The Electoral Innovation Lab
Research Agenda, 2020-2021

The Electoral Innovation Lab aims to catalyze systems-level thinking about the best routes forward for democracy reform, by translating rigorous research and data into tools and strategies for practical reform. The Lab will work in three major domains: (a) technology development to empower political reformers, (b) cross-disciplinary research to understand how best to design and implement democracy reforms – including how reforms fit together, and (c) mentoring the next generation of thinkers and practitioners to drive the reform agenda in years to come. We will focus on reforms that are reachable at a local, state, and national level on a five- to ten-year time scale.

A distinguishing feature of the Lab's approach is practicality. Our research activities are housed at Princeton University, where we have access to rigorous and accomplished thinkers from diverse fields. The effectiveness of our Lab will be enhanced by including real world practitioners and on-the-ground experts. Our multidisciplinary, on-campus/off-campus approach will be focused on understanding real problems and generating actionable solutions to the pressing problems in the U.S. electoral system.

The Electoral Innovation Lab Strategy

Technology development. The ability of reformers to effect change is often limited by the technology available to them. By developing key data resources and technologies, we will work to amplify the ability of citizens to weigh in and influence the outcomes of democratic processes. These technologies will begin by first surveying a domain to identify bottlenecks in citizen effectiveness, developing tools that eliminate the bottlenecks, and finally disseminating those tools through training and education. Example projects include the Princeton Gerrymandering Project, Open Precincts, and Representable.

A systems engineering approach to U.S. democracy. Political scientists aspire to address the basic science of how politics works. The Electoral Innovation Lab seeks to act more as technologists or engineers, applying those fundamental principles to real-life situations to achieve practical goals in an effective manner. This approach is analogous to industrial pipelines in which basic research leads to development of workable products and eventually to large-scale deployment. The Lab will fill the gap between political science and democracy reform by looking beyond political science to include academic disciplines such as game theory, mathematical simulation, and cognitive science, as well as non-academic "local knowledge," and legal expertise. We will take a collaborative approach that captures the complexities of U.S. politics better than any one discipline can cover.

Creating the next generation of reformers. Finally, by fostering the interests of student and postdoctoral researchers, we will create a corps of thinkers who can lead the next wave of

repair and strengthening of U.S. democracy. The Electoral Innovation Lab will retain data engineers, legal strategists, postdocs, undergraduate interns, and visiting faculty to pursue priorities and lead projects. We will also support student projects lasting from a semester to several years.

Research and Development Projects

Project 1: State-Specific Optimization of Voting Reform. Which reforms make the most sense in different states? Is it possible to gauge which reforms are game-changers in terms of local impact and outcomes, and which ones fail to improve local dynamics? Do some reforms make matters worse? In this research project, we will use a combination of theory and political analysis to understand how local factors can shape political dynamics and incentives in particular states. Through a combination of political analysis, game theory, and mathematical simulation, we will model the likely outcomes of specific voting reforms. Legal analysis will identify what reforms are attainable in each state. This work will create a conceptual and a practical framework for assessing the anticipated and unanticipated consequences of a reform. Such an approach can illuminate the likely consequences of new laws like Alaska's top-four/ranked-choice reform. The eventual application is to help reformers craft reforms to address the needs of their particular state or locality.

Project 2: A Toolkit for Fair Districting in 2021. The new maps drawn in 2021 by legislators may be skewed. Unfairness may also creep in due to inaccuracies in Census data. We will create rapid-response technology to help prevent both of these problems.

A fairness report card. Using accepted measures, we will design a fairness report card that can be easily understood by a non-technical person. Draft maps in all 50 states can be scored in seconds, simply by uploading the draft map to an Electoral Innovation Lab website.

Remediating Census undercounts. We estimate that control over redistricting can have effects on representation that are three- to six-fold higher than the effects of an undercount. This highlights the importance of redistricting and also suggests a way to remediate Census-induced problems. We will estimate risks to hard-to-count populations through comparison with American Community Survey and state demographer data. We will build a data layer into popular mapping software that allows redistricters to find ways to compensate for undercounts using the latitude that is permitted for legislative redistricting.

Project 3: An Electoral Reform Data Commons. The existing literature around electoral reforms, such as ranked choice voting, focuses on past elections. The field needs more forward-looking scholarship, using scenario analysis to help understand use cases. To make that possible, the Electoral Innovation Lab will build an open-source electoral reform data commons, covering not just RCV but also approval voting, as well as top-two and top-four primaries, and make it accessible broadly to the research community.

Project 4: Interactions Between Electoral Reforms. Half of states allow initiatives or referenda. In these states, different reform-oriented groups may offer their own democracy

reforms. What happens if multiple reforms are passed? Do they synergize, or do they create effects that cancel one another out? For example, California enacted nonpartisan redistricting and top two primaries at the same time, in 2010. Did these reforms have a joint impact that was greater or smaller than each one passed separately? We will address these questions by a combination of empirical analysis of states where multiple reforms have been passed, such as California and Michigan, and analysis of the effects of reforms in specific political cultures. This project will call upon complex-systems analysis and computational simulation.

Project 5: Effects of Electoral Reforms on Third Parties. How are minor parties adapting to voting reforms such as top-two primaries and ranked choice voting? Has the system harmed their impact and electoral fortunes? Both empirically and from a complex-systems perspective, which reforms foster moderation and compromise, which allow minor-party candidates' ideas to grow, and which allow support for the parties themselves to grow?