Jesse Sowell

Assistant Professor
Department of International Affairs
Bush School of Government and Public Service
Texas A&M University

4220 TAMU, office 1096
College Station, TX 77843-4220

jsowell@tamu.edu
+1 (517) 214-1900

Current Positions

2018- **Assistant Professor**
Department of International Affairs
Bush School of Government and Public Service
Research Fellow, Cybersecurity Center
Research Fellow, Mays Innovation Research Center
Texas A&M University (College Station, TX)

2020- **Research Affiliate and Advisory Board Member (2022)**
Program on Emerging Technologies (PoET)
Department of Political Science
Massachusetts Institute of Technology (Cambridge, MA)

Previous Positions

2018-2020 **Honorary Lecturer**
Department of Science, Technology, Engineering, and Public Policy (STEaPP)
University College London (London, UK)

2016-2018 **Postdoctoral Cybersecurity Fellow**
Center for International Security and Cooperation (CISAC)
Stanford University (Stanford, CA)

Degrees

2015 **Ph.D. in Technology, Management, and Policy**
Massachusetts Institute of Technology (Cambridge, MA)
Dissertation: *Finding Order in a Contentious Internet*
Committee: Kenneth Oye, Chair (Political Science); David Clark, Supervisor (Computer Science); Nazli Choucri (Political Science); Frank Field (Technology and Policy); Charles Fine (Management Science)

2010 **S.M. in Technology and Policy**
Massachusetts Institute of Technology (Cambridge, MA)
Thesis: *Deficiencies in Online Privacy Policies: Factors and Policy Recommendations*
Supervisor: David Clark (Computer Science)

2007 **M.S. in Criminal Justice**
Michigan State University (East Lansing, MI)

2005 **M.S. in Computer Science**
Michigan State University (East Lansing, MI)

2001 **B.S. in Computer Science**
Clemson University (Clemson, SC)
Graduated with General and Departmental Honors

Research

Broadly, my research explores the credibility and legitimacy challenges faced by technical and operational communities, whose work is critical to complex systems upon which we rely for our day-to-day activities, but are often relegated to the "low politics" of technical coordination. My primary research streams focus on the transnational institutional complex responsible for the governance of Internet infrastructures and security, with a special focus on the mutually reinforcing relationship between credible knowledge assessment and authority. Analytically, I draw on institutional economics, political economy, common resource management, global governance and authority, and computer science to evaluate the function, structure, and stability of these institutions, and their engagement with the global governance system. To evaluate these dynamics, I employ a mixed-methods approach, combining exploratory data analysis methods such as clustering and network analysis to characterize structural relationships and systematically identify case studies that contribute to understanding the causal mechanisms at play. Recently, I have expanded my work to comparatively evaluate the governance of online platforms, reputation mechanisms for mitigating disinformation, and investigations into formal and informal institutional constructs in the global financial system.

Publications

Journal Articles

Sowell, J. 2020. *Evaluating Competition in the Internet's Infrastructure: A View of GAFAM from the Internet Exchanges*. Special Issue of *Journal of Cyber Policy* on Internet Consolidation.

Brass, I. and Sowell, J. 2020. *Adaptive Governance for the Internet of Things (IoT): Coping with Emerging Security Risks*. Special Issue of *Regulation & Governance* on Governance of Emerging Disruptive Technologies.

Under Review

Operational Epistemic Authority in the Internet's Infrastructure
(under review by *International Organization*)

The Digital Dictator Dilemma: A Comparative Study of Authoritarianism and Internet Shutdowns in Africa
(with Sarah Logan, under review by *Journal of Peace Research*)

Regional Politics of Submarine Cables
(with Lane Burdette, under review by *Contemporary Security Policy*)

Book Chapters

Sowell, J. 2019. *A Conceptual Model of Planned Adaptation (PA)*. In *Decision Making Under Deep Uncertainty: From Theory to Practice*, edited by Vincent A. W. J. Marchau, Warren E. Walker, Pieter J. T. M. Bloemen, and Steven W. Popper. pp. 289–320. Springer International Publishing.

Short Policy Articles

Sowell, J. 2018. *The Role of Norms in Internet Security: Reputation and its Limits*
Published by Lawfare on 8 May 2018

Project Reports

Sowell, J. 2018. *Combining Capabilities for Cybersecurity Incident Response.* Center for International Security and Cooperation. Stanford University. Stanford, CA. (Available upon request)

Conference and Workshop Papers

Ku, C., Sowell, J., Bartoszewski, J., and Morriss, A. 2021. *Networks & Resilience in International Financial Networks*

Presented by Sowell in the *Global Rules and Illicit Economic Flows* panel at the 2021 APSA Annual Meeting & Exhibition on 30 September 2021 (Seattle, Washington).

Brass, I., Sowell, J., Blackstock, J., and Carr, M. 2017. *The Role of Transnational Expert Associations in Governing the Cybersecurity Risk of the Internet of Things*
3^{rd} International Conference on Public Policy (ICPP3) (Singapore).

Howard, L. and Sowell, J. 2015. *A Comparison of Public Policy Approaches to the IPv4-IPv6 Transition*
44^{th} Research Conference on Communication, Information and Internet Policy. Telecommunications Policy Research Consortium (Arlington, VA).

Sowell, J. 2013. *Framing the Value of Internet Exchange Participation*
42^{nd} Research Conference on Communication, Information and Internet Policy. Telecommunications Policy Research Consortium (Arlington, VA)

Sowell, J. 2012. *Empirical Studies of Bottom-Up Internet Governance*
41^{st} Research Conference on Communication, Information and Internet Policy. Telecommunications Policy Research Consortium (Arlington, VA).

Sowell, J. 2010. *Mixed Context and Privacy*
39^{th} Research Conference on Communication, Information and Internet Policy. Telecommunications Policy Research Consortium (Arlington, VA).

Selected Works in Progress

Keeping the Internet Glued Together: Common Resource Management Among Transnational Peers
(targeting *International Journal of the Commons*)

Who Turned the Internet Off? Modeling the Relationship Between Regime Type and Internet Shudowns
(with Sarah Logan, journal to be determined)

Where Risk Runs Deep: Quantifying Diversity and Redundancy in the Global Submarine Cable Network
(with Lane Burdette, targeting *Telecommunications Policy*)

History and Structure of the Internet's Anti-Abuse Regime: From Spam to Disinformation
(targeting *Journal of Online Safety and Trust*)

The Internet's Operational Regime Complex
(targeting *Perspectives on Politics*)

Grants

2019-2021 — *Mapping Cybercrime Operational Networks: Incentive Structures and Platform Economics*
T3: Texas A&M Triads for Transformation ($30k), Principal Investigator with:
Narasimha Reddy: Professor, Department of Electrical and Computer Engineering, College of Engineering; Associate Dean of Research
Korok Ray: Associate Professor, Department of Accounting, Mays Business School; Director, Mays Innovation Research Center

2017-2018 — *Documenting Combined Capabilities for Internet Security*
Stanford Cyber Initiative ($75k), Principal Author with Amy Zegart, Herb Lin, and Harold Trinkunas

2017-2018 — *Developing a Reliable Capacity to Deploy Combined Capabilities in Internet Security*
Freeman Spogli Institute's International Policy Implementation Lab ($50k), Principal Author with Amy Zegart, Herb Lin, and Harold Trinkunas

2013-2015 *Characterizing Internet Exchange Value: Moving Beyond Transit Savings*
Google Faculty Research Award ($85k), Principal Author with David Clark

Invited Talks, Presentations, and Lectures

March 2022 Invited Lecture, *Reputation and Security Externalities*
Science, Technology, and Public Policy, Institute for Data, Systems, and Society, Massachusetts Institute of Technology (MIT) (Cambridge, MA)

March 2022 Invited Lecture, *Capabilities and Uncertainty in Complex Engineering Systems*
Risk Assessment and Governance, Department of Science, Technology, Engineering, and Public Policy (STEaPP), University College London (UCL) (London, UK)

2021 Invited Lecture, *Consolidation and Platform Governance*
Digital Technology and Policy, Department of Science, Technology, Engineering, and Public Policy (STEaPP), University College London (UCL) (London, UK)

Invited Lecture, *Capabilities and Uncertainty in Complex Engineering Systems*
Risk Assessment and Governance, Department of Science, Technology, Engineering, and Public Policy (STEaPP), University College London (UCL) (London, UK)

2020 Invited Lecture, *Innovation and Concentration in the Internet: From Application Layer to Infrastructure*
Department of Finance and Mays Innovation Research Center
Mays Business School, Texas A&M University (College Station, TX)

Invited Lecture, *Capabilities and Uncertainty in Complex Engineering Systems*
Risk Assessment and Governance, Department of Science, Technology, Engineering, and Public Policy (STEaPP), University College London (UCL) (London, UK)

Panelist, *Technical Challenges*
Workshop on Cybernorms, Information Society Project
Yale Law School (New Haven, CT)

2019 Panelist, *Internet Consolidation: What Lies Beneath the Application Layer?*
Internet Society and Chatham House (London, UK)

Invited Lecture, *IoT and Reputation*
Warwick Manufacturing Group, Warwick University (Warwick, UK)

Invited Lecture, *Adapting to Cybersecurity Threats: The Demand for Combined Capabilities*
Information Society Project, Yale Law School (New Haven, CT)

Invited Lecture, *Capabilities and Uncertainty in Complex Engineering Systems*
Risk Assessment and Governance, Department of Science, Technology, Engineering, and Public Policy (STEaPP), University College London (UCL) (London, UK)

2018 Moderator, *International Cybersecurity Panel*
2018 Cybersecurity Symposium, Stanford Law (Stanford, CA)

Panelist, *Risk, Uncertainty, and the Internet of Things: Governance in an Age of Interdependence*
International Studies Association 59^{th} Annual Convention (San Francisco, CA)

Panelist, *Epistemic Infrastructure: Revisiting Knowledge Systems and Practice*
International Studies Association 59^{th} Annual Convention (San Francisco, CA)

2017 Moderator, *Exploring the Range of Possible Cyber Threat Scenarios*
Cyber Insurance and Its Evolving Role in Helping Mitigate Cyber Risks
National Association of Insurance Commissioners and the Stanford Cyber Initiative (Santa Clara, CA)

Moderator, *Security and Privacy Session 2*
Research Conference on Communication, Information and Internet Policy
Telecommunications Policy Research Consortium (Arlington, VA)

Presenter, *Reputation and the Anti-Abuse Regime*
Social Science Seminar, Center for International Security and Cooperation
Stanford University (Stanford, CA)

Discussant, *Cybersecurity Futures 2020*
Presented by Betsy Cooper and Steven Weber, Berkeley Center for Long-Term Cybersecurity
Social Science Seminar, Stanford Center for International Security and Cooperation (Stanford, CA)

2016 Presenter, *Finding Order in a Contentious Internet*
Cyber Reading Group, Center for International Security and Cooperation
Stanford University (Stanford, CA)

Epistemic Constructivism
Information Technology Policy Seminar
University of Massachusetts at Amherst (Amherst, MA)

2015 Panelist *Localizing IP Interconnection: Experiences from Africa and Latin America*
Research Conference on Communication, Information and Internet Policy
Telecommunications Policy Research Consortium (Arlington, VA)

Presenter, *Harnessing Adaptation in Operational Resource Management*
Technology, Management, and Policy Graduate Consortium, Carnegie Mellon University, (Pittsburgh, PA)

2012 Presenter, *Field Report on Bottom-up Internet Governance*
Network Economics Forum, Department of Management, The London School of Economics and Political Science (London, UK)

Presenter, *Finding Order in a Contentious Internet: Understanding Structures and Processes*
Technology, Management, and Policy Graduate Consortium, co-located with Council of Engineering Systems Universities (CESUN) Annual Meeting, TU Delft (Delft, Netherlands)

Industry Presentations and Contributions

2019 Presenter, *What Can Anti-Abuse Do About IoT Vulnerabilities?*
IoT Special Interest Group, Messaging, Malware, and Mobile Anti-Abuse Working Group (M^3AAWG) member meeting (Montreal, Canada)

Q&A Presenter (with Bijal Sanghani), *IXPDB Tool Development*

Réseaux IP Européens (RIPE78) member meeting (Reykjavik, Iceland)

2018 Presenter, *IXPDB and Mapping Interconnection Markets*
26^{th} European IX Association (Euro-IX) member meeting (Marseille, France)

Programme Coordinator, *Symposium on eCrime Data Exchange Policies (DE2018)*
European Union Chapter of the Anti-Phishing Working Group (APWG.eu) (Barcelona, Spain)

Panelist, *New Technologies, New Laws: Has the Privacy/Security Balance Tilted Too Close to Privacy?*
Microsoft Digital Crimes Consortium (DCC) (Panama City, Panama)

Designer and Moderator, *IoT Manufacturing, Standards, and Reputation*
IoT Special Interest Group, Messaging, Malware, and Mobile Anti-Abuse Working Group (M^3AAWG) member meeting (San Francisco, CA)

2017 Panelist, *Trans-Border Cooperation on Cyber Security*
Cooperation Special Interest Group, Asia Pacific Network Information Center (APNIC) member meeting (Taichung, Taiwan)

Designer and Moderator, *IoT Challenges and Opportunities for the Anti-Abuse Community*
IoT Special Interest Group, Messaging, Malware, and Mobile Anti-Abuse Working Group (M^3AAWG) member meeting (Lisbon, Portugal)

Designer and Moderator, *IoT, Reputation, and Anti-Abuse*
Invited Panelist, *Security Track: Embedded Devices (aka IoT) as a Community Problem*
North America Network Operator Group (NANOG) 69 conference (Washington, DC)

2016 Invited Panelist, *What is a 'Neutral Network' Anyway? An Exploration and Rediscovery of the Aims of Net Neutrality in Theory and Practice*
Hackers on the Planet Earth (HOPE) conference (New York City, NY)

Panelist, *NANOG: The Next Generation*
North America Network Operator Group (NANOG) 67 conference (Chicago, IL)

Designer and Moderator, *Security Track: Meeting at the Intersection of Infrastructure and Anti-Abuse*
North America Network Operator Group (NANOG) 66 conference (San Diego, CA)

2015- Designer and Presenter, *Participation Training* at tri-annual member conference as Vice-Chair of Growth and Development
Messaging, Malware, and Mobile Anti-Abuse Working Group (M^3AAWG)

2015 Invited Presenter, *Standards, Market Function, and the Value of IX Participation*
Open-IX Association General Meeting (New York, NY)

Invited Presenter, *Standards and Diversity in the Modern Interconnection Market*
Amsterdam Internet Exchange (AMS-IX) More-IP meeting (San Francisco, CA)

Invited Presenter, *Political Economy of Incentives and Reputation in the Anti-Abuse Ecosystem*
Messaging, Malware, and Mobile Anti-Abuse Working Group (M^3AAWG) member meeting (San Francisco, CA)

2013 Invited Presenter, *Framing the Value of Internet Exchange Participation*

European IX Association member meeting 23 (Euro-IX 23) (Helsinki, Finland)

Invited Presenter, *World Conference on International Telecommunications (WCIT) Meeting Retrospective*
United Kingdom Network Operator Forum member meeting 24 (UKNOF24) (Newark, UK)

2012 Invited Presenter, *A View of Top-Down Internet Governance: Pre-WCIT Regulatory Stance*
- Global Peering Forum 7.0 (New Orleans, LA)
- Amsterdam Internet Exchange (AMS-IX) More-IP Event (Amsterdam, Netherlands)
- North America Network Operator Group meeting 55 (NANOG 55) (Vancouver, Canada)
- United Kingdom Network Operator Forum meeting 23 (UKNOF 23) (London, UK)

Teaching

Teaching Philosophy

My teaching practice is committed to the development of distinctly interdisciplinary, sociotechnical curricula that explores the interplay between technology, policy, and society. I have four years of experience teaching courses on Internet technologies and governance that integrate technology and policy, international relations, political economic, and infrastructure economics. I also teach an innovative course on data science that applies exploratory data analysis and visualization for hypothesis generation and policy analysis. My teaching blends theory, case studies, and creative teaching methods to *(1)* develop students' critical thinking skills *(2)* applied to project-based deep dives into substantive domains that *(3)* hones the skills necessary for policy analysts and researchers to bridge the gaps between policy and technical communities. I firmly believe in learning by doing, and have a pedagogical interest in innovative, engaging methods such as flipped classroom, peer review, and guided debates among students. My objective is hone students' critical thinking skills through practices that integrate the diverse sources evidence and analytic methods necessary for sociotechnical policy analysis.

Cyber Policy Concentration (CPC, 2018-2022)

I designed and developed the CPC in the 2017-2018 academic year as a distinctly interdisciplinary, research-led curriculum. The CPC provides students with both a survey of the diverse foundational and contemporary issues shaping modern cyber policy and the opportunity to develop specialist expertise on a particular topic, such as disinformation, cybercrime, or privacy. Starting with the required survey course, *A Nontechnical Introduction to Cyber Policy*, each of my CPC courses is structured around a final policy research project, allowing students to do a deep dive into a policy topic salient to their research and career interests. Students are encouraged to carry this topic through all of the CPC courses (and their broader coursework), applying the skills developed in each to better understand their topic area, build a focused portfolio of work on that topic, and, upon graduation, be able to genuinely demonstrate they are an expert in that area of cyber policy. Successful students have gone on to work in the intelligence community, non-profits and think tanks, and cybersecurity policy and data analysis positions in the private sector.

Cyber Policy Concentration Courses

A Nontechnical Introduction to Cyber Policy
This course offers foundations in policy and governance issues related to Internet infrastructure management, jurisdiction and attribution challenges, privacy and surveillance, encryption, consolidation, disinformation, and cybercrime, among others.

Data Science and Visualization for Policy Analysis
This course provides an introduction to methods such as cluster analysis, social network analysis, mapping, and text mining. These methods are applied to perform exploratory data analysis, combined with visual-

ization, to facilitate hypothesis generation, case selection, and mixed-methods analysis of complex policy issues.

Internet Infrastructure: Platforms and Politics
This advanced course focuses on the governance and politics of online platforms and infrastructures that intermediate our social, political, and economic lives (such as Facebook, Google, and mobile platforms). This is an advanced course for students interested in a deeper dive into topics such as the politics and transnational security challenges facing specific elements of the infrastructure such as submarine cables, Internet routing, and the nuanced intersection of platform economics and security.

Advanced Cyber Policy
This advanced course offers a deep dive into the diverse complex of institutions shaping Internet governance, political authority and legitimacy challenges facing these institutions in the broader global governance system, and co-regulatory approaches to effectively developing cyber policy.

Teaching Experience

In addition to the experience below, I have been invited for guest lectures at a number of universities (listed in the Invited Lectures section earlier), most notably STEaPP at UCL.

Department of International Affairs, Bush School of Government and Public Service, Texas A&M University

At the Bush School I teach two courses each semester (2:2 schedule).

Spring 2022	Advanced Cyber Policy Advanced Data Science (Directed Study)
Fall 2021	A Nontechnical Introduction to Cyber Policy Data Science and Visualization for Policy Analysis
Spring 2021	Advanced Cyber Policy Transnational Cyber Threat Mitigation (Capstone with NCFTA and FBI)
Fall 2021	A Nontechnical Introduction to Cyber Policy Data Science and Visualization for Policy Analysis
Spring 2020	Data Science and Visualization for Policy Analysis Transnational Cyber Threat Mitigation (Group Project with NCFTA and FBI)
Fall 2020	A Nontechnical Introduction to Cyber Policy Data Science and Visualization for Policy Analysis
Spring 2019	Internet Infrastructure: Platforms and Politics Course release to develop Cyber Policy Concentration
Fall 2018	A Nontechnical Introduction to Cyber Policy First Year Course Release

Engineering Systems Division, MIT

While at MIT, I served as a teaching assistant (TA) for two of the core courses in the Technology & Policy Program, and supervised an Undergraduate Research Opportunity Student (UROP) in Computer Science.

Fall 2013	Science Technology and Public Policy
Fall 2011	UROP: Security Implications of Public Key Infrastructures Applied to the DNS and BGP
Fall 2009	Introduction to Technology and Policy
Fall 2008	Introduction to Technology and Policy

Department, School, and University Service

2021-2022 **International Affairs Department Head Search Committee (Department)**

I am currently serving as the junior faculty representative on the International Affairs Department Head Search Committee. In this role I reviewed applicants, contributed to the evaluation criteria, participated in screening and candidate interviews, and will contribute to the candidate evaluations sent to the Dean for final review.

2021 **TAMU X-Grants Review Committee (University)**
Reviewer

In this role I contributed to reviewing grant applications for TAMU's X-Grants initiative, with a special focus on evaluating these for the interdisciplinary collaborations necessary to yield innovative, high impact research.

2020-2022 **International Affairs Admissions Committee (Department)**
Reviewer

In this role I help evaluate incoming applications and contribute to the ranking of these applications for in-person interviews, scholarships, and fellowship awards. In this role I have also written recommendation letters for candidates we as a department recommend for internal university scholarships.

2020 **Cybercorps: Scholarship for Service (SFS) Review Committee (University)**
Reviewer

SFS provides scholarships for students focusing their curriculum on cybersecurity. As a federal scholarship program, it is seeking applicants that demonstrate (necessarily) interdisciplinary cybersecurity skills and that integrate public service as a key component of their career goals. TAMU's SFS program is coordinated by the Cybersecurity Center.

2019 **Dean's Strategic Review (School)**
Chair, Communications Review Committee

The Communications Review Committee evaluated the Bush School's current communications strategy and operations in comparison with its peers. This included evaluation of web presence, social media engagement, intranet development,and media development processes. I chaired this committee and produced the outcomes report and executive summary from the Communications Review Committee that was included in the Dean's Strategic Review Report.

2018-2019 **School of Innovation X-Grants Review Committee (University)**
Reviewer

Reviewed approximately 25 grant applications: this included working with the committee to identify and develop evaluation metrics, reviewing grant applications, scoring these, and ranking these to determine grant recipients.

Professional Service and Leadership Roles

2020- *Review Editor*
Frontiers in Political Science: Politics of Technology

2018- *Associate Editorial Board Member*
ACM Digital Threats: Research and Practice (*DTRAP*)

DTRAP is a new peer-reviewed journal that targets the prevention, identification, mitigation, and elimination of digital threats, bridging the gap between academic research and industry practice.

2018- *Research Fellow*
Anti-Phishing Working Group (*APWG*)

The APWG is an international coalition unifying the global response to cybercrime across industry, government, law enforcement, and NGOs. I am currently working with the APWG to develop Applied Cybercrime research grants. In 2018, I was the program coordinator and architect of the Symposium on Policy Impediments to Cybercrime Data Exchange for the EU chapter of the APWG (APWG.EU)

2016- *Senior Advisor, IoT Special Interest Group Co-Chair, and Former Director of Outreach*
Messaging, Malware, and Mobile Anti-Abuse Working Group (*M^{3}AAWG*)

M^{3}AAWG's Outreach Initiative promulgates anti-abuse norms and values to operators, Internet organizations, and governments in the Latin America and the Caribbean, Asia Pacific, and Africa regions. With the support of the M^{3}AAWG Board, I designed, created, and directed the first four years of these efforts, now serving as advisor to the chairman.

2015-2018 *Program Committee Member*
*North America Network Operator Group (*NANOG*)*

Contributed to evaluation of the NANOG program, focused on evaluating presentations from academics and topical areas such as content delivery, Internet exchanges, routing, and network security.

Previous Experience

Academic

2008-2015 *Research Assistant*
Advanced Network Architecture (ANA) Group
Computer Science and Artificial Intelligence Laboratory (CSAIL)
Massachusetts Institute of Technology (Cambridge, MA)

Doctoral research on the non-state institutions that ensures the Internet remains glued together in a secure and stable way. Based on extensive interviews and global fieldwork among network operator and cybersecurity communities. Data analysis included qualitative analysis of interviews and policy documents, text mining, and quantitative analysis (R) of resource delegation trends and network structures.

2001-2005 *Research Assistant*
Software Engineering and Network Systems (SENS) Lab

Department of Computer Science and Engineering (CSE)
Michigan State University (East Lansing, MI)

Research on architecture and design of middleware. Prototyping of reliable and fault tolerant network communication protocols from formal modeling through design, architecture, and prototype development, deployed in Java-based middleware frameworks. Primary languages used were Java and C.

1998-2001 *Research Assistant*
TECNET
Department of Computer Science
Clemson University (Clemson, SC)

Developed and deployed dynamic web applications for managing process scheduling. Also managed research lab workstations (SUN and Linux systems), lab network, and security monitoring. Primary development in C, Perl, Javascript, and MySQL.

Industry and Nonprofit

2015-2016 *Infrastructure DevOps and Visualization*
Markley Group

Developed network resource monitoring tools for logging and archiving detailed resource utilization indicators. Developed complementary visualization tools to select appropriate sampling rates to identify resource utilization trends and anomalies.

2015 *Consulting Research Contractor, IXP Toolkit*
Internet Society

Contributed to development of initial IXP Toolkit with case studies and database for tracking IX platform development. IX platform development database later used to refactor what became the IX-F's new consolidated database.

2006-2007 *Consulting Research Contractor, Illicit Supply Chain Analysis*
General Motors Research Center

Developed web application and backend tools for global investigators to translate reports on investigations and raids into representations of social networks of actors involved in illicit and counterfeit part supply chains. Network representations were used to identify high yield interdiction points in ongoing global investigations.