Text Analysis to Support Structuring and Modelling a Public Policy Problem-Outline of an Algorithm to Extract Inferences from Textual Data

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Abstract : Policy making situations are real-world problems that exhibit complexity in that they are composed of many interrelated problems and issues. To be effective, policies must holistically address the complexity of the situation rather than propose solutions to single problems. Formulating and understanding the situation and its complex dynamics, therefore, is a key to finding holistic solutions. Analysis of text based information on the policy problem, using Natural Language Processing (NLP) and Text analysis techniques, can support modelling of public policy problem situations in a more objective way based on domain experts knowledge and scientific evidence. The objective behind this study is to support modelling of public policy problem situations, using text analysis of verbal descriptions of the problem. We propose a formal methodology for analysis of qualitative data from multiple information sources on a policy problem to construct a causal diagram of the problem. The analysis process aims at identifying key variables, linking them by cause-effect relationships and mapping that structure into a graphical representation that is adequate for designing action alternatives, i.e., policy options. This study describes the outline of an algorithm used to automate the initial step of a larger methodological approach, which is so far done manually. In this initial step, inferences about key variables and their interrelationships are extracted from textual data to support a better problem structuring. A small prototype for this step is also presented.

Keywords : public policy, problem structuring, qualitative analysis, natural language processing, algorithm, inference extraction

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