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Title: Selective Transparency at Scale: Topic Modeling, Sentiment Analysis, and Multinomial Evidence on FOI Responsiveness

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T09W02 - Machine learning, natural language processing and large language models for policy issues

Abstract: Digital Freedom of Information (FOI) platforms mediate millions of citizen-government interactions annually, yet transparency policymakers face a paradox: the very infrastructure designed to increase openness generates textual data too vast for human review. This creates an urgent methodological gap: How can digital FOI platforms be used to systematically audit administrative responsiveness as an operational dimension of transparency policy implementation? This paper presents an NLP-based diagnostic framework that transforms unstructured FOI platform data into actionable policy intelligence.

We demonstrate the framework’s utility through application to Transparencia.be, Belgium’s national FOI portal. Analyzing 4,265 citizen requests submitted between 2016–2025, we address a question central to transparency policy evaluation: what characteristics of information requests predict whether citizens receive meaningful responses? Belgium’s complex governance structure—with overlapping federal, regional, and municipal FOI regimes—makes it an ideal laboratory for examining implementation variation.

Our analytical pipeline deliberately integrates NLP techniques with conventional quantitative techniques, demonstrating synergies between these approaches. We apply Latent Dirichlet Allocation (LDA) to classify requests into six policy-relevant categories: public finance oversight, urban development, police accountability, council transparency, procurement, and municipal governance. This unsupervised approach surfaces latent thematic structures at a scale infeasible for manual coding. Each topic is assigned an Accountability-Seeking Potential (ASP) score based on theoretical criteria, operationalizing which requests pose greater reputational pressure on administrations. Using the FEEL lexicon, we quantify each request’s emotional valence, capturing a dimension typically absent from traditional FOI audits: do politely-worded requests receive better treatment than confrontational ones? We embed these NLP-derived variables in multinomial logistic regression predicting three outcomes: successful disclosure, refusal, and non-response—enabling multivariate inference familiar to policy evaluation researchers.

Three patterns emerge with direct implications for transparency practitioners. First, high-accountability requests are significantly less likely to receive disclosure and, in several high-stakes domains, less likely to receive any response (non-response), suggesting strategic non-responsiveness to sensitive oversight inquiries. This finding should concern transparency advocates and regulators. Second, positive communication tone substantially increases engagement, suggesting that citizen template optimization could improve outcomes—a low-cost intervention. Third, marked variation across administrative families reveals which institution types require targeted capacity-building or compliance enforcement, while request complexity systematically reduces the likelihood of successful disclosure.

We acknowledge limitations: topic interpretation requires human judgment, sentiment lexicons may miss administrative language nuances, and observational data cannot prove causation. These limitations underscore that NLP tools complement rather than replace human analysts—a point the transparency policy community must understand as enthusiasm for AI-driven solutions grows.

The framework can be applied to other FOI platforms using similar data structures, such as Ma Dada (FR) or AskTheEU (EU). By demonstrating how machine learning can surface systematic patterns while human judgment contextualizes findings, we offer a replicable approach to evaluating transparency policy implementation that enhances—not threatens—the role of public administration professionals.

The authors intend to present the paper online.