

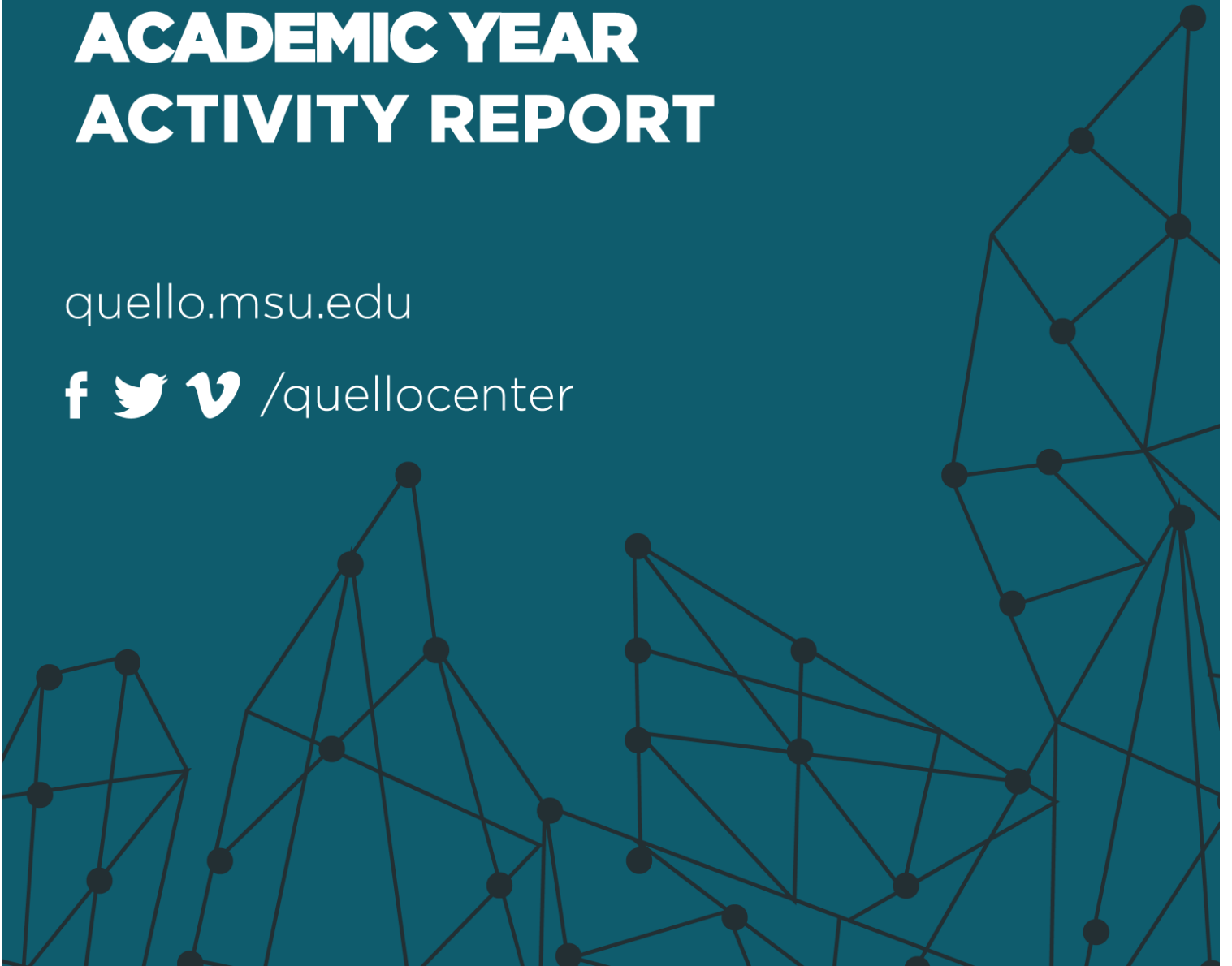
quello center

MEDIA & INFORMATION POLICY

2020-2021 ACADEMIC YEAR ACTIVITY REPORT

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Mission

The James H. and Mary B. Quello Center is one of the leading U.S. academic centers in communication, media, and information policy. Our work examines the interactions between technology, policy, and society at the level of individuals, communities, and society. We collaborate with practitioners to translate rigorous academic research into the design and implementation of better information policy and governance. The Center's interdisciplinary research draws from multiple empirical methods and multi-disciplinary theoretical perspectives. The Center is based in the Department of Media and Information at Michigan State University (MSU). It consists of a core set of researchers, complemented by research associates across MSU as well as other U.S. and international universities and research centers.

Research Areas

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|  | ICTs & Society | Our projects critically examine the interactions of ICTs and society. Recent research examines information seeking and knowledge formation during COVID-19. |
|  | Digital Inclusion | Several projects focus on broadband access and quality, digital skills and barriers to use, across rural and urban communities, to inform decisions aimed at narrowing digital divides. |
|  | Digital Innovation | Projects examine the roles of policy in harnessing the benefits of emerging technologies such as 5G, 6G, and the Internet of Intelligence (IoI) for business, government, and society. |
|  | Internet Governance | Research projects focus on challenges of Internet governance in an increasingly heterogeneous environment of regionally and nationally differentiated policy approaches. |
|  | Cybersecurity | With researchers in computer science and criminal justice we explore the economic, legal, behavioral, technical and policy aspects of cybersecurity. |
|  | Normative Foundations | Work in this area develops foundational knowledge informing policy responses to challenges such as digital platform power, privacy, surveillance, data ethics, and the governance of AI. |

Advisory Board

Marjory S. Blumenthal, *Senior Policy Researcher, RAND Corporation*

Vincent Curren, *Principal, Breakthrough Public Media Consulting*

Roderick S. Coy, *Of Counsel, Clark Hill*

William H. Dutton, *Professor Emeritus at the University of Southern California, Senior Fellow, Oxford Internet Institute (OII) and former Quello Center Director*

Prabu David, *Dean, College of Communication Arts and Sciences, MSU*

Alyssa Harvey Dawson, *Chief Legal Officer and General Counsel of Gusto*

Laura DeNardis, *Professor and Interim Dean, School of Communication, American University*

David L. Donovan, *President and Executive Director, New York State Broadcasters Association, Inc.*

John D. Evans, *Chairman and CEO, Evans Telecommunications Co. and The John D. Evans Foundation*

Brian F. Fontes, *Chief Executive Officer for the National Emergency Number Association (NENA)*

Richard D. McLellan, *McLellan Law Offices PLLC and Trustee MSU College of Law*

Michael R. Nelson, *Senior Fellow and Director, Technology and International Affairs Program, Carnegie Endowment for International Peace*

Eli M. Noam, *Professor of Economics and Finance, Columbia Business School; Paul Garrett Chair in Public Policy and Business Responsibility and Director, Columbia Institute for Tele-Information (CITI)*

Robert M. Pepper, *Head of Global Connectivity Policy and Planning, Facebook*

Karole L. White, *President and CEO, Michigan Association of Broadcasters (MAB)*

Steven S. Wildman, *Professor Emeritus, Michigan State University; former Director of the Quello Center; Senior Fellow with the Silicon Flatirons Center and a Visiting Scholar with the Interdisciplinary Telecommunications Program, both at the University of Colorado, Boulder, CO*

Richard E. Wiley, *Chairman Emeritus, Wiley*

Leadership Team

Johannes M. Bauer, Director

Keith N. Hampton, Director of Academic Research

Ashley Wilson, Administrative Assistant

Quello Center Research Fellows and Associates

Research Fellows

Young Anna Argyris, Assistant Professor, Department of Media and Information, MSU

Grant Blank, Survey Research Fellow at the Oxford Internet Institute and Senior Research Fellow of Harris Manchester College, UK

Adam D. Candeub, Professor, College of Law, MSU

Shelia R. Cotton, Associate Vice President for Research Development, Clemson University, Clemson, GA

William H. Dutton Professor Emeritus at the University of Southern California, Senior Fellow, Oxford Internet Institute (OII) and former Quello Center Director

Laleah H. Fernandez, Associate Director for Data Analytics, College of Education, MSU; former Assistant Director, Quello Center

Jean Hardy, Assistant Professor, Department of Media and Information, MSU

Thomas J. Holt, Professor, School of Criminal Justice, MSU

Megan L. Knittel, Ph.D. Student, Information and Media, MSU

Jonathan A. Obar, Assistant Professor, Department of Communication Studies, York University, Toronto, Canada

Tiago S. Prado, Ph.D. Student, Information and Media, MSU

Bianca C. Reisdorf, Assistant Professor, Department of Communication Studies University of North Carolina at Charlotte, NC

Craig T. Robertson, Postdoctoral Research Fellow, Reuters Institute, University of Oxford, UK

Arun Ross, Professor; John and Eva Cillag Endowed Chair in Science and Engineering; Site Director, Center for Identification Technology Research, MSU

Ruth Shillair, Research Fellow, Graduate Director, Department of Media and Information, MSU

Steven S. Wildman, Professor Emeritus, Michigan State University; former Director of the Quello Center; Senior Fellow with the Silicon Flatirons Center and a Visiting Scholar with the Interdisciplinary Telecommunications Program, both at the University of Colorado, Boulder, CO

Research Associates

Barbary A. Cherry, *Professor, Indiana University, Bloomington, IN; Former Quello Center Associate Director*

Stephanie Jordan, *Assistant Professor, Department of Media and Information, MSU*

Natascha Just, *Professor of Communication, University of Zurich, Switzerland*

A. Michael Noll, *Professor Emeritus, Annenberg School for Communication, USC*

Tai-Quan “Winson” Peng, *Associate Professor, Department of Communication, MSU*

Gary Reid, *Distinguished Senior Academic Specialist Emeritus; former WDBM-FM and WKAR Manager*

Kjerstin Thorson, *Associate Professor, Department of Advertising and Public Relations, MSU*

Whisnu Triwibowo, *Assistant Professor, University of Indonesia, Jakarta, Indonesia*

Arnold Weinfeld, *Interim Director of the Institute for Public Policy and Social Research (IPPSR); Director of Urban Policy Initiatives for University Outreach and Engagement, MSU*

Valeta Wensloff, *Director of Undergraduate Studies, Department of Media and Information, MSU*

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EXECUTIVE SUMMARY

Despite the repercussions of the COVID-19 pandemic, the Quello Center can look back at a productive 2020-2021 academic year. Our research and outreach activities focused on broadband policy, two newly funded projects, and on the development of new proposals. Findings were presented at national and international conferences and published in leading venues. Moreover, our activities were featured in media reports and commentaries.

The *Broadband Gap and Student Performance* report and related policy briefs on appropriate school responses to COVID-19 were widely distributed and read. The measurement framework developed for this report has since been refined and used widely by organizations and counties to support their initiatives to improve digital connectivity in response to the pandemic and beyond (see [Critical Connections](#), 2021).

A grant from the *John S. and James L. Knight Foundation* provided the resources to study how individuals seek, update, verify, and process information from traditional and online media sources. This collaboration with researchers from three other institutions had immediate implications for response strategies to COVID-19, but it also has longer-term implications for discussions about misinformation online and the future of Section 230 of the Communications Act.

A second project, supported by a grant by *Facebook*, examines the effects of digital platforms on innovation. This research aims to generate insights into the multifaceted and often ambiguous roles of platforms on innovation in digital ecosystems. Both foundational and applied work, we believe that this project contributes to the ongoing national and international discussions on mitigating undesirable effects of platform market power.

In the fall of 2020, the Quello Center joined a national consortium to prepare a proposal in response to the highly competitive National Science Foundation *Spectrum Innovation Initiative (SII)*. The Quello Center is the lead and coordinator for the component addressing spectrum policy, economics, and regulation. The proposal was formally submitted in April 2021. Additional proposals to the Sloan Foundation and the Russell Sage Foundation are under review.

Despite the constraints imposed by the COVID-19 pandemic, Quello Center affiliates continued to present work at academic research conferences. We also participated in national and international webinars for professional audiences and in several events for practitioners related to our work on broadband. The Center also organized and co-sponsored well-attended panel discussions at the 48th Research Conference for Communication, Information, and Internet Policy (TPRC48).

Our publication activities persisted with several articles in peer-reviewed publications in the field, including *Telematics & Informatics*; *Telecommunications Policy*; the *Journal of Management Information Systems*; the new, innovative *Journal of Quantitative Description: New Media*; and the *Social Science Computer Review*. Several book chapters, technical reports, and policy briefs complement the portfolio. As in past years, we use the Quello Center *SSRN E-Journal* to disseminate working papers prior to publication.

Several talks originally scheduled for late spring 2020 had to be postponed due to travel and other restrictions. During 2020-2021, all our events were online. We experimented with different formats, including public lectures, conversations with experts, and smaller-scale workshops. The events have attracted national and international attendees. Public events are edited and archived on the Quello Center video archive.

1. SPEAKER SERIES AND POLICY DISCUSSIONS

One of our missions is to stimulate discussion of important and controversial issues, based on detailed examination of historical experiences as well as rigorous analyses of forward-looking policy options. Depending on the topic and the speaker, we conduct some discussions following Chatham House rules, record others for time-delayed release in our video archive (<https://vimeo.com/quellocenter>) or stream them live to a national and global audience (streamed talks are also placed in our video archive). Notable Center and co-sponsored events since the last advisory board meeting include:

1.1. Speaker Series (archived at <https://vimeo.com/quellocenter>)

- **Alyssa Harvey Dawson**, Gusto, *Challenges of Smart Cities/Public-Private Partnerships in the Digital Economy*.
- **Jasmine E. McNealy**, University of Florida, *Sonic Privacy*.
- **Philip M. Napoli**, Duke University, *Regulating “Fairness” on Social Media: Lessons from the Fairness Doctrine*.
- **Ruth Shillair**, Michigan State University & **William H. Dutton**, Oxford University, *Multidisciplinary Perspectives on Cybersecurity Capacity Building*.
- **Robin Mansell**, London School of Economics & **W. Ed Steinmueller**, University of Sussex, *Platform Economics: Possible Futures*.
- **Silvia M. Lindtner**, University of Michigan, *Prototype Nation: China and the Contested Promise of Innovation*
- **Karen Mossberger**, Arizona State University, *Digital Activity and Economic Resilience in Communities*.
- **Keith N. Hampton**, Michigan State University, *Digital Media and Human Capital in Rural America*.

1.2. Panel Discussions

- **Resilience as a Goal of Information and Communication Policy: A Reassessment and Outlook**, Moderated by Johannes M. Bauer, Quello Center. Panelists: Chris Ritzo & Lai Yi Ohlsen, Measurement Lab; David D. Clark, MIT; Patricia H. Longstaff, Syracuse University; Angela Siefer, National Digital Inclusion Alliance; Carleen F. Maitland, Pennsylvania State University; Richard Whitt, GLIANet. TPRC48, February 18, 2021
- **Free Speech, Societal Harmony, and Media Diversity: Pick Two**. Co-sponsored with the Columbia Institute for Tele-Information (CITI). Moderation by Johannes M. Bauer, Michigan State University, and Eli M. Noam, Columbia Business School; Panelists: Nadine Strossen, American Civil Liberties Union/NYU; L. Jean Camp, Indiana University; Olivier Sylvain, Fordham University; Thomas W. Hazlett, Clemson University. TPRC48, February 18, 2021

2. PROJECTS IN DEVELOPMENT

2.1. The COVID-19 Pandemic and Rural Digital Inequities in Educational Attainment, Student Performance, and Psychological Wellbeing

This research, proposed to the *Russell Sage Foundation*, will study the role of digital inequality on change in rural student's academic performance, educational aspirations, and psychological wellbeing due to the COVID-19 pandemic. Utilizing existing survey and student record data from a 2019 sample of rural students, new survey data will be collected in 2022 and paired with student records from standardized exams (2019-2022), and information on student internet during the pandemic. This work will answer the question of whether students with no or poor Internet access, and those with lower digital skills, experienced declines in academic performance, educational aspirations, or psychological wellbeing? And if initiatives by schools to "fill the gap" in the missing infrastructure for rural Internet access (e.g., deploying cell phone hotspots) was successful at preventing negative consequences to student performance, educational aspirations, and psychological wellbeing due to preexisting digital inequalities?

2.1. Spectrum Economics, Policy, and Regulation

The Quello Center is the lead for the research related to spectrum economics, policy, and regulation and the MSU coordinator for related research on spectrum security and privacy. With a national consortium of academic researchers and industry partners, we are competing in the highly competitive *NSF Spectrum Innovation Initiative (SII)*. This national initiative seeks to establish a national center for spectrum innovation and innovation. The overall coordination of the public and private partners rests with Virginia Tech. The MSU team brings together faculty from the College of Communication Arts and Sciences, Engineering, and Law. Our work will connect the technical understanding garnered from technical and engineering analyses with the economics of spectrum policy and regulation. We will also serve as the liaison to national and international spectrum policy organizations and other stakeholders. After exploratory work in 2020 as part of an NSF planning grant to Virginia Tech, the full proposal was submitted in April 2021.

2.3. Spatial Inequality in the Digital Economy

A joint initiative with researchers at the Oxford University and the Humboldt Institute for Internet and Society (HIIG) in Berlin, this project seeks to understand the forces that drive inclusion and exclusion of regions and nations in the global digital economy. Building on strands of work in development economics and on digital entrepreneurship, we hypothesize that the digital development of nations can be measured as a network of technologies and the relations between them. Global inequalities in digital development can then be understood as differences in the positions of countries in the "technology space." Using data from Stack Overflow, the world's largest question and answer website for programming related topics, we describe this technology space as a network. We believe that this perspective has the potential to result in a better understanding of persistent inequalities in the development of the digital economy. If successful, it will lead to new insights in the design of policies to support digital innovation and development.

3. ONGOING PROJECTS

3.1. [Political and Health Information Seeking](#)

This project, partially funded by a grant from the *John S. and James L. Knight Foundation*, seeks to understand information seeking and how different practices influence knowledge about matters of public importance during periods of dynamic change. Such situations, exemplified but not limited to the coronavirus pandemic, necessitate that individuals and organizations make decisions based on incomplete and changing information, often complicated by deliberately misleading information. Using the unfolding coronavirus pandemic as a case to study the broader phenomenon of information seeking and verification under conditions of uncertainty and rapidly changing information, the research project examines the interplay between political and health information seeking. Controlling for socioeconomic and other factors, we are particularly interested in how sources and channels used to obtain, verify, and update information influence individuals' mental models and factual knowledge about the pandemic and appropriate responses.

A team of researchers from Michigan State University, University of North Carolina Charlotte, Oxford University, and Clemson University conducted two nationally representative surveys in the United States and the United Kingdom. We are currently examining four research questions pertaining to theories of information seeking, information verification, and trust in different information sources: (1) What online media, offline media, and other information sources do American and British Internet users rely on and trust during the COVID-19 pandemic, and how do socio-demographic factors influence these choices? (2) (How) Do people update and verify information to deal with incomplete information and uncertain knowledge? (3) How do socio-demographic factors, information sources, and the updating rules used by individuals relate to their perceptions and knowledge about political and health topics related to COVID-19? (4) How do socio-demographic factors, information sources, and the updating rules used by individuals influence behavioral intentions?

Publications and Policy Briefs

Reisdorf, B.C., Blank, G., Cotten, S., Argyris, A., Robertson, C.T., Knittel, M., & Bauer, J.M. (2021). Overcoming COVID-19 Vaccine Hesitancy. *Quello Center Policy Brief* 02/21.

Reisdorf, B.C., Blank, G., Bauer, J. M., Cotten, S., Robertson, C.T., & Knittel, M. (2021). Information Seeking Patterns and COVID-19 in the United States. *Journal of Quantitative Description: Digital Media*, 1. [DOI](#)

3.2. Policies to Support Digital Innovation

This multi-year research initiative seeks to inform policies toward advanced ICT service and applications in the United States, with a current emphasis on 5G wireless services, platform ecosystems, and systemic types of innovation (e.g., smart mobility). Many of the topics addressed will also apply to emergent technologies, including 6G and sub-THz services as well as the Internet of Intelligence (IoI). 5G, 6G and sub-THz wireless services will constitute an integral part of the future gigabit communication network infrastructure. Platform ecosystems have been the focus of much

criticism but the drivers of innovation in these markets, and positive and negative effects of digital platforms, are only poorly understood.

Projects in this area will examine how policy choices affect innovation outcomes. The \$100,000 gift from Facebook has helped launch work in this family of projects. A proposal to the *Sloan Foundation* was submitted and it currently in review. Some of the issues raised in the spectrum policy proposal to NSF addresses some of the issues is in preparation, together with researchers in the Economics Department at MSU and a project partner at MIT.

Publications and Working Papers

Bauer, J.M. and Prado, T.S., Digital Platforms and Innovation: Lessons for Innovation Policy and Regulation (December 15, 2020). Available at: [SSRN](#) or [DOI](#)

Bauer, J.M. & Bohlin, E. (2021). Regulation and innovation in 5G markets. Under review.

Knieps, G. & Bauer, J.M. (2021). Internet of Things and 5G Localization. Under review.

3.3. Broadband and Educational Achievements

Initiated in 2019, this study was designed to understand the repercussions of absent or poor home Internet connectivity on student performance and the associated costs to society. The focus was on Internet connectivity outside of school among middle and high school students enrolled in rural and small-town schools. Inequalities related to income and race are often used to explain why some people still do not have Internet or broadband access at home. Often overlooked in this discussion is the role of geography and varying levels of infrastructure access. Our study allowed to disentangle these factors.

The report published in March 2020 was widely read by policymakers and stakeholders. Building on the experience with the Broadband Gap project, we helped Merit Network to develop a toolkit that greatly facilitates a highly granular assessment of the availability and quality of broadband connectivity. During the past year, the approach has been used by several counties across Michigan, including Washtenaw County, Berrien County, and Ottawa County, to assess the state of connectivity among their residents and to develop appropriate responses to overcome gaps and discrepancies. It was also used by several large organizations, including Wayne State University, to identify and help overcome connectivity gaps among students and faculty. The approach is scalable and applicable to state and national level information collection.

Publications and Working Papers

Hampton, K.N., Robertson, C.T., Fernandez, L., Shin, I. & Bauer, J.M. (2021). How variation in Internet access, digital skills, and media use are related to rural student outcomes: GPA, SAT, and educational aspirations. *Telematics and Informatics* 63, 101666, <https://doi.org/10.1016/j.tele.2021.101666>.

Bauer, J.M., Hampton, K.N., Fernandez, L., & Robertson, C.T. (2020). *Overcoming Michigan's homework gap: The role of broadband Internet connectivity for student success and career outlooks*. Quello Center Working Paper No. 06-20.

Hampton, K.N., Fernandez, L., Robertson, C.T., & Bauer, J.M. (2020). *Broadband and Student Performance Gaps*. James H. and Mary B. Quello Center, Michigan State University. March. <https://doi.org/10.25335/BZGY-3V91>.

3.4. Threats from Ideologically Motivated Cyber Attackers

This research project led by Tom Holt (Criminal Justice), Arun Ross (Computer Science), Ruth Shillair (Quello Center), and Johannes M. Bauer (Quello Center) at Michigan State University and a team of collaborators at Arizona State University is examining an extensive data set documenting cyberthreats posed by politically motivated attackers. Ideologically driven attackers do not follow the monetary logic of financially motivated cybercriminals. Whereas there is rich research in the economics of cybercrime on profit-seeking cybercriminals, the strategies of politically motivated attackers are poorly understood, and defenses are often weak. We go beyond the prevailing machine learning approaches and develop a better system to identify such attacks and possible prevention strategies. The project is funded by contracts with Arizona State University and the Department of Homeland Security (DHS). We were invited to submit an additional round of funding. Additional funding will be sought from the National Science Foundation (NSF). The project has generated several conference presentations and two papers are currently under review at peer-reviewed venues.

Publications

Banerjee, S.; Swearingen, T.; Shillair, R.; Bauer, J.M.; Holt, T.J.; & Ross, A. (2021). Using machine learning to examine cyberattack motivations on web defacement data. *Social Science Computer Review*. Published online on 23 February 2021, [DOI](#).

Holt, T.J.; Lee, J.R.; Freilich, J.D.; Chermak, S.M.; Bauer, J.M.; Shillair, R. & Ross, A. (2020) An exploratory analysis of the characteristics of ideologically motivated cyberattacks, *Terrorism and Political Violence*, DOI: [10.1080/09546553.2020.1777987](https://doi.org/10.1080/09546553.2020.1777987).

3.5. Social Tolerance and Communication Technologies

This project focuses on how the use of new communication technologies, such as social media and mobile phones, affects the durability of relationships, including intergenerational ties (e.g., child-parent-grandparent relations), exposure to other people's opinions and background, and how this exposure is related to outcomes such as social tolerance. This work tests a new theory in the study of community, that new technologies facilitate persistent contact and pervasive awareness of social ties. As a result of persistence, relationships may be less transitory than in the recent past. This research expands our understanding of how the use of new technologies is related to the supportive nature of people's communities, the communication of diverse information, and interaction that could help counter the loss of social capital in contemporary communities. These processes and trends have the potential to increase social cohesion and social tolerance, thus improving the well-being of individuals and society. Keith Hampton is leading this project, with funding by the NSF.

4. MATURE AND COMPLETED PROJECTS

Data collection and analysis for the following projects has largely been concluded but additional articles and book chapters are under review and in preparation. For a list of publications please check <https://quello.msu.edu/publications>.

4.1. Cybersecurity Capacity Building

William Dutton continues his role as chair of the Social and Cultural Dimension of the Oxford Martin Institute's Global Cybersecurity Capacity Center at the University of Oxford. He is working on the specific notion of a cybersecurity 'mindset' with papers of his own and with Ruth Shillair. Their research on the impact of cyber security capacity, based on a comparative analysis of 120 nations, and is featured in a chapter of the 2nd edition of *Society and the Internet* by Oxford University Press, another article is currently under review at *Journal of Information Policy*. This work is supported by the Foreign and Commonwealth Office in the UK, along with partners from other nations.

4.2. Improving the Quality of Broadband Data

This project started with comments submitted to the National Telecommunications and Information Administration (NTIA) in July 2018, in collaboration with Merit Network seeking input on improved methods for measuring broadband availability and quality. We proposed to use a crowd-sourcing inspired mechanism to collect individual level data and to combine it with complementary methods to reach the unconnected. From these comments, Merit developed a measurement framework consisting of an online speed test and a survey instrument, as well as a second information gathering channel, to obtain information from the unconnected.

4.3. Quello Search Project

This study examined public political opinions by asking Internet users how they use search, social media, and other important media, for political information, and what difference it makes for them. Led by William H. Dutton, the research team conducted an online survey of stratified random samples of Internet users in seven nations, including Britain, France, Germany, Italy, Poland, Spain, and the United States. For a full list of publications related to this project see <https://quello.msu.edu/research/quello-search-project/>.

4.4. Broadband to the Neighborhood in Detroit

This project investigated the degree that neighborhoods in Detroit are disconnected from the Internet and what could be done to increase digital equity. Working in collaboration with the Wayne State University Center for Urban Studies, we conducted 525 telephone surveys with residents across three Detroit neighborhoods, and conducted three focus groups. The team completed data collection in December of 2017 and has since published several articles based on the research.

5. COMMUNITY AND OUTREACH

5.1. Quello Center Policy Briefs

In March 2020, we launched the inaugural Quello Center Policy Brief, a series of brief documents synthesizing longer research contributions that is intended for decisionmakers. See <https://quello.msu.edu/policy-briefs/>.

5.2. In the Media

In response to increasing coverage in news and other online events, we added a new page to our website. See <https://quello.msu.edu/in-the-media/>.

5.3. Live Streams

We stream featured lectures in addition to making archive videos available.

5.4. Video Library

We have steadily grown our library of archived talks and short interviews with our speakers. See <https://vimeo.com/quellocenter> for a list of the archived videos.

5.5. Online Presence

If you have not already done so, please:

- Check out the Quello Center website at <https://quello.msu.edu/>.
- Like our Facebook page at <https://www.facebook.com/QuelloCenter/>.

5.6. SSRN E-Journal

In addition, we have an online working paper archive on the Social Science Research Network (SSRN), currently featuring more than 100 working papers and reports. See: <https://www.ssrn.com/link/Quello-Center-PUB.html>

6. SELECTED PUBLICATIONS AND PRESENTATIONS

6.1. Journal Articles and Conference Proceedings

Hampton, K.N., Robertson, C.T., Fernandez, L., Shin, I. & Bauer, J.M. (2021). How variation in Internet access, digital skills, and media use are related to rural student outcomes: GPA, SAT, and educational aspirations. *Telematics and Informatics* 63, 101666, <https://doi.org/10.1016/j.tele.2021.101666>.

Reisdorf, B.C., Blank, G., Bauer, J. M., Cotten, S., Robertson, C.T., & Knittel, M. (2021). Information Seeking Patterns and COVID-19 in the United States. *Journal of Quantitative Description: Digital Media*, 1. <https://doi.org/10.51685/jqd.2021.003>

- Prado, T.S. & Bauer, J.M.** (2021). Improving broadband policy design using market data: A general framework and application to Brazil, *Telecommunications Policy*, 45(5), 102111, [DOI](#).
- Banerjee, S.; Swearingen, T.; **Shillair, R.; Bauer, J.M.**; Holt, T.J.; & Ross, A. (2021). Using machine learning to examine cyberattack motivations on web defacement data. *Social Science Computer Review*. Published online on 23 February 2021, [DOI](#).
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6.4. Technical Reports

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6.5. Recent and Upcoming Presentations

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6.6. Work in Progress

Please see <https://quello.msu.edu/publications/>.