P61 / From Prediction to Pre-emption: The Nexus of Policy Analytics and Anticipatory Governance

Topic : Crises, Risks and Wicked Problems

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GENERAL OBJECTIVES, RESEARCH QUESTIONS AND SCIENTIFIC RELEVANCE

Governments are increasingly expected to act before crises fully materialize. Two bodies of practice have grown in response, but largely in parallel. Policy analytics applies data science, modeling, and decision analysis to support each stage of the policy cycle (Daniell et al., 2016). Anticipatory governance, rooted in science and technology studies and strategic foresight, seeks to build the capacity to manage emerging issues while they can still be shaped (Guston, 2014), and has entered public sector reform agendas (Tõnurist & Hanson, 2020). Yet the two seldom meet. Analytics units tend to focus on monitoring, nowcasting and short-horizon prediction, while foresight units produce long-horizon scenarios that are often narrative and weakly linked to budgets and decisions.

Where the two have been coupled, the results are instructive. In disaster risk reduction, anticipatory action frameworks link impact forecasts to pre-agreed actions and pre-arranged finance. The Philippine framework for tropical cyclones, for example, releases up to US$6 million from the UN Central Emergency Response Fund when a model predicts that totally damaged houses will exceed regional thresholds, up to 72 hours before landfall (UN Office for the Coordination of Humanitarian Affairs [OCHA], 2025). Such arrangements turn predictions into decisions, but they also raise questions about whose risks are modelled, which futures are excluded, and who is accountable when forecasts fail. Critical scholarship warns that analysis and anticipation can close down rather than open up the range of futures considered (Stirling, 2008; Muiderman et al., 2020).

This panel asks: Under what conditions does policy analytics strengthen anticipatory governance, and how does coupling prediction with decision reshape policy choices, accountability and the politics of the future?

The panel will explore four hypotheses/propositions. First, analytics and foresight remain institutionally decoupled, housed in different units with different time horizons, methods, and audiences, which limits the policy impact of both. Second, coupling is most likely where formal decision triggers, pre-arranged finance, and clear mandates connect forecasts to action, as in anticipatory action, contingent financing, and early warning systems. Third, the more anticipation relies on quantitative models, including machine learning, the more it privileges measurable and probable futures over deeply uncertain or plural ones. Fourth, the capacity to couple analytics and anticipation depends on data infrastructure, analytical skills and political demand, so that governments facing the greatest risks, often in the Global South, may have the least capacity, or may innovate by necessity.

By bringing together conceptual, comparative and empirical work across policy domains such as disaster risk, climate, health, food security and fiscal policy, the panel aims to build a research agenda on the analytics–anticipation nexus as a distinct object of policy studies. It particularly welcomes contributions from Asia, Africa and Latin America, where anticipatory instruments are being tested under acute risk and constrained resources.

References:

Daniell, K. A., Morton, A., & Ríos Insua, D. (2016). Policy analysis and policy analytics. Annals of Operations Research, 236(1), 1–13. https://doi.org/10.1007/s10479-015-1902-9

Guston, D. H. (2014). Understanding ‘anticipatory governance’. Social Studies of Science, 44(2), 218–242. https://doi.org/10.1177/0306312713508669

Muiderman, K., Gupta, A., Vervoort, J., & Biermann, F. (2020). Four approaches to anticipatory climate governance: Different conceptions of the future and implications for the present. WIREs Climate Change, 11(6), Article e673. https://doi.org/10.1002/wcc.673

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Tõnurist, P., & Hanson, A. (2020). Anticipatory innovation governance: Shaping the future through proactive policymaking (OECD Working Papers on Public Governance No. 44). OECD Publishing. https://doi.org/10.1787/cce14d80-en

UN Office for the Coordination of Humanitarian Affairs. (2025, October 3). Anticipatory action framework Philippines – Tropical cyclones. ReliefWeb. https://reliefweb.int/report/philippines/anticipatory-action-framework-philippines-tropical-cyclones-03-october-2025

CALL FOR PAPERS

This panel invites papers that examine how policy analytics and anticipatory governance interact, and with what consequences for public policy. We welcome theoretical, conceptual, methodological, and empirical contributions, using qualitative, quantitative, computational, or mixed methods, at the local, national, and international levels. The panel is motivated by a simple but pressing question: how can governments and other actors use data, models, and foresight to act before problems fully materialize, and under what conditions does such anticipation improve rather than distort democratic decision-making? We are interested in both the promise and the limits of anticipatory approaches, including the institutional, political, and ethical tensions they generate.

We particularly welcome papers that address one or more of the following themes:

Concepts and frameworks: theorizing the relationship between policy analytics, strategic foresight and anticipatory governance, including insights from policy design, decision analysis and science and technology studies. Papers may ask how anticipation differs from forecasting, planning, or risk management, and how these concepts travel across policy domains.

Institutionalization: how governments embed analytics and foresight as routines rather than one-off exercises, through foresight units, data science teams, and links to budget, planning and legislative cycles. We welcome analyses of organizational design, professional roles, capacity-building, and the barriers that prevent anticipatory practices from becoming durable.

Trigger-based instruments: anticipatory action, forecast-based financing, early warning–early action systems and other instruments that convert predictions into pre-agreed decisions, in disaster risk, health, food security, climate or fiscal policy. Contributions may evaluate whether such instruments change behavior, reduce harm, or create new forms of discretion and responsibility.

AI and computational anticipation: machine learning, nowcasting, simulation, digital twins and AI-assisted scenario generation, including their limits, errors and biases. We encourage critical attention to model uncertainty, data quality, feedback effects, and the political authority granted to computational forecasts.

Politics, accountability and legitimacy: who decides which futures to model, how to handle false alarms and missed events, which voices and vulnerabilities to make visible or invisible, and how citizens can participate in anticipation. Papers may examine accountability gaps, transparency, contestation, and the distributional consequences of anticipatory decisions.

Comparative and Global South perspectives: how institutional capacity, data availability and political systems shape the analytics–anticipation nexus across world regions. We especially welcome work that challenges Eurocentric assumptions and examines resource-constrained, fragile, or rapidly changing settings.

Papers drawing on original data, such as interviews with analysts and foresight practitioners, policy document analysis, evaluations of anticipatory programs, or replication of forecasting models, are especially encouraged, as are practitioner-academic collaborations and critical or post-positivist analyses. Early-career researchers and doctoral students are warmly invited to submit. By bringing together diverse methodological and theoretical perspectives, the panel aims to clarify when analytics and anticipation strengthen public policy and when they reproduce existing power relations or create new risks. Paper proposals should state the research question, the theoretical framing, the data and methods, and the expected or preliminary findings.