Is Interdisciplinarity a Relevant Criterion for the Selection of Project Proposals by Funding Agencies? A Case Study Implementing a Text-Mining-Based Indicator

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Abstract

Interdisciplinarity is often among the criteria adopted by funding agencies to select project proposals. Indeed, they wish to identify research projects pursuing questions irrespective of established disciplinary boundaries, and involving different theoretical and conceptual approaches, techniques, methodologies and instrumentation, perhaps even different goals and motivations.

In the context of DBF[i], a previous project for the European Research Council, we developed an indicator modeling interdisciplinarity by using text-mining and informetric techniques. Here, that indicator is employed to investigate the applications for each call of the European 7th Framework Programme and collected in the e-Corda database.

In a first step the project proposals are categorized according to their main discipline chosen from a finite list. Then, the BibTechMon software extracts the terms from the title and abstract of each proposal and this "bag of words" is analyzed following the "diffusion model" approach. The goal is to attribute to each term its "home discipline" by employing TF-IDF and Gini index to find the discipline where the term appears with the highest probability. After this assignment each discipline has a list of home-discipline terms.

As each proposal is associated to a discipline, its interdisciplinarity indicator is the share of its terms belonging to the other disciplines.

Our hypothesis is that successful proposals get a higher value for interdisciplinarity than non-successful ones. If the results for e-Corda data corroborate those observed in the DBF project, the proof of the usefulness of this indicator in the decision-making process operated by funding agencies will be strengthened.