networks Workshop

Sept. 29, 2013 – Oct. 1, 2013

Los Angeles, CA

www.illicitnetworks.org

© 2013 Illicit Networks.org

Report Cover: Photo from Disney Performing Arts Center, Gisela Bichler
Workshop Images: Christopher Bates

Workshop Co-hosts

**Illicit Connections, Opaque
Networks (ICON) Lab**

Aili Malm, Ph.D., Director
Associate Professor, Department of Criminal Justice
California State University, Long Beach

**Center for Criminal Justice
Research (CCJR)**

Gisela Bichler, Ph.D., Director
Professor, Department of Criminal Justice
California State University, San Bernardino

Organizing Committee

Executive Team

Gisela Bichler, CCJR	Program & Facilities Director
Aili Malm, ICON	Media & Finance Director

Staff Members

Christopher Bates, ICON	Webmaster & Photographer
Stacy Bush, CCJR	Administrative Support
Janet Enriquez, CCJR	Logistics Coordinator
Juan Franquez, CCJR	Poster Coordinator & AV Support
Stacey Goldberg, CCJR	Social Program Coordinator
Jennifer Hagala, CCJR	Printing & Social Program
Edgar Larin, CCJR	Logistics & AV Support
Steven Lim, CCJR	Logistics
Becky Nash, ICON	AV Coordinator
Jasmin Randle, CCJR	Administrative Support
Mary Schmidt, CSUSB	Administrative Support
Mary Wood, CCJR	Logistics & Printing

Sponsors & Supporters



PROGRAM HIGHLIGHTS

The workshop was held from September 29 – October 1, 2013. It brought together a wide range of academics, law enforcement officials, and private sector representatives who have the potential and expertise to reduce crime caused by illicit networks. This report provides a number of highlights from the 2013 Workshop, which was deemed a tremendous success by the presenters, attendees, and sponsors. The presentations were informative, the conversations were stimulating, and the connections made are sure to yield positive results.

“I wanted to thank you again for involving me in the workshop. I thought it was a great experience. The organization was outstanding.”

– Jacob Young, ASU



Larry Gaines, California State University, San Bernardino

Discussions drew attention to the many ways that SNA can be used to support efforts to uncover and disengage illicit networks. This brief summarizes key implications for: crime prevention policy, tactical applications, and understanding network formation. The workshop was supported by: the California Endowment, the Department of Justice (COPS Office), California State University, Long Beach and San Bernardino, the California Chiefs of Police Association, and Target (Corporate Security/Government Affairs). The co-hosts were: Gisela Bichler, Ph.D., director of the **Center for Criminal Justice Studies (CCJR)** at CSUSB and Aili Malm, Ph.D., director of the **ICON (Illicit Connections, Opaque Networks)** Lab at CSULB. For more details on the workshop, please visit www.illicitnetworks.org.



“The presentations were very informative. The LAPD intends to follow-up with some of the presenters to see if there is a possibility of research collaboration.”

– Stephan Margolis, LAPD



Join us in Adelaide, AUS for the
6th Annual Illicit Networks Workshop.

Hosted by Andrew Goldsmith,
Centre for ...
Flinders University



Images: From top to bottom and left to right. **Presenter's names are in bold.**

Gisela Bichler (CSUSB), **Aili Malm** (CSULB), Steven Strang (RCMP), **Rémi Boivin** (U. Montreal), back James Densley (Metropolitan U.); Becky Nash (CSULB)

Martin Bouchard (Simon Fraser University); Stacy Bush (CCJR), Stacey Goldberg (CCJR), Jasmin Randle (CCRJ), Jason Gavel (ICON)

David Décarry-Héту, University of Montréal

5th Annual Illicit Networks Workshop
Sept. 29, 2013 – Oct. 1, 2013: Los Angeles, CA

I. PREVENTION & ADMINISTRATIVE POLICY

The social network analysis toolkit has innumerable applications to support the development, administration, and implementation of policies to prevent crime and combat terrorism. Four critical policy implications raised during the workshop offer immediate take home lessons.

1. Inducing change in officer perceptions.

Jacob Young and Justin Ready argue that networks influence the diffusion of attitudes toward the legitimacy of on-officer cameras. To maximize uptake introduce new technology into clusters of officers throughout the agency.



Jacob Young, Arizona State University

2. Developing better interagency communication.

Russell Brewer demonstrated that private interests effectively broker information across the network of private and public agencies to strengthen crime control initiatives at the LA|LB Port Complex. Criminal justice agencies need private entities to bridge communication gaps.



Russell Brewer, Flinders University

3. Developing informants.

Robert Faulkner and **Eric Cheney** found that central actors of an equity funding fraud defect by turning state's witness and peripheral actors take advantage of opportunities to cheat the leaders of the fraud. A candidate's position within the structure of a conspiracy network is a key element to add to informant handling policy.

4. Evaluating operational effectiveness.

Sean Everton and **Dan Cunningham** argue that a package of kinetic (i.e. targeted removal) and non-kinetic (i.e. psychological operations) was most effective in facilitating the downfall of a terrorist network by isolating it from the population and other Jihadist groups.

David Décary-Héту and Dominique Laferrière show that carding markets (online forums where stolen private information is bought and sold) can be destabilized by using fake accounts designed to have high trust status. This supports use of social network analysis at every stage of a **Sybil attack**.

Orchestrating and Evaluating a Sybil Attack

The term "Sybil Attack" was coined by Brian Zill at Microsoft Research in 2002. The attack involves four steps.

1. Register an account with an online market forum.
2. Obtain a trusted status among market participants.
3. Engage in business transactions as a vendor.
4. Act opportunistically in each transaction.

Décary-Héту adds that assessment is the critical final step, arguing that the attack is not complete until our influence on market activity is evaluated (step 5). SNA is useful at each step.



Dan Cunningham, Post Naval Graduate School & Stacy Bush, California State University, San Bernardino

Dan and Stacy discuss her preliminary results that indicate the onslaught of strategic drone attacks on the critical operatives of Al Qa'ida in 2010 significantly altered the structural position of individuals within command central but not the geographic seat of power.

II. TACTICAL APPLICATION

The workshop drew attention to the tactical applications of social network analysis. Efforts to disrupt criminal enterprise are strengthened when critical targets are identified that cannot be easily replaced and weaknesses and actionable facets of illicit markets are exposed.

1. Identifying targets to disrupt criminal networks.

Christian Leuprecht and Andrew Aulthouse show that chain and hub structure of international gun smuggling networks are regenerative. Most trade is instigated by individual suppliers exploiting gaps in system oversight.

David Bright, Catherine Greenhill, Alison Ritter, and Carlo Morselli found that the key players in a drug trafficking network are best identified by the intersection of multiple factors. When identifying targets, law enforcement should consider the interconnectivity of actors, their role within the criminal enterprise, and their access to essential resources.

Thomas Grund, Rémi Boivin and Carlo Morselli find that while co-offending relationships were relatively stable, once you control for the fact that some crime types are more frequently committed, there is actually less specialization than expected. This suggests that co-offending is opportunity driven.

2. Uncovering actionable features of illicit markets.

Rémi Boivin showed that international smuggling activity differed across drug type and shipment size was related to practical issues associated with the anticipated profit, means of transportation and perceived level of risk.

Examining illegal weapons trade from the point of view of the buyer, **Carlo Morselli** found higher levels of opportunistic purchasing within tightknit groups. This local market structure is cliquish which is opposite to supply-oriented networks where brokerage is critical to the success of illicit trade.

Andrea Schopefer, **Gisela Bichler** and Stacy Bush identify hidden relations among SEC violators operating fortune 500 companies at the time of the offense. While offenders were socially isolated from the network, a few organizations and a couple of SEC violators united violators and non-offending CEOs into a cohesive group.



David Bright, University of New South Wales



Carlo Morselli & Rémi Boivin (back), University of Montréal talk with Christian Leuprecht, Royal Military College of Canada

Research in Progress: Preliminary Findings

Posters by **Juan Franquez**, **Jennifer Hagala**, and **Mary Wood** illustrated intricacies in the illicit global trade in small arms and ammunition: (1) post-conflict, weapons supermarkets are more apt to involve reciprocal trade relations; (2) weapons embargoes significantly increase the formation of indirect trade relations; and, (3) a substantial portion of illicit trade in weapons flows into and out of Africa into Europe through key port nations.

A poster by **Jasmin Randle** showed intra- and inter-gang violence reveals local hierarchies and few reciprocated attacks among Bloods and Crips subsets in Los Angeles County. **Stacey Goldberg** illustrates in a poster presentation the cohesion among Mexican DTOs that exists due to common affiliations with US gangs.



Juan Franquez, CCJR & Eric Cheney, Central Washington University

III. UNDERSTANDING NETWORK FORMATION

Developing greater insight into how networks form and evolve provides evidence upon which we can build more accurate explanations of how illicit and dark networks differ from their legal counterparts. Papers also touched upon how information gleaned through networks is used in various ways to shape subsequent activity. Three lessons can be drawn from the workshop.

1. Finding suitable co-offenders.

Evan McCuish, **Martin Bouchard**, and Raymond Corrado presented research on homicide co-offending networks finding that for all homicide events, co-offenders included individuals who previously had not been identified in the co-offending network.

Peter Carrington finds evidence against the “Fagin” hypothesis that offenders below the age of criminal responsibility are particularly attractive as co-offenders for older offenders. Instead, co-offenders are close in age (age homophily).

James Densley and Thomas Grund presented on ethnic homophily and triadic closure in gangs, extending support for the conclusion that ethnicity matters for who co-offends with whom. By investigating ethnic homophily separately for different ethnic groups, they showed that it is more pronounced for some groups.

2. Using information to lure and keep people in a network.

Becky Nash, Martin Bouchard and Aili Malm argue that performing due diligence and trusting in regulatory agencies (SAC) increases the initial investment in a fraud while consulting many types of information mitigates overall loss.

Paolo Campana and Frederico Varese show that information about prior violent behavior is used within mafia groups to hold people hostage and ensure individuals commit to organizational objectives.

3. Feeding off the network.

Andrew Goldsmith and **Russell Brewer** examined the flow of information in an online environment. They conclude that a “digital drift” exists where criminal encounters vary from highly structured to highly fluid.



Peter Carrington, University of Waterloo



Paolo Campana, University of Oxford



Russell Brewer & Andrew Goldsmith,
Flinders University



Crystal English, San Diego State University &
Janet Enriquez, CCR

Geographic Networks

The workshop touched upon the emerging area of geography and networks through a poster by **Janet Enriquez**. This study combines an estimation procedure called interstitial analysis with network modeling to identify the travel segments the LA commuter rail system that are perceived to have poor place management and high levels of passenger-on-passenger aggression.

CONTACT LIST

Authors	Title (Type)
Christopher Bates , ICON, California State University, Long Beach (christopherbates@gmail.com)	Current projects at the ICON Lab (poster)
Rémi Boivin , Université de Montréal (remi.boivin@umontreal.ca)	Expected losses: A multilevel analysis of drug seizures in the world-economy (paper)
Russell Brewer , Flinders University (russell.brewer@flinders.edu.au)	Crime control networks on the Los Angeles waterfront: Overcoming structural barriers and building resilient partnerships (paper)
David Bright , Catherine Greenhill & Alison Ritter, University of New South Wales; Carlo Morselli, Université de Montréal (corresponding author: david.bright@unsw.edu.au)	The use of actor attributes and centrality measures to identify key actors: A case study of a drug trafficking network (paper)
Stacy Bush , CCJR, California State University, San Bernardino (bushs300@coyote.csusb.edu)	Drone effects: Structural change in Al Qa'ida communications (poster)
Peter Carrington , University of Waterloo (pic@connect.uwaterloo.ca)	The structure of age homophily in co-offending groups (paper)
Robert Faulkner, University of Massachusetts Amherst; Eric Cheney , Central Washington University (corresponding author: cheneye@cwu.edu)	Defection in an enterprise conspiracy: Exit and opportunism in equity funding (paper)
David Décarry-Héту & Dominique Laferrière, Université de Montréal (corresponding author: david.hetu@gmail.com)	Preventing crime online: A social network based analysis of a carding forum (paper)
James Densley, Metropolitan State University; Thomas Grund, Université de Montréal (corresponding author: james.densley@metrostate.edu)	Ethnic homophily and triad closure: Mapping internal gang structure using exponential random graph models (paper)
Janet Enriquez , CCJR, California State University, San Bernardino (janetenriquez@yahoo.com)	Taming the steel horse I ride: Identifying the problematic links in commuter rail systems (poster)
Sean Everton & Dan Cunningham , Naval Postgraduate School (corresponding author: sfeverto@nps.edu)	Dark network resilience in a hostile environment: Optimizing centralization and density (paper)
Juan Franquez , CCJR, California State University, San Bernardino (j.franquez@yahoo.com)	Supermarkets: Conflict cessation and weapons trade (poster)
Stacey Goldberg , CCJR, California State University, San Bernardino (goldbers@coyote.csusb.edu)	Crossing borders: Mexican DTOs influence on interstate gang structure (poster)
Andrew Goldsmith & Russell Brewer , Flinders University (corresponding author: andrew.goldsmith@flinders.edu.au)	Criminal interaction orders: Towards a theory of criminal encounters (paper)
Thomas Grund , Rémi Boivin & Carlo Morselli, Université de Montréal (corresponding author: thomas.u.grund@gmail.com)	Overlapping crime: Stability and specialization of co-offending relationships (paper)
Jennifer Hagala , CCJR, California State University, San Bernardino (hagala3675@yahoo.com)	Responding to embargoes: A pulse model of weapons flow (poster)
Christian Leuprecht , Royal Military College of Canada & Andrew Aulhouse, Queen's University (corresponding author: christian.leuprecht@rmc.ca)	Guns for hire: North America's intra-continental gun trafficking networks (paper)
Evan C. McCuish, Martin Bouchard , and Raymond Corrado, Simon Fraser University (corresponding author: ecm2@sfu.ca)	Murder networks: The search for suitable homicide co-offenders among gang members (paper)
Carlo Morselli , Université de Montréal (carlo.morselli@umontreal.ca)	The scope and shape of individual-level illegal firearm networks in Quebec (paper)
Becky Nash , California State University, Long Beach; Martin Bouchard, Simon Fraser University; and Aili Malm, California State University, Long Beach (corresponding author: beckyn@sfu.ca)	Twisting trust: Social networks, due diligence and loss of capital in a Ponzi Scheme (paper)
Jasmin Randle , CCJR, California State University, San Bernardino (randj301@coyote.csusb.edu)	Does violence roll downhill? An analysis of inter- and intra-gang violence among Bloods and Crips of LA County (poster)
Andrea Schoepfer, Gisela Bichler & Stacy Bush, California State University, San Bernardino (corresponding author: gbichler@csusb.edu)	White collars and black ties: Interlocking social circles of elite corporate offenders (paper)
Federico Varese & Paolo Campana , University of Oxford (corresponding author: federico.varese@sociology.ox.ac.uk)	Cooperation in criminal organizations: Kinship and violence as credible commitments (paper)
Mary Wood , CCJR, California State University, San Bernardino (woodm306@coyote.csusb.edu)	In and out of Africa: Illicit small arms trade, 1997-2010 (poster)
Jacob T.N. Young & Justin Ready, Arizona State University (corresponding author: Jacob.Young.1@asu.edu)	Framing technological innovations as legitimate: The role of networks in influencing the endorsement and use of on-officer video cameras (paper)

FUTURE DIRECTIONS

This year's workshop closed with a synopsis by **Aili Malm** and Gisela Bichler, a summary of projects currently occurring at CSULB's ICON Lab by **Chris Bates**, and an introduction to Google Ideas by **Scout Sinclair Brody**.

The Workshop Planning Committee has begun laying the groundwork for our **6th Annual Workshop** to be held December, 2014, in Adelaide, Australia. We are continually looking for feedback and co-sponsors to help in improving our Workshop. We anticipate increasing our number of international collaborators over the next few years.

