

## Innovating in democracy - Machine Learning and Social Participation: can we hack lawmaking?

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Since 2010, Brazil debates on the draft of a Personal Data Protection Bill. In 2015, a proposed text was presented to the National Congress by the Brazilian Presidency and even after 5 years of intense debate Congressmen say it is not mature enough and it has not been yet subject of the political debate inherent to a representative model. Given this, can we hack the legislative process? Furthermore, can technology be a mechanism of change in the political process?

The preliminary project was presented by the Brazilian Ministry of Justice in an online platform in two different moments:

- (i) 5 months between 2010 and 2011: any people could comment and propose articles under general personal data protection principles identified as keys elements by the Ministry of Justice, which used the over 800 contributions to draft a personal data protection bill that was then internally discussed.
- (ii) January-July 2015: after significant international events and the evolution of personal data protection regulation worldwide, the Ministry of Justice designed another platform with the full text of the bill for any stakeholder comment on articles and propose addition and deletion.

In this second phase, the Ministry of Justice had the support and technical guidance of the Web Technology Research Center (Ceweb), at the Brazilian Network Information Center (NIC.br) to draw up the comments on the platform into a new draft bill. Ceweb, in partnership with the Ministry of Justice and the National Institute of Science and Technology for the Web, at the Federal University of Minas Gerais (InWeb / UFMG), proposed a series of tools to help systemize the public contributions, making a series of statistical analysis and inferences that would help the legislator frame the discussion and reflect into an optimal democratic outcome.

Legislative processes are usually carried out by a small number of people (sometimes only one) who, based on the deep knowledge of the matter that is in consultation, can correlate, adjust, fit and rewrite the discussion. This can be carried out in a virtual platform, cabinets or parliamentary sessions - the rapporteur or the policy maker will, ideally, balance the different nuances of the comments, suggestions and criticisms made on the participants. The difference between a virtual and an analog debate is the potential for broader access from stakeholder outside the political sphere and transparency on the process. Undeniably, the virtual process can also be captured by the “louder voices” and “be perceived as a purely expressive form of engagement that provides the illusion of having a meaningful impact on social change (Morozov, 2009)” (Theocharis 2015).

On the other hand, machine learning tools and textual analysis have been widely used to extract relevant information in public data available on the Web, with objectives of analysis of trends, highlights and other important points for democratic processes and other areas of research. The goal was to bring democracy and technology together, so that the latter could collaborate to find patterns, correlations, highlights and details present in both the comments and original text, making it easier to rewrite the bill. Thus, six intelligence processes developed were conducted on the dataset provided by the Ministry of Justice: selection, characterization, extraction of topics, aspects and opinions, correlations and opinion-forming.

The goal of the article is to document the process described above and evaluate its potential hazards and promises: how big must the sample be? How to ensure privacy while pursuing sentiment analysis and understanding of the societal forces behind the law? Machine learning applied to legislative process poses also as a fundamental question on: what is the role of the representative model and the role of the policy maker? Can we substitute the legislator? Can the web be a new platform for direct democracy?

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