

The Future of Open Innovation and Cross-Sector Collaboration in Science and Technology

Dr. John McLevey
University of Waterloo
john.mclevey@uwaterloo.ca

January 23, 2017
University of Ottawa
School of Sociological and Anthropological Studies
Institute for Science, Society, and Policy

Current Research

2 Projects as Principal Investigator
2 Projects as Co-Investigator

Five-Year CRC Plan

Challenges and Opportunities
Projects, Partnerships, and Infrastructure
Grant Application Timeline

Pedagogical Philosophy

Undergraduate Teaching and Graduate Supervision

Current Research

1. Science Policy Interface

Think Tanks & Public Policy

- ② How is the production and promotion of policy ideas by think tanks shaped by hybrid institutional contexts?
-

- \$ SSHRC Canada Graduate Scholarship (Category A, Bombardier)
- 📄 Canadian Review of Sociology / Revue canadienne de sociologie
- 📄 Social Studies of Science
- 📄 Outhwaite and Turner (eds.) Sage Handbook of Political Sociology
- 📄 Op-Ed in the Toronto Star

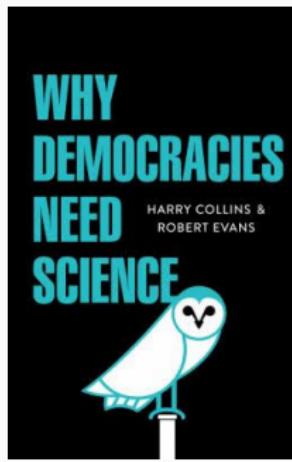


Your donations enable the Institute to respond authoritatively to the issues that are defining Canada's future. Thank you!

— William B.P. Robson
President & CEO, C.D. Howe Institute



Mel Cappe at a Public Policy Forum Lecture



Theories of Policy Formation and
Implementation + Evidence

2. Disciplines & Knowledge Diffusion

- ➊ How can we best assess changes in the intellectual organization and cohesion of entire disciplines?

Intellectual Structure of Anglophone Sociology in Canada

- Allyson Stokes, Amelia Howard

Canadian Review of Sociology / Revue canadienne de sociologie
Sallaz and Medvetz (eds.) Oxford Handbook of Pierre Bourdieu

2. Disciplines & Knowledge Diffusion

- ② How do disciplinary cultures and boundaries shape the diffusion of knowledge? Intellectual status?

Philosophy of Science and the Sciences

-  Kathryn Plaisance, Janet Michaud, Sasha Graham

\$ SSHRC Insight Development Grant 2016 (PI: Plaisance, CA: McLevey)

 Collecting and Analyzing Data, Writing Articles, Article Under Review

 Developing Open Source Research Software: *metaknowledge*

3. Environmental Governance & Science Policy

The Oil-Tourism Interface

 Mark Stoddart, John McLevey, Howard Ramos

Environmental Governance & Science Policy

 John McLevey, Vanessa Schweizer, Eric Kennedy, Mark Stoddart

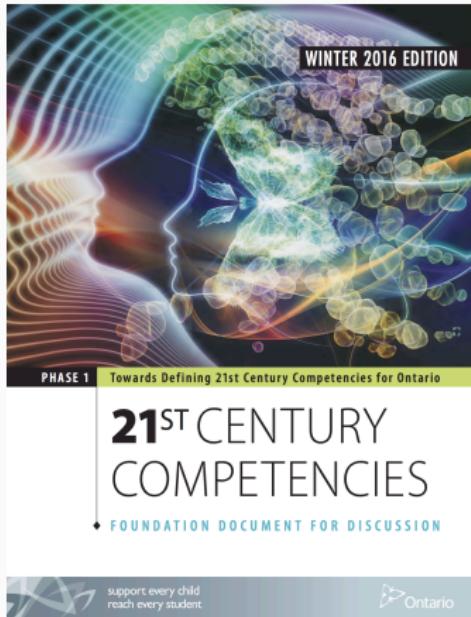
 SSHRC Insight Grant 2014 (PI: Stoddart, CA: McLevey)

 Analyzing Data, Writing Articles, Planning Book

 BSIA Major Workshops Grant 2015 (PI McLevey)

 "Challenges and Opportunities for Governance of Socio-Ecological Systems" Workshop

4. Robotics and 21st-Century Competencies



② Does robotics in the classroom facilitate the development of 21st-Century competencies? If so, how?

● PIs: Janice Aurini and John McLevey, CI: Rob Gorbet, Associates: Allyson Stokes and Scott Davies

-
- \$ Council of Ontario Directors of Education (CODE)
 - 📊 Collecting and Analyzing Data
 - 📋 Planning Report for Ministry of Education
 - 📄 Planning Journal Articles

 CRC 5 Year Research Plan

PUBLISHING

Gates Foundation demands open access

Global-health charity clashes with leading research journals.

BY RICHARD VAN NOORDEN

One of the world's most influential global health charities says that the sees around 2,000–2,500 papers published each year from its funding, says Wilder, of which 92% are published in journals that comply with its OA policy.

Published in *Nature*, January 17th 2017

Changing Institutions and Governance
New Digital Infrastructure and Data

Opportunities, Challenges

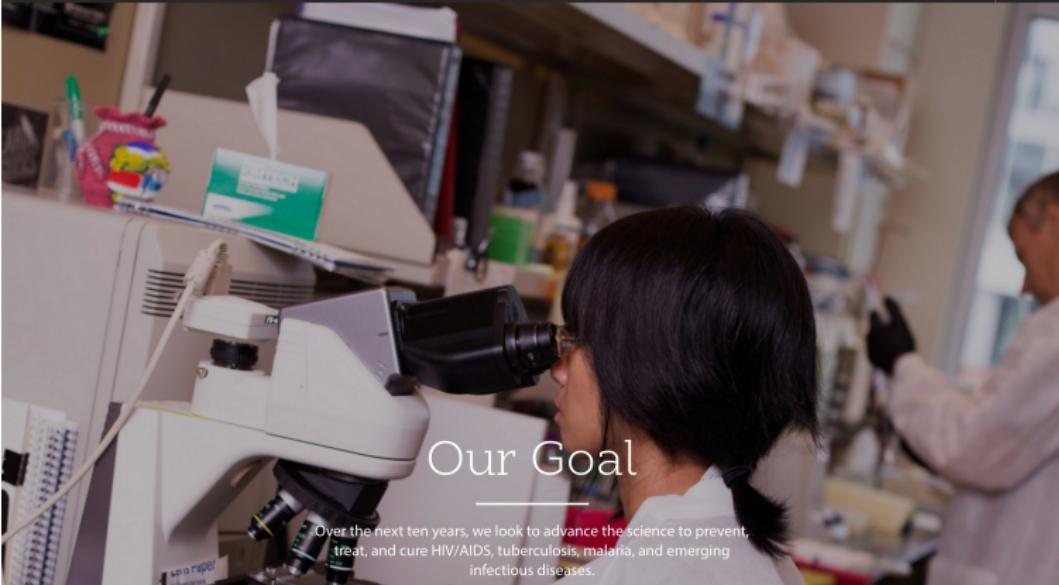
- ⌚ Data Access, Linked Data, New Models
- 🎓 Integrating Social Scientific and Computational Training



Open Science

Institutional Boundaries and Biomedical R&D Networks

Open Science & Institutional Boundaries



The image shows a scientist with dark hair and glasses, wearing a white lab coat, looking through the eyepiece of a light-colored compound microscope. The background is a blurred laboratory environment with various pieces of equipment, shelves, and another person partially visible.

Center for Infectious Disease Research

People Science Hope Blog Give Now Search icon Menu icon

Our Goal

Over the next ten years, we look to advance the science to prevent, treat, and cure HIV/AIDS, tuberculosis, malaria, and emerging infectious diseases.

Open Science & Institutional Boundaries

- ② How have biomedical R&D networks changed since 2000?
- ② Is it becoming more or less common for research teams to combine public and private funding?
- ② Does the adoption of open science practices have an effect on the formation of university-industry partnerships?
- ② Who dominates?

\$ SSHRC Insight Development Grant (PI: McLevey)

📊📝 Analyzing Data and Writing Articles

💻 Developing substantial new functionality for *metaknowledge*



Open Technology

Networked Innovation and the Linux Kernel

Open Technology & Networked Innovation

[Log In](#)

< Share 日本語 ▾ LF Sites

LINUX FOUNDATION

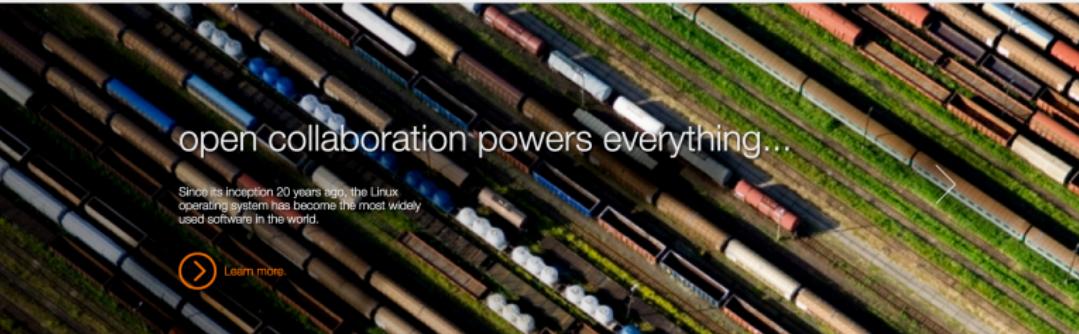
HOME TRAINING EVENTS COLLABORATIVE PROJECTS

About Us Join News & Media Programs Workgroups Publications

open collaboration powers everything...

Since its inception 20 years ago, the Linux operating system has become the most widely used software in the world.

 Learn more



 Linux powers railway and air traffic control systems...

 over 1.3M Android smart phones activated daily...

 nuclear submarines and many defense systems...

 and most of the 700,000 TVs sold every day.

• • •

The Linux Foundation is a non-profit consortium dedicated to fostering the growth of Linux. Founded in 2000, The Linux Foundation sponsors the work of Linux creator Linus Torvalds and is supported by leading Linux and open source companies and developers from around

Support Linux
Become a Linux Foundation member

Open Technology & Networked Innovation

The screenshot shows the Linux Foundation's website homepage. At the top, there is a dark header with the text "Open Technology & Networked Innovation". Below this is a blue header bar with the "LINUX FOUNDATION" logo, a "Log In" button, and social sharing links. The main navigation menu includes "HOME", "TRAINING", "EVENTS", "COLLABORATIVE PROJECTS", a search bar, and a "Q" icon. Under the "HOME" menu, there are links for "About Us", "Join", "News & Media", "Programs", "Workgroups", and "Publications". The main content area features a large background image of a DNA sequence. Overlaid on this image is the text "helps us solve harder problems..." and a call-to-action button labeled "Join us". To the left of the "Join us" button is a text block: "Open collaboration and Linux-based tools help developers and companies worldwide tackle the most challenging problems of our time." Below the main image, there are four examples of Linux's impact: "Linux powers DNA sequencing software...", "the One Laptop Per Child Initiative...", "the International Space Station...", and "and the Large Hadron Collider." Each example has a small icon above it. At the bottom, there is a footer section with the text: "The Linux Foundation is a non-profit consortium dedicated to fostering the growth of Linux. Founded in 2000, The Linux Foundation sponsors the work of Linux creator Linus Torvalds and is supported by leading Linux and open source companies and developers from around the world." To the right of this text is a red "Support Linux" button with the subtext "Become a Linux Foundation member".

Open Technology & Networked Innovation

The screenshot shows the official website of the Linux Foundation. At the top, there's a blue header bar with the "LINUX FOUNDATION" logo. Below it is a dark blue navigation bar with links for "HOME", "TRAINING", "EVENTS", and "COLLABORATIVE PROJECTS". A search bar with a magnifying glass icon is also present. The main content area features a large, blurred red background image of what looks like a bundle of cables or pipes. Overlaid on this is the text "and innovate faster than ever before." in a white, sans-serif font. On either side of this text are large, light-gray arrow icons pointing left and right. Below the main headline, there's a section with a play button icon and the text "Watch the video". To the left of the video button, there's a snippet of text: "Discover how Linux disrupted a market and transformed the way we work together." At the bottom of the page, there are several cards with statistics and icons, such as "Linux powers the cloud...", "8 out of 10 of the world's financial transactions...", "98% of the super computers around the world...", and "and servers powering Google, Facebook and Amazon.".

The Linux Foundation is a non-profit consortium dedicated to fostering the growth of Linux. Founded in 2000, The Linux Foundation sponsors the work of Linux creator Linus Torvalds and is supported by leading Linux and open source companies and developers from around

Support Linux

Become a Linux Foundation member



Linux Kernel Development

*How Fast It is Going, Who is Doing It,
What They Are Doing and
Who is Sponsoring the Work*

25th Anniversary Edition

A Publication of The Linux Foundation
August 2016

AUTHORS

Jonathan Corbet, LWN.net
Greg Kroah-Hartman, The Linux Foundation

Global

5000+ developers

400+ organizations

Multiple sectors

Low social closure

High levels of trust

Open Technology

- ② How does the community prevent unwanted cooptation?
- ② What drives inter-organizational collaborations?
- ② How do developers get themselves into network positions where they can “broker” the flow of information and ideas?

-
- ⌚ SSHRC Insight Development Grant 2014 (PI: McLevey)
 - ⌚ Early Researcher Award from the Ministry of Research and Innovation 2016
 - 📊 Analyzing Data and Writing Articles
 - 📄 Article Under Review, Articles in Progress
 - 💻 Developing Open Source Research Software: *gitnet*

Ongoing Collaborations

Robotics and 21st-Century Competencies

 **Janice Aurini, John McLevey, Rob Gorbet**

Collaborators: Allyson Stokes, Scott Davies + Graduate Students

Environmental Sociology

 **Mark Stoddart, John McLevey, Howard Ramos**

Collaborators: Kari Norgaard, Patrick McCurdy, Alice Mattoni, Natalie Slawinski, Arn Keeling, Berit Kritofferson, Karl Benediktsson, Julia Uldam

 **David Tindall, John McLevey, Mark Stoddart**

Collaborators: Dana R Fisher, Jennifer Earl, Mario Diani, Philip Leifeld, Philippe Le Billon, Andrew Jorgenson, Don Grant, Moses Boudourides

Workshops

1. New Institutions, Infrastructure, and Indicators
2. Science Policy & Environmental Governance
3. Bring SEESHOP to University of Ottawa

Scientific and Political Networks Lab

Research Mentorship, Developmental Workshops

Social Scientific & Technical Training

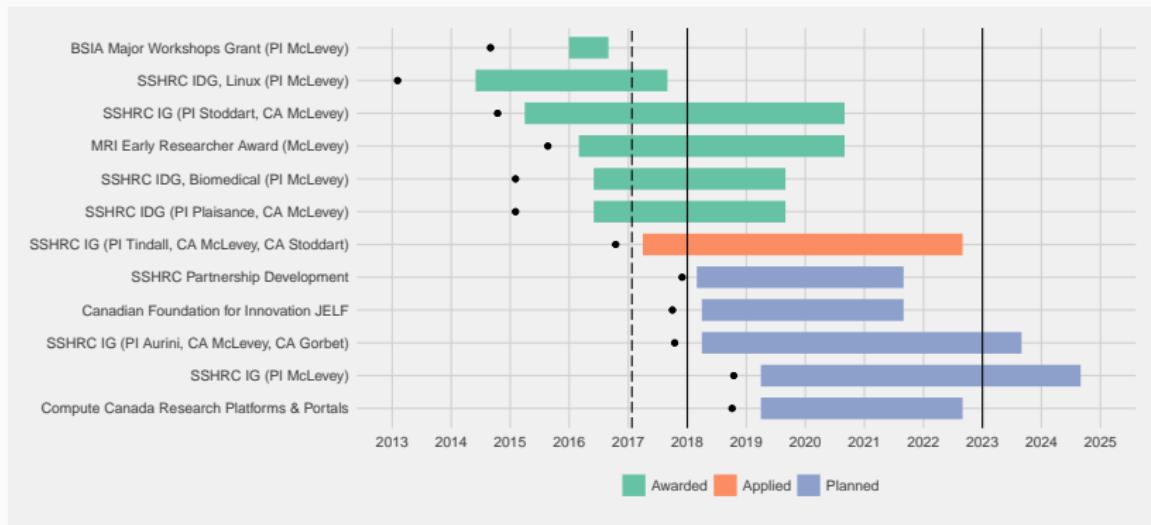
Software for Open Science and Technology

Access to Computing Expertise and Resources

CRC Funding Plan

Research Projects, Partnerships, & Infrastructure

Decisions about Fall 2017 CRC nominations are released in April 2018. Insight Development Grants (IDG) cover 3 years because they have an automatic 1 year extension.



- = application deadlines.

 Pedagogical Philosophy

Commitments

Teaching

- Metacognitive and Integrative Thinking
- Developing Evidence-Based Arguments
- Team-Based Learning

Supervision & Mentorship

- + Preparing for Multiple Career Paths
- + Timely Feedback, Standing Meetings
- + Effective Project Management
- + Co-Authorship

\$ UW Centre for Teaching Excellence SEED Grant (PI McLevey) 2017, "A Data-Driven and Interactive Approach to Enhancing Student Learning about Disciplinary and Interdisciplinary Knowledge Production"

thanks.

Appendices

SOC 4303: The Knowledge Society & Social Organization

johnmclevey.com/pdfs/drafts/soc4303.pdf

Government, industry, academia

Scientific and technical careers (especially gender gaps)

Data and information governance

ISP 5XXX: Science & Technology Policy Analysis

johnmclevey.com/pdfs/drafts/isp5xxx.pdf

Problems, concepts, theories

Tools for policy analysis and evidence-based decision making

Copyright and patent politics