Building resilient technology policy through public participation: The case of the Chilean National AI Strategy

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Background

The emergence of artificial intelligence (AI) as new general-purpose technology is influencing how societies shape their development models for the next decade (Bresnahan & Trajtenberg, 1995; Klinger et al., 2018; Trajtenberg, 2018). Even though the concept of AI was conceived in 1956, it was not until the last decade that AI's adoption scale, speed, and risks became a central policy challenge for governments (Taeihagh, 2021). Since the first national AI strategies publication in 2017, there has been an explosive increase to over 700 policy initiatives in more than 60 countries (OECD, 2021).

Recent studies and international discussions on AI governance have emphasized the need to build broad societal consensus around ethical principles and institutions (e.g., Calo, 2017; Gasser & Almeida, 2017; OECD, 2019; UNESCO, 2021). However, members of society with different imaginaries and expectations have different opportunities to frame what is relevant, urgent, possible, or inevitable in technology policy (Sand, 2019; Konrad & Boyle, 2019). Moreover, most AI policies have been developed by "domain experts," leaving "lay people" on the margin, failing to incorporate multiple visions. The latter is problematic because multi-stakeholder processes are becoming ubiquitous amid crises of trust and social unrest that have proliferated during the last few years.

Countries face difficulties in implementing and ensuring the continuity of AI strategies due to changes in governing coalitions and competing social priorities. For example, Mexico and Argentina published their strategies in 2018 and 2019, in the last year of their governments, and were not implemented in depth nor continued by the next governing coalition (Gómez Mont et al., 2020). This manuscript discusses how a participatory approach to AI policymaking can enable policies to achieve higher consensus and resilience. To do so, we conducted an in-depth analysis of the building process of the Chilean National AI policy, in which approximately 10,000 people participated through different mechanisms and stages. This is an interesting case to study as, unlike other AI policies in the region, the Chilean AI policy achieved a high degree of consensus–as measured during a public consultation before the policy was enacted–and has been able to withstand changes in government coalitions to date.

Methods

We undertook a longitudinal case study research approach, accompanying and participating in the development of the AI policy between 2019 and 2022. Utilizing interview data, official documents, and transcripts of grassroots discussions, we mapped the AI policy development utilizing process tracing techniques (Garud, Berends, & Tuertscher, 2018; Langley, 1999, 2007; Van de Ven & Huber, 1990; Van de Ven & Poole, 2005). We chose this design because case studies have

been used for modeling and assessing complex causal relationships (George & Bennet, 2005) and have been found helpful in illuminating decisions (Yin, 2017), both of which enable an understanding of how technology and innovation policy is developed. Longitudinal case studies also enable us to explore AI's technological and social contexts, and the collection of qualitative evidence allows us to identify key process variables.

We divided the policy development process into four stages using an engineering systems architecture approach (Selva, Cameron & Crawley, 2015). In the "Conceive" stage, stakeholders address the challenges and opportunities of AI systems and think of possible solutions to them (e.g., regulations and strategies). In the "Design" stage, stakeholders design a roadmap and build the solution chosen during the Conceive stage. In the "Implement" stage, stakeholders start executing the actions developed in the Design stage. Finally, in the "Operate" stage, the solution owner monitors results, identifies future opportunities and challenges, and can decide to initiate a new policy process. We acknowledge that this framework can simplify uncertain and messy real-world politics. However, practitioners can use this framework to guide AI governance discussions.

Results and discussion

Chile's AI strategy was initially conceived as a top-down, expert-driven process. However, two external crises (Chile's social riots of 2019 and the COVID-19 pandemic) lowered the barriers to adopting a bottom-up approach as there were mounting pressures from different stakeholders demanding involvement and requesting specific policy outcomes. The government responded by adapting the process and its governance to address the bottom-up pressure and navigate the conflicting demands of heterogeneous stakeholders. Furthermore, authorities agreed to foster self-convocated roundtables and organize regional discussions to gather information for the draft, leaving the expert committee only as a consultative group.

The constant relation between demands and responses shaped the AI development process and defined the level of overlap between the four stages (i.e., Conceive, Design, Implement, and Operate). To convince heterogeneous groups to participate, the government purposely developed tools to generate trust and lowered barriers to participation. For example, in the Design phase, there was an open deliberation period in which everyone could discuss and contribute content for the policy. Public officials developed the first draft with that deliberation input, which was later presented for consultation to the public. The option to review and comment on the draft was open to the public. This two-staged model gave the public more accountability and fostered trust in the AI strategy. Another trust-building example was when the government actively argued against the expert/non-expert dichotomy, responding to domain expert groups complaining because of the involvement of "lay people" in the process.

The process generates insights into how the intertwined nature of technology and development in emerging countries shapes public deliberation and moves processes beyond the expert/non-expert dichotomy. Deliberation during the process was usually framed based on Chile's

singularities, deficits (Pfotenhauer et al., 2019), and opportunities to address social goals, all of which directed the AI's development (Schot & Steinmueller, 2018). Key initiatives in the policy's action plan are a US $5 million grant for economic reactivation through AI, a public-private enterprise to foster AI and data science using Chile's unique astronomical potential (see Guridi et al., 2020), and the prioritization of three industrial sectors for an AI Sandbox (i.e., healthcare, logistics, and fintech). Thus, the discussion focused on how AI contributed to the country's overall development, which contrasts with other policy narratives based on developing science and technology for its own sake.

The resulting policy achieved a high level of consensus and acceptance and has survived for more than a year since its publication. Nearly 90% of the people who participated in the consultation highly agreed or agreed with the proposed objective, and more than 80% with the topics and objectives proposed. Furthermore, the policy survived through a change in the country's governing coalition, and to date, the new administration has continued implementing it and engaging in international outreach activities.

We contribute to technology and innovation policy literature by providing insights on how to enable participatory processes to build more resilient technology policies. Governments should acknowledge citizens' reflexive agency to build democratic legitimacy in technology discussions (Biale & Liveriero, 2017). Furthermore, public discussion allows the creation of technology policy with a focus on anticipation, experimentation, participation, and directionality, following Schot & Steinmueller's (2018) transformative change framework. Finally, we show how crises and social unrest can be leveraged to foster participation and innovation when constructing technology policies.