

## Chapter 42

# Co-Designing Participatory Tools for a New Age: A Proposal for Combining Collective and Artificial Intelligences

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## ABSTRACT

*In the context of a citizen lab, this article describes how a vanguard of activists, designers, scholars and participation practitioners were involved in a participatory prototyping process. CoGovern was designed as an online participation tool whose focus is to incorporate citizen preferences in local policy making. It is aimed at supporting informed and transparent participatory processes while reducing the ability of sponsoring authorities to “cherry-pick” policy proposals and avoid providing explanations. This article proposes a decision-making process that incorporates artificial intelligence techniques into a collective decision process and whose result is mainly based on standard optimization techniques rather than vote-counting.*

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## 1. INTRODUCTION

The field of democratic innovations (Fung & Wright, 2001; Smith, 2009) is currently crowded with digital tools aimed at facilitating deliberative and participatory processes. Frequently, these tools emerge within activism environments characterised by a high level of civic engagement and political interest. In particular, most of these environments largely embrace the principles promoted by those social movements in defense of free and open source software such as opensource.org. More recent initiatives also promulgate the coproduction of knowledge between the general public and the scientific community such as Citizen Science (Socientize Consortium, 2013).

This article stems from one of those spaces: MediaLab Prado, a Citizen Lab located in Madrid (Spain). This experimental Lab organized a Workshop for Collective Intelligence on Democracy whose main purpose was to prototype digital tools addressing the challenges posed by citizen participation in the age of social media.

We address some of these challenges by focusing on two main questions: How can digital tools be designed in order to make participatory processes more transparent and accountable? Can artificial intelligence enhance participatory processes in an objective and publicly auditable manner, without deviating from participants' interests?

Firstly, this paper seeks to reflect how a vanguard of activists, designers, scholars and practitioners currently envision what – according to them – will be one of the most common forms of citizen participation in the coming years. Secondly, it proposes the basis for the future development of *CoGovern*, an online citizen participation tool whose focus is to incorporate citizen preferences in local policy-making. Thirdly, our tool proposal aims to ensure informed and transparent participatory processes to avoid that sponsoring authorities cherry-pick policy proposals and omit to provide explanations. And finally, for these purposes, this article proposes a decision-making process which incorporates artificial intelligence (AI) techniques in order to align citizen preferences, budgetary constraints and priorities, or strategic objectives about what policies and investments should be chosen for implementation.

The result has been the initial design of *CoGovern*, a prototype web application in which citizen participation is grounded in information fusion (Torra, V. & Narukawa, Y., 2007), argumentation theories (Awad, E. et al., 2015), and standard optimization techniques. In other words, the main substantive contribution is to propose a decision-making process in which the outputs – normally participatory policy proposals – are selected using optimization techniques. The central argument is that a proposal selection method based on the best possible combination, according to previously agreed and weighted criteria, instead of the traditional vote-counting system, can enhance participatory decision making.

The article proceeds as follows. The next section presents the sociological and technological research background. In particular, it introduces artificial intelligence techniques that can be applied to decision support in the context of political participatory processes. Next, we present the methodological approach which is based on a collective intelligence (CI) experiment; more specifically, a case study about a Citizen Lab is described. Subsequent section presents the resulting prototype design by focusing on its graphical design, functionalities, and automated decision making. Lastly, some implications of these types of participatory tools and future research paths are discussed.

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